



FLOOD PREVENTION AND LAND DRAINAGE (SCOTLAND) ACT 1997 BIENNIAL REPORT No. 5 NOVEMBER 2005



The Highland Council
Project Design Unit
Design Team 3
Brora

FLOOD PREVENTION AND LAND DRAINAGE (SCOTLAND) ACT
BIENNIAL REPORT No. 5, November 2005

This document was revised as follows:-

Revision Status Indicator

Page no.	Date	Revision	Description of change

Introduction

Flood Prevention and Land Drainage (Scotland) Act 1997

In March 1997 the introduction of the Flood Prevention and Land Drainage (Scotland) Act 1997 instigated changes to the responsibilities and duties of Local Authorities in Scotland.

This Act amended the Flood Prevention (Scotland) Act 1961 and repealed sections of the Land Drainage (Scotland) Act 1930 and the Land Drainage (Scotland) Act 1941.

In respect of this Act the flooding referred to is the flooding of land, not being agricultural land. Flooding of agricultural land falls outwith the requirements of the Act.

The implications on The Highland Council of this Act impose the following additional requirements:-

- a) **Assessment of Watercourses**, from time to time for the purpose of ascertaining whether any such watercourse is in a condition likely to flood.
- b) **A Duty to Maintain Watercourses**, which are in a condition likely to cause flooding, or where works would substantially reduce the likelihood of such flooding.
- c) **Notification of Local Authorities outwith the Area**. Where it appears to The Highland Council that any watercourse in the area is in a condition which is likely to cause flooding, outwith the area, the Council shall notify the local authority for the area in which that land is situated.
- d) **Reports** shall be published, at two year intervals.

In recognition of these requirements The Highland Council prepared and implemented a Flood Prevention Policy, a copy of which is included in Appendix A of this report.

This report is published in accordance with reporting requirements of the Act identified in paragraph 1.d above.

Previous reports were published in November 1997, November 2000, November 2001 and November 2003.

Flood Alleviation in the Highlands

The Council have published a leaflet 'Flood Alleviation in the Highlands' a copy of which is included as Appendix F.

This leaflet seeks to give advice to the public on their responsibilities, coupled with details of the responsibilities of the Council, Scottish Water and the Scottish Environment Protection Agency (SEPA) in respect of flooding issues. It recommends that the public prepare for flooding and contains sensible precautions. The leaflet goes on to contain details of what to do if flooding occurs.

Contacts

Should you need any information on any issues relating to flooding or for assistance during flooding events then please contact the following:-

Normal Working Hours

Caithness	01955 607761
Sutherland	01408 623400
Ross and Cromarty	01349 868440
Inverness	01463 703111
Nairn	01667 458522
Badenoch and Strathspey	01540 664910
Lochaber	01397 709000
Skye and Lochalsh	01478 612727

Out of Hours Emergency Numbers

Housing Services	0845 700 2005
TEC Services/Social Work Services	0845 769 7284

Reporting Requirements of the Flood Prevention and Land Drainage (Scotland) Act 1997

The Act states that each Local Authority in Scotland shall prepare and publish a report specifying:-

- a) The measures which they consider that they require to take to prevent or mitigate the flooding of land in their area.
- b) The measures which they have taken since the date of publication of their previous report to prevent or mitigate the flooding of such land.
- c) All occurrences of flooding of such land since the publication of their previous report.

This report has been prepared to meet the reporting requirements of the Act, and has been subdivided into the three reporting headings specified above.

Measures Required to Prevent or Mitigate the Flooding of Non Agricultural Land

Introduction

In recognition of the impact of flooding on commercial and residential properties coupled with the new responsibilities placed on to the Highland Council as a result of the Flood Prevention and Land Drainage (Scotland) Act 1997, measures to prevent or mitigate flooding are being addressed on a number of fronts.

One issue being addressed is the control of the location and nature of future developments. Careful consideration of flooding and the potential impact on developments in respect of all Planning Applications and future developments has been included in the Highland Structure Plan. The Highland Structure plan will also feed into and influence future revisions of the Local Plans within the Highland Area.

SPP (Scottish Planning Policy) 7 includes a flood risk framework which requires planners to respond to development proposals in known flood risk areas as follows:

Little or no risk area (less than 0.1% (1:1000)) - no general constraints.

Low to medium risk area (0.1% to 0.5% (1:1000 - 1:200)) - suitable for most development but not essential civil infrastructure.

Medium to high risk area (0.5% (1:200)) or greater – in built up areas with flood prevention measures most brownfield development should be acceptable except for essential civil infrastructure; undeveloped and sparsely developed areas are generally not suited for most development.

Aside from policy implementation there are the reactive measures needed to address flooding events at locations which are known problem/at risk areas.

Known at risk areas vary significantly in size and impact, and as such differing solutions are identified. These vary from schemes where significant investment and capital build is necessary and Flood Prevention Orders are required to permit construction, down to minor maintenance works to alleviate localised flooding issues.

These strategies are further considered thus:

Implementation of The Highland Council Structure Plan

The Highland Council's Structure Plan constitutes the Council's strategic land use planning framework. The Highland Council's Structure Plan became operative on the 26 March 2001.

When considering sustainable development it is fundamental that the risk from natural hazards is evaluated. To reduce the potential of flooding of future developments and to limit development in flood risk areas the Structure Plan addresses Natural Hazards and more specifically Flooding.

The section relating to Natural Hazards of the Structure Plan, see Appendix B, includes the following proposals:-

Proposal NH1 Flood Consultation Areas

Local Plans will identify areas with a perceptible risk of flooding with assessment of development proposals within these areas for compatibility with flood risk.

Proposal NH2 Flood Appraisal Group

The Council will establish a Flood Appraisal Group to provide a coordinated approach to flood management.

Proposal NH3 Integrated Catchment Management Plans

The Council will support integrated catchment management plans.

The finalised Spey Catchment Management Plan was launched in June 2003. This provides an integrated management plan for the sustainable use of the water resource in the Spey catchment.

Local Plans

The Council will require development proposals, in all but exceptional circumstances, to comply with the guidance contained in the Sustainable Urban Drainage Systems (SUDS) Design Manual for Scotland and Northern Ireland, produced by the Sustainable Urban Drainage Scottish Working Group and the framework for an agreement drawn up by COSLA and the Water Authorities. Development proposals will be assessed for any requirement to provide related attenuation measures and where necessary, remedial works associated with existing drainage systems. There will be a strict presumption against development not associated with the open space functions of the "green" corridors adjoining rivers and burns as identified in the Local Plan, to avoid jeopardising their potential for disposal or attenuation of surface water.

Flood Risk

Development proposals within areas known to be at risk from flooding will be assessed for their sensitivity according to the following hierarchy:

HIGH	(eg sheltered housing, hospitals, emergency services, major public venues)
MEDIUM	(eg housing development)
LOW	(eg golf course, car parks)

There will be a presumption against high sensitivity developments unless an exceptional need can be demonstrated. Proposals will be considered high risk if they pose an unacceptable threat to public safety, may cause pollution if flooded or may give rise to inordinate public expenditure on flood prevention works. The costs of providing necessary flood prevention works as a result of proposals will be met by developers whether on or off site and regardless of the level of sensitivity.

Medium and low sensitivity developments will be assessed against the following criteria:

Developers must demonstrate that any new building can be adequately protected from flooding and, where appropriate, remedial measures to alleviate the flood risk have been taken.

Evidence is provided that there is no adverse impact on the natural characteristics of the watercourse;

Any such protective/alleviation measures will not involve The Council in inordinate public expenditure.

Developers must employ the use of best management practices in the disposal of surface water runoff.

Layout and building design must take account of the need to ensure proper evacuation procedures.

The Council supports preparation of Integrated Catchment Management Plans for the main rivers in the Plan area. This will enable flood appraisal and management in the context of wider development and land use activities. The establishment of a Flood Liaison and Appraisal Group involving partner agencies and other interests, facilitates a coordinated approach to projects and programmes, and advises on river-related works which do not require planning permission, consistent with Scottish Planning Policy 7.

Highland Flood Liaison and Appraisal Group

Highland Flood Liaison and Appraisal Group (FLAG) was set up in November 2002 and is an informal and advisory group tasked with promoting sustainable flood management for the whole of The Highland Council administrative area.

Highland FLAG meets every quarter, and is convened by the Council. A variety of people from several different organisations attend the group. These include planners, emergency planners and engineers from The Highland Council, representatives from SEPA, SNH and Scottish Water and also an insurance representative.

The FLAG has been set up in order to obtain information on flood risk areas to be used in such things as formulating planning policies and advising on planning applications and land allocations. The group will also contribute to a range of other work including Catchment Management Planning, Sustainable Urban Drainage Systems and other Building Control Matters.

The Remit for the Flood Liaison and Appraisal Group is :-

- To assist and promote sustainable flood management over the whole of The Highland Council administrative area.
- To obtain information on flood risk areas and to prepare maps for inclusion in both Emergency and Local Plans.
- To assist with the formulation of planning policy in relation to flooding issues with a view to preparation of a Guidance Note.
- To advise on significant planning applications, development briefs and proposed land allocations within or affecting areas of flood risk.
- To advise on proposals for flood prevention and alleviation works to make recommendations with regard to the desirability of such works.
- To seek ways of enhancing flood warning systems for example, by promotion of the use of Automatic Voice Messaging Systems.
- To identify, support or commission research into flood related matters.
- To provide a forum for reaching an integrated view on flood risk and its consequences, including coastal erosion and inundation.
- To contribute to the biennial preparation of the report under the Flood Prevention and Land Drainage (Scotland) Act 1997.
- To contribute to any other relevant work, including Catchment Management Planning, Sustainable Urban Drainage Systems and any relevant Building Control matters.
- To set an annual work programme for actions.

For further information on Highland FLAG, please contact:

David Gray
Telephone: (01463) 702264
Email: david.gray@highland.gov.uk

Major Flood Prevention Schemes

In response to known flood risk areas The Highland Council is currently appraising a number of flood prevention/alleviation schemes, for progression of statutory consents and future implementation, subject to the availability of finance. Schemes currently being evaluated are detailed below.

Caithness

Thurso Flood 12 January 2005

On 12 January 2005, Thurso's Riverside area experienced severe flooding caused by a combination of an extreme high water, River Thurso in spate and a storm surge.

The incident was reported at 0900 and lasted for approximately two to three hours. During this time Thurso Harbour was overtopped and Riverside Road and surrounding properties flooded. Upstream of Sir George Street Bridge the park was severely flooded to the east side. However no commercial or residential properties were affected and damage was minor.

During the flooding the emergency services and Transport, Environmental and Community (TEC) Services were in attendance. Sand bags and pumps were supplied. However the rapid rise in water levels prevented sand bagging prior to properties being flooded. A number of roads were closed and signs erected. Throughout the flooding incident and afterwards the Thurso squad helped to limit the damage caused by flooding and assisted in the clean up operations.

As a consequence of the flooding TEC Services commissioned the engineering consultant, Arch Henderson to undertake an assessment of the properties at risk of further flooding and the return period for a similar event. A preliminary report has been completed and will be presented to the Caithness Committee in November 2005 for approval to proceed with cost benefit analysis and design work.

Inverness

Inverness, Smithton, Culloden and Balloch Flood Prevention

In recent years there have been increasing problems where the burns draining the catchment area to the south of Inverness meet developed land.

Consultants HR Wallingford were commissioned to undertake an audit of previous technical reports and make recommendations for immediate action.

HR Wallingford have recommended that the resistance to flow through the urban area should be reduced and arrangements are being put in hand to implement these measures as soon as finance permits. The measures will include removal of silt and other existing obstructions, clearance of vegetation and strengthening of vulnerable burn edges.

HR Wallingford further confirmed that a diversion to Holm Mains Burn would be the best long term drainage strategy. It is envisaged that sufficient flow would remain in any existing watercourses to maintain dilution of disposal from downstream developed areas, prevention of stagnant pondings and to preserve amenity value and local diversity.

The Council have employed a flood specialist Consultant, Mouchel Parkman, to advise and report on all areas south of Inverness, from the River Ness extending eastwards to Balloch. A number of reports and recommendations are complete, other reports are underway:

Feasibility study and recommendations have been completed for the south west area of Inverness.

It is proposed that the Lochardil Burn and Ault na Skiah Burns be dealt with by diverting floodflows via an artificial channel and an improved Holm Mains Burn to the River Ness. Detail design is in progress. An economic appraisal has been completed. A Flood Prevention Order has been drafted. Approval of this Order will allow the Council to implement the Scheme.

An Environmental Assessment has been completed for the schemes in the south west area of Inverness. This study considered the environmental effects of the proposed schemes and make recommendations for consideration. These have been incorporated in the draft Flood Prevention Order.

The feasibility study, recommendations and economic appraisal of the Mill Burn is also complete. Similarly, detail design is underway and it is proposed that a Flood Prevention Order be prepared and promoted for the scheme. The scheme will involve minor improvements of the watercourse and a diversion of a short section of the burn during times of flood.

A feasibility study is complete for the Dell Burn. The options are currently undergoing economic appraisal. A satisfactory appraisal will lead to the preparation and promotion of a Flood Prevention Order. The scheme will involve culvert improvement, provision of attenuation ponds and general watercourse improvements. The Scottish Executive have made improvements to the flow capacity of the A9(T) Trunk Road drainage between the entry of the Dell Burn and the Raigmore Interchange.

A feasibility study has been undertaken for the Smithton, Culloden, and Balloch areas. Options have been appraised. Maintenance work and cleaning has been carried out in a series of several works schemes. Further watercourse improvements which require Flood Prevention Orders are under consideration.

River Ness, Inverness

As identified in previous reports, objections to a proposed scheme at Ness Bank to protect several properties and the road were received. A specialist Consultant Mott MacDonald and Partners has reviewed the 1990 report on flooding incidents for Inverness, between Holm Mills and the Moray Firth. This review which is a pre-feasibility report, incorporates the latest advice on climate change and sea level rise, and includes an overview of the existing flood protection. A pre-feasibility report which will include recommendations is about to be published. Any improvements which are required will need the promotion of a Flood Prevention Order.

Drumnadrochit, River Enrick and River Coilt

Following flooding on the River Enrick, The Highland Council commissioned the Consulting Engineers, Halcrow Crouch, to assess the flooding risks.

This assessment included:

- a) A review of the 1990 flood study with identification of changes during the last decade.
- b) An inspection of the valley from Corrimony to Urquhart Bay.
- c) Consultation with the River Enrick Riparian Committee.

The report concluded that the last decade has seen an increase in the number of floods and that the development of a flood warning system is a good way of managing flood risk.

The report also made recommendations for the short and medium term. These recommendations include the clearing of tree debris, rip rap protection, monitoring of structures, monitoring of erosion, with the recommendation that further feasibility studies and flood risk assessments be carried out.

Most of the Phase 1 works for the River Coilt and some of the Phase 2 works identified by Consultants Mott MacDonald have been completed, involving the placement of 3850 tonnes of rock as bank protection. Funding will now be sought to complete further works downstream of the A82 Trunk Road.

A joint project involving The Highland Council, landowners and riparian owners commissioned a study by an independent consultant to assess the River Enrick catchment. A Catchment Management Plan in accordance with The Highland Council's Structure Plan is being developed to fully consider and advise on the future management of this catchment. Following this joint project a SAFER project has been set up. SAFER (Strategies and Actions for Flood Emergency and Risk Management) is supported by the Interreg IIIB programme and is promoting flood warning, community involvement and natural river management for these river systems.

Lochaber

Fort William, Caol

A scheme was prepared to prevent flooding of Caol and Lochyside. A draft Flood Prevention Order has been prepared but not published. Since the flooding in January 2005 a specialist Consultant Mott MacDonald & Partners has been employed to examine the River Lochy and the coastal protection at Caol. A report is currently in preparation.

Minor Flood Prevention Measures

Caithness

Unknown Watercourse, Whaligoe, Ulbster, Watercourse Ref C6

Works undertaken 2004 and planned for Oct/Nov 2005

Proposed works planned for Oct 2005 consisting of removal of debris and vegetation from invert and banks. Currently awaiting approval from Scottish Natural Heritage prior to works commencing.

Unknown Watercourse, West Gills, Thurso, Watercourse Ref C12

Works planned for Oct/Nov 2005

Proposed works planned for October 2005 consisting of removal of debris and vegetation from invert and banks downstream of A836 culvert.

The Crescent, Glengolly, Watercourse Ref C18

Works not programmed

Following severe and sustained rainfall on the 21st Oct 2004 the land drain in the adjacent field failed to cope with the volume of water draining into a natural depression. This overflowed causing the gardens to the rear of properties at The Crescent to flood. Pumps were supplied to over pump the flood water to a road surface drain. Design for work progressing. No start date programmed.

Groat's Loch – Loch Watenan, Watercourse Ref C21

Works planned for Nov 05

Remedial works to the bank of the burn which collapsed due to trampling by cattle. Currently awaiting land owners permission to enter land.

Inverness

During the summer of 2005, Inverness TECS carried out inspections of all urban watercourses in the Area and for the first time a comprehensive photographic record of this was created. A numbering system was established and details of potential problem areas were noted. Using this information a revised formal inspection regime is currently being set up.

There has been continued cooperation with Scottish Water, Consultants, SEPA and Forest Enterprise in seeking to resolve flooding problems.

There have been continued consultations with SEPA, Scottish Water and private Consultants and Contractors to agree SUDS proposals associated with new developments and to make recommendations to Planning Authority.

Lochaber

Clanranald Terrace, Mallaig

Behind houses, 3 monthly inspection of manholes are carried out at this location.

A82 Achintore Road

The Scottish Executive have issued an instruction to renew two new culverts where problems occurs.

Rear of Argyll Terrace, Heathercroft, Fort William

A very large development is proposed and hydrological studies have been requested before approvals granted. The drainage for the area of interest has to have unrestricted flow to Loch Linnhe.

Measures Taken to Prevent or Mitigate the Flooding of Non Agricultural Land Since November 2003

Implementation of the Flood Prevention Policy

Following the Roads and Transport Committee approval of the Flood Prevention Policy on the 11 June 1997, this policy has been implemented throughout The Highland Council Area. The policy is included as Appendix A of this report.

The preparation of the second Biennial 'Flood' Report, published in November 2000, identified inconsistencies in the reporting of flood incidents across the Highlands.

To address this identified problem, guidance was issued through the biennial report on the definition of a flood, to clarify to compilers the trigger for implementation of flood reporting procedures.

A thorough review of the requirements of the 'Act' has been undertaken by The Highland Council, to ensure both compliance with the Act and also ensure a consistent approach to implementation by the Area Service Managers of the eight Areas of The Highland Council Area.

National guidance is currently unavailable, so the review initially involved the appraisal of reporting procedures undertaken by the Local Authorities throughout Scotland, held by the Scottish Executive. Best practice from these reports was established and implementation guidance prepared and circulated.

The completed document contains clarification of responsibilities, legal advice, standardisation of approach and reporting and funding application issues.

Guidance on the referencing/scheduling of watercourses, requirement for an initial desk top assessment and prioritisation of watercourses together with identification of the related assessment regimes are contained therein. Examples of the reference schedule and assessment check chart are included as Appendix C.

An example of a watercourse assessment is included as Appendix D.

In addition to the assessment of watercourses, there is also the requirement and standardisation of Flood Reporting. See Appendix E.

Work is currently underway by both the Scottish Executive and the Society of Chief Officers of Transportation in Scotland (SCOTS). Assessment of the implementations by each council has been undertaken and guidance is to be provided. The assessment undertaken by the Scottish Executive assessed The Highland Council as 'producing a comprehensive report with full documentation of measures required and measures taken. Very clear pro-forma for water course assessment and reporting flooding incidents.'

Emergency Planning

The Highland Council have an Emergency Planning Unit whose responsibility it is to plan for emergency events and also co-ordinate resources in reaction to emergencies. Flooding is covered and co-ordination of response to flooding events occurs.

An emergency plan, in respect of flooding, has been developed from evaluation and appraisal of the effectiveness in responses to previous flood events.

The emergency plan is triggered on identification of the possibility of a flood using the Scottish Environment Protection Agency (SEPA) monitoring system, Met Office Severe Weather Warnings and computer 'Flood Modelling'. Warnings would be issued by Emergency Planning directly to Transport, Environmental and Community Services duty staff and a flood support group would convene at The Highland Council, Emergency Operations Centre, Inverness.

This group is drawn from:

- a) The Highland Council
- b) SEPA
- c) Police
- d) Fire Service, and
- e) HM Coastguard, if applicable.

The object of these parties in meeting, is to alert relevant bodies to the flood risk, establish availability of resources and implement a coordinated response, with the aim of minimising and managing the impact of any flooding.

All relevant information would be available to this group. The bulk of the information would be obtained from river telemetry and weather forecasting however, additional information will be obtained from actual rainfall, lying/melting snow, observers, tide tables, tidal surge data and historical information from previous events.

National Helpline

A development that came into force on 1 November 2001 is that of a "Floodline", this is a telephone Helpline, where members of the public can telephone to obtain information on the state of flooding or the conditions of watercourses and rivers in their local area. It is based on a similar system, operated by the Environment Agency, which has been running in England and Wales for some time.

The warning element is based on one or more of the following conditions being announced during television and radio weather broadcasts and programmes, **note Inverness and Nairn are used as an example :**

A " Flood Watch (flooding possible) has been issued for the Inverness and Nairn area "

A " Flood Warning (flooding expected) has been issued for the Inverness and Nairn area "

A " Severe Flood Warning (severe flooding expected) has been issued for the Inverness and Nairn area "

The " All Clear (there are no longer any Flood Watches or Flood Warnings) has been issued for the Inverness and Nairn area."

The **National " Floodline " number is 0845 988 1188.**

It should be recognised that the helpline information is based on the telemetry system (remote flow monitoring) operated by SEPA. There is a limited number of telemetry sites throughout the Highlands and these are restricted to major catchments only.

Works

Flood Alleviation Maintenance Works

The Highland Council is divided into 8 Areas, each administered by an Area Roads & Community Works Manager within TEC Services. Flooding events are managed by the relevant Area Roads & Community Works Manager.

It is the role of the Area Roads & Community Works Manager to initially assess the flooding event and take such emergency measures as deemed appropriate. Often flood events are localised and no residential or commercial properties are affected. Where the cause of the flooding is established and remedial measures are of minimal costs, then these are undertaken.

Works that fall into this category are gully emptying, offlet cutting, removal of vegetation, removal of debris and the like. These works are usually undertaken as an emergency response.

Where flooding events are known to re-occur, local procedures are in place to implement signing, sand bagging and the like at times of impending flood or during flood events.

Due to the minor nature of these floods the reporting of these events are not routinely logged.

Minor Reported Works Relating to Flooding

Badenoch & Strathspey

Minor debris clearing works carried out to Gynack Burn 20m upstream from Spey Street Bridge to 10m downstream of Railway Bridge, 6th – 10th of June 2005. Rock armour protection works carried out on Gynack Burn adjacent to Milden Tower, Milden Road, Kingussie, 21st – 22nd June 2005.

Caithness

Stanergill Burn, Castletown, Watercourse Ref C3

Works undertaken November 2004 and planned for Oct/Nov 2005

Proposed works originally programmed for this October consist of removal of excess vegetation from the banks and invert of the watercourse over a short 50m section. The work is currently delayed due to a change in land ownership and obtaining permission to enter land.

This section of Stanergill Burn together with a section immediately downstream of the Mill Bridge were cleaned out in February 2004.

Brown Trout Hotel, Watten, Watercourse Ref C16

Works undertaken 2004

Replaced kerbs and footways and installed gullies and polychannel to prevent road surface water flowing into hotel carpark.

Unknown watercourse, Roadside House, Scarfskerry, Watercourse Ref C19

Works undertaken Nov 04

Resident trying to stop flooding from an unknown stone culvert using a pump. Several inches of water ponding in his outbuilding. Excavated a trial hole and connected old stone culvert to nearby road surface water drain.

Road Drainage, Kirkhill Farmhouse, Achscrabster, Watercourse Ref C20

Works undertaken Nov 04

Following a period of sustained heavy rainfall, road surface water was prevented from entering drain due to choked offlets. Consequently the water flowed down the farm access and ponded around the house. Offlets cleaned out.

Car Park Lane, Halkirk, Watercourse Ref C22

Works in progress

Replaced a choked polychannel with gully and connection to surface water drain. The existing polychannel was choked with debris and lead into the property which compounded the flooding due to the natural depression in the site's topography.

Nairn/Badenoch and Strathspey

Gynack Burn, Kingussie

Debris clearing works carried out to Gynack Burn 20m upstream from Spey Street Bridge to 10m downstream of railway Bridge 6th – 10th June 2005. Rock armour protection works carried out on Gynack Burn adjacent to Milden Tower, Mill Road, Kingussie, 21st – 22nd June 2005.

Lochaber Area

Storm Drain Checks, are carried out on a fortnightly basis and during periods of heavy rain at the following locations:

North & Town Area

A830 Kilmallie Sawmill, Corpach
A830 Kilmallie Cemetery, Corpach
A830 Duncan MacDougal's, Corpach (2 No.)
A830 Treasurers of the Earth, Corpach (2 No.)
A830 Opposite Hillview Drive, Corpach
A830 Opposite Banavie School
"Loch Leven" House
B8004 - Opposite the Rugby Club, Banavie
Ben Nevis Industrial Estate
Swimming Pool (2 No. at rear of swimming pool)
Police Station
Lochview Estate
Upper Achintore School
Angus Crescent
Pinegrove
Kilmallie Cemetery

South – monthly inspections

Glencoe Village
Oldtown, North Ballachulish
Argyll Cottages
West Laroch Play Park
St Brides School
East Laroch
Lovat Road
Garbhein Crescent
Brown Terrace, 2 No
Wades Road
Foyers Road, 2 No
Hill Terrace



Ballachulish Village

Kinlochleven

West

Granite Square, Strontian
Moss Road, Acharacle (monitor the loch level)
Glencairn (monthly)
Clanranald Terrace, behind houses (3 monthly inspection of manholes)
Columba Road (new house) - monitor ditch ensuring free running

Problem Areas

B8006 - Lochyside, Caol - Problems when high tide combines with flood flows in River Lochy. Flooding of adjacent roads and properties experienced on 11th January 2005 when the Lochaber Area was affected badly by storm surge and tide. As a result of this storm, the Mott MacDonald, "Lochyside Flood Prevention Scheme" has been revisited and updated and was reported at the Area Committee in October 2005. Members noted that the survey work had commenced and agreed to the extending of the Consultants brief to allow a more comprehensive and complete report to be prepared.

Columba Road, Mallaig - New house at Columba Road from village road – will only cause problems if ditch is blocked.

Clanranald Terrace, Mallaig - Behind houses. 3 monthly inspection of manholes are carried out at this location.

A82 Achintore Road - The Scottish Executive have issued an instruction to renew 2 new culverts where problems occur.

Glen Nevis - High river levels

Rear of Garry Crescent, Invergarry - Drains at the rear

Rear of Argyll Terr – Heathercroft, Fort William – A very large development is proposed and hydrological studies have been requested before approvals are granted. The drainage for the area has to have unrestricted flow to Loch Linnhe.

Measures taken for flood prevention since October 2003

Work to the following locations was carried out in order to prevent flooding.

Union Road Fort William – Install Aco-Drain & culvert drainage

Hill Road Fort William – Install Aco-Drain & culvert drainage

Highbridge, Fort William – Install twin 400mm culverts

Sutherland

Police Station Lairg – Clash Breac (S/4/07) -£11,500

Flooding to police station garage and garden. Replace collapsed drain.

APPENDIX A

ROADS AND TRANSPORT FLOOD PREVENTION POLICY



ROADS AND TRANSPORT COMMITTEE

FLOOD PREVENTION POLICY

The Council's general policy on Flood Prevention Maintenance and assessment was agreed at the Roads and Transport Services Committee of 11/06/97.

The general policy is as follows:-

1. Assessment

- 1.1 It is proposed that formal assessments are carried out by a member of staff in Network Management with close involvement of Area staff. These assessments will be prioritised as follows:-
 - a) Know areas of flooding
 - b) Urban areas, in order of size of population and possible risk of flooding
 - c) Rural areas, in order of possible risk of flooding
- 1.2 The assessments shall be carried out when resources permit. Given the magnitude of the task the requirement to carry out the assessments "from time to time" is likely to lead to the intervals between assessments to be several years. It is also unlikely that all the watercourses that require to be assessed will be completed in less than 3 years.
- 1.3 SEPA have responsibilities to also carry out formal assessments. Co-operation between the Council and SEPA will be instigated to reduce duplication of effect.

2 Works

- 2.1 Where the need for work is identified by the assessment process then the works will be carried out in order of priority within available resources. Prioritisation will consider the following:-
 - a) Where there is risk to life.
 - b) Where there is risk to property which shall be prioritised in the order of residential premises; commercial premises; residential land; commercial land.
 - c) Areas of denser population will be given higher priority than single residences.
- 2.2 The prioritisation will take into account the frequency of the risk. Flood frequencies are expressed in terms of statistical return periods which are expressed in terms of 1 in 5 years, 1 in 20 years return periods, etc. These indicate that a 1 in 20 year flood is likely to occur, once during a 20 year period.

However with all statistical analysis the actual occurrence of flooding may be more or less frequent than the prediction. There is also no method of predicting when a 1 in 20 year flood may occur. The lower the return period, the higher the risk of flooding.

2.3 The prioritisation will take into account the possible magnitude of the effects of a flood event.

2.4 Works will be carried out when resources are available.

3 **Formal Flood Prevention Schemes**

Where the assessment identifies a potential problem which will not be alleviated solely by works under Section 2 of 'The Flood Prevention (Scotland) Act 1961', but would be alleviated by a formal flood prevention scheme, the feasibility of such a scheme will be investigated with a view to considering such a scheme in the Service capital Expenditure Plan.

4 **Review**

4.1 In consideration that these are new duties imposed on the Council, it is proposed to review this strategy at suitable intervals as necessary.

At the meeting of the Roads and Transport Services Committee on 27/08/97, the minutes of the Roads and Transport Strategy Group of 19/06/97 were agreed which included the following policy:-

- Procure flood prevention works only for residential properties and public roads.
- Allocate capital and revenue funds to flood prevention schemes within the budget constraints imposed on the Service, along with adequate resources to procure schemes within the required timescale, taking into account the Statutory requirements.
- Maintain flood prevention schemes constructed by The Highland Council or the previous authority, but not those constructed by other parties except where failure to do so would threaten property.
- Make discretionary contributions to flood prevention works procured by others as deemed appropriate in order to procure flood prevention works.
- Those parties promoting Flood Prevention schemes be informed of the Council's inability to fund their schemes in view of the restricted availability of capital expenditure and the schemes already programmed in order that alternative funds could be investigated by them.

APPENDIX B

EXTRACT FROM THE HIGHLAND COUNCIL STRUCTURE PLAN NATURAL HAZARDS

2.19 NATURAL HAZARDS

2.19.1 In creating the infrastructure for Highland communities, it is essential that full regard is taken of the constraints that exist because of natural hazards. This is a fundamental component of sustainable development, because insufficient attention to natural hazards at the outset can require considerable remedial expenditure in the future. There may also be difficulty in reconciling remedial action with the quality of the natural environment. Some natural hazards have increased in prominence as a result of the consequences of global warming. The issue relates strongly to the strategic themes of proactively planning for Highland's natural environment and of providing for quality living environments.

Flooding

2.19.2 Combinations of high rainfall, snow melt, high tides and "storm surges" can lead to serious flood occurrences at lower-lying, near-coastal locations. Localised flooding can occur after periods of very heavy rainfall, abetted perhaps by river defence works upstream or the limited capacity of culverts and drainage infrastructure. Recent years have seen flood incidents on, for example, the Rivers Spey, Ness and Kerry. Given the geography of Highland and its land use pattern, The Council believes flooding to be a localised issue, and so the over-riding strategic approach is included within Strategic Policy G2.

2.19.3 Flood consultation areas will be indicated in Local Plans. One source of information can be 1:50,000 scale flood frequency maps prepared for the Scottish Environment Protection Agency, based on current hydrological datasets. Within such areas, development should be assessed for its compatibility with the flood risk in terms, for example, of its permanency of occupation, associated flood alleviation measures, and consequences for downstream flows/flow back-up.

Proposal NH1 Flood consultation areas

Local Plans will identify areas with a perceptible risk of flooding. Within these areas, all development proposals will be assessed for their compatibility with the flood risk and with the flow character of the watercourse.

2.19.4 The Council has statutory responsibilities in respect of flood protection for non-agricultural land. Flood Appraisal Groups have been set up elsewhere in Scotland where flooding is a major issue and a co-ordinated integrated approach is essential. Whilst the problem is not so acute and concentrated in Highland, the anticipated scale of future development in the Inverness area lends The Council to believe that such a Group for this area may be prudent.



INFRASTRUCTURE

Policy Links

- GENERAL STRATEGIC POLICIES
- INTEGRATED RURAL DEVELOPMENT

COMMUNITY

- HOUSING
- RETAILING
- SERVICES AND FACILITIES
- SPORT AND RECREATION

ECONOMY

- BUSINESS AND INDUSTRY
- TOURISM
- AGRICULTURE AND CROFTING
- FISHERIES AND AQUACULTURE
- FORESTRY
- MINERALS AND PEAT
- ENERGY PRODUCTION

ENVIRONMENT

- NATURE CONSERVATION
- LANDSCAPE
- BUILT AND CULTURAL HERITAGE

INFRASTRUCTURE

- TRANSPORT & COMMUNICATIONS
- WASTE
- UTILITIES
- NATURAL HAZARDS



PART TWO: THE POLICIES

NATURAL HAZARDS

Proposal NH2 Flood Appraisal Group

The Council will establish a Flood Appraisal Group, in partnership with key agencies, to provide a co-ordinated approach to flood management and inform Local Plans. This will focus initially within the Inverness area.

2.19.5 Flooding will be one issue covered within Integrated Catchment Management Plans. The Council will support the production and implementation of these strategies (see Policy RD1). In view of the impending designation of the Rivers Spey and Kerry as Special Areas of Conservation under the EU Habitats Directive, the catchments of these rivers should be a priority for integrated strategies. The Council would expect central funding to be made available to facilitate this.

Policy NH3 Integrated Catchment Management Plans

The Council will support the production of Integrated Catchment Management Plans, to include flood management. In view of the prospect of securing EU assistance for preparation, past flood events and the implications of Natura 2000 designation, The Council will support early work on the Rivers Spey and Kerry.

Coastal erosion

2.19.6 The future threat of rising sea levels has increased concern generally regarding coastal erosion where shorelines are low-lying and formed of soft material. There is much uncertainty over this issue, partly in view of the counter-acting force of isostatic rising of land for Scotland as a whole. Broad advice in Government guidance is that natural processes should be allowed to proceed, since eroded materials may form natural offshore defence mechanisms in the longer term. Coastal defence works may, however, be necessary where the economic and social consequences of inundation would be unacceptable.

2.19.7 On a strategic basis, the shoreline of the Inner Moray Firth area around the Beauly, Cromarty and Dornoch Firths has tentatively been identified as at risk from sea level rising (Natural Environment Research Council Report, 1989). Strategic Policy G2, therefore, allows for consideration of resisting developments in coastal zones where the implications in respect of coastal erosion would be unacceptable. This may be either because of future hazard to the development itself, or because development would inhibit the natural opportunity for landward materials to migrate offshore for natural defence purposes.

2.19.8 Detailed work in respect of Nairn and Burghead to the Souters Gap has already been carried out with the preparation of Shoreline Management Plans. Continued monitoring of the situation is recommended to determine appropriate action. The Moray Firth Partnership and the Cromarty Firth Liaison Group provide vehicles for discussion on appropriate measures.

Policy NH4 Coastal erosion

The Council will work with the Moray Firth Partnership and the Cromarty Firth Liaison Group to ensure that coastal management along the Inner Moray Firth is sustainable bearing in mind climate change, particularly the increased incidence of storm damage.

Land instability

2.19.9 Development proposals on steeply sloping land not only face the possible risk of future slope failure, but also the costs of relevant servicing (particularly roads) tends to be high. For these reasons, as a general rule of thumb, land of more than 1 in 7 gradient is not regarded as appropriate for development. Development proposals on ground steeper than this should be accompanied by engineering reports.

Proposal NH5 Land instability

Local Plans will identify land slopes of greater than 1 in 7 gradient within settlement areas, within which Strategic Policy G2 will apply.

Radon gas

2.19.10 Radon is a radioactive gas which occurs naturally in low-concentration uranium within general rocks and soils. Some level of radon is found everywhere, but in certain areas it is released in greater volumes. Inside homes and other buildings the gas can accumulate and become a health risk. The Government advises that when recorded levels exceed 200 becquerels per cubic metre of air, the exposure to the gas should be reduced.

2.19.11 While this level can be exceeded in any building wherever located, householder measurements to date have indicated that a particular concentration occurs in South East Sutherland and South East Caithness. These areas have been designated as a "Radon Affected Area", where radon measurements are particularly recommended. Existing and new buildings can reduce internal exposure to the gas by the installation of an extractor sump or enhanced methods of ventilation.

Policy NH6 Radon gas

Local Plans should identify designated Radon Affected Areas. Within these areas, proposed occupied buildings should incorporate provision for reduction of exposure to the gas.

APPENDIX C

WATERCOURSE REFERENCE SCHEDULES & ASSESSMENT CHECK CHART EXAMPLES

WATERCOURSE REFERENCE SCHEDULE

(To be reviewed and updated as required)

AREA: INVERNESS

Reference No.	Watercourse	Location	Origin Ref.	Grid	Outfall Ref.	Grid	Priority	Comments	Date File Opened
I/1	River Ness	Weirs at Dochfour to Moray Firth	2612 8395	2660	8470		3	Known flooding at Ness Bank. High river levels and high tides known to cause flooding at Douglas Row.	Ongoing
I/2	Holm Burn	Loch Ashie to River Ness	2638 8359	2644	8422		2	Propping of Holm Bridge on the B862 has been modified and is now less susceptible to flooding.	July 2001 Photographs only
I/3	Lochardil Burn	Balmore of Leys to Lodge Road, Inverness	2668 8406	2679	8432		1	Flooding of 5 houses several times in last four years, Drumdevan Road.	May 2001 Photographs only
I/4	Slackbuie	Lower Slackbuie to 11 Green Drive, Inverness	2672 8421	2669	8428		1	2 houses flooded opposite Green Drive.	July 2001 Photographs only
I/5	Ault na skiah	East of Leys castle to River Ness	2687 8412	2665	8441		1	Known flooding of 12 Lodge Road.	July 2001 Photographs only
I/6	Druid Burn	Druid Temple to 20 Heather Road, Inverness	2688 8421	2680	8437		1	Flooding of Sir Walter Scott Drive/Old Edinburgh roundabout due to culvert blockages.	July 2001 Photographs only
I/7	Mill Burn West	Parks to rear of 28 Grebe Avenue, Inverness	2690 8426	2680	8436		1	Known flooding to several houses once in last 6 years.	July 2001 Photographs only
I/8	Mill Burn	Milton of Leys to Moray Firth	2698 8418	2684	8459		1	Houses at end of Diriebugt Road flooded several times over the years.	July 2001 Photographs only

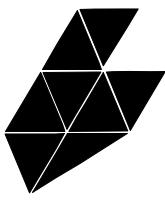
ROUTINE FLOOD ASSESSMENT CHECK CHART

Watercourse Ref	Watercourse	Assessment Requirement	YEAR: 2001											
			JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
C1	Dunbeath Water Portormin Rd	Biennial										■		
C2A	Wick River Safeway Car Park	Annual										■		
C2B	Wick River Distillery Lade	Annual										■		
C3	Castletown East (Unknown)	Biennial										■		
C4	Castletown West (Unknown)	Biennial										■		
C5A	Thurso River (Thurso)	Annual										■		
C5B	Thurso River (Gerston)	Biennial										■		
C5C	Thurso River (Braal)	Biennial										■		
Key: Assessment due and date:			■		Assessment complete			■						
Assessment due and date:			Assessment Complete											

Note: All assessment records shall be filed in the appropriate Watercourse Reference File.

APPENDIX D

ASSESSMENT EXAMPLE



**The
Highland
Council**
Comhairle na
Gaidhealtachd

SERVING The Highland Community

WATERCOURSE ASSESSMENT RECORD

Watercourse:	Wick River
Watercourse Ref:	C2B Pulteney Distillery Lade
Section under assessment:	
From:	3195,9677
To:	3202, 9682
Date:	5 October 2001
Assessment Officer:	I Moncrieff
Reason for Assessment:	Annual inspection
Observations: (Note this to include comment on all:- a Structures/culverts b Debris/Location/Nature c Vegetation Growth)	<p>The lade appears heavily overgrown with vegetation. The stilling pond upstream is overgrown and the outfall sluice gate has collapsed. However, the burn does flow past the remains of the gate freely.</p> <p>The culvert beneath Roxburgh Road is approx. running 50% full after heavy rain (although heavy it wasn't considered to be the annual rain fall event).</p> <p>Screen at the distillery is free of debris.</p>
Recommendations:	Lade should be monitored closely. Any works will need permission of distillery as they abstract water.

APPENDIX E

REPORTED FLOODING OCCURRENCES NOVEMBER 2003 TO NOVEMBER 2005

(Note the following is a summary of the information collated for each flooding incident)

Badenoch & Strathspey

Date	19/08/04
Location	Anaboard Burn U280 Lochindorb
Description	Floodwater at Anaboard 2 bridge making road impassable
Work Undertaken	Road closed signs erected
Work Required	No
History of flooding?	No

Date	06/01/05
Location	Milton Burn Craig na Gower Avenue, Aviemore
Description	Water from blocked culvert flooded garden of 8b Craig na Gower Avenue, house at risk from flooding
Work Undertaken	Temporary culvert arrangement at Aviemore Highland Resort Consortium site, removed by contractor
Work Required	Trees and debris from Milton Burn require to be cleared and new culvert constructed at Aviemore Highland Resort
History of flooding?	Yes, previous problems at similar location. New culvert should alleviate flooding.

Date	06/01/05
Location	Gynack Burn C46 Spey Street, Kingussie
Description	Floodwater at Spey Street Bridge making road impassable, all properties on Gynack Street, Spey Street and Kingussie High School threatened
Work Undertaken	Sandbags placed to divert flow and road closed signs erected
Work Required	Significant volume of sediment and debris build-up in invert requiring to be cleared
History of flooding?	Yes, major flooding in February 1990

Badenoch & Strathspey

Date	07/01/05
Location	River Spey U220 Garvamore, Coul Farm
Description	Floodwater on U220 at Coul Farm making road impassable
Work Undertaken	Road closed signs erected
Work Required	No
History of flooding?	Yes, occasional minor flooding of road when Spey Dam control gates opened

Caithness

Date	08/01/04
Location	C16 Brown Trout Hotel, Watten
Description	Road drainage incapable of carrying away surface water. Water flooded into hotel driveway. Two inches of water lying against gable end
Work Undertaken	
Work Required	Footway improvements extended to include hotel frontage. 25mm drop kerbs will reduce risk of water running into property. Drainage to be investigated
History of flooding?	Yes, persistent problem with road drainage

Date	21/10/04
Location	C18 The Crescent, Glengolly – the gardens of numbers 9,10,11,12
Description	The field slopes down to the gardens on 3 sides and the gardens slope towards the field, with the heavy rain over night, water could not drain away fast enough, threat to houses 9,10,11,12 and garden sheds and greenhouses
Work Undertaken	Kevin Mackay, Thurso foreman, arranged to get 2 pumps to put out the water into a surface drain in the road
Work Required	
History of flooding?	No

Caithness

Date	21/10/04
Location	C20 Kirkhill farm house
Description	Surface water from the road flows down the road, down the farm track and then runs past the house, threatening to flood it
Work Undertaken	No works undertaken today
Work Required	Offlets cleaned out as well as ditches that divert the water, so it continues further along the road, instead of going into the ditch that passes the farm house
History of flooding?	The farm road had been eroded/scoured out in places by heavy rain a few weeks before the incident

Date	22/10/04
Location	C17 Fullerton, Janetstown
Description	Water could not get through the culvert below the road fast enough, water backed up and flooded the corner of 2 fields as well as 2 feet of water at bottom end of the garden, flooded right up to driveway, 6 inches of water on the public road for about 30 metres
Work Undertaken	No
Work Required	Cleaning of ditches and possible culvert replacement
History of flooding?	No

Date	12/01/05
Location	River Thurso C5A Riverside Road, Thurso
Description	Flooding of houses and businesses due to the river being in spate and an unusually high tide
Work Undertaken	Sandbags issued to properties affected
Work Required	Wall/bunding to prevent river from bursting its banks again
History of flooding?	Site has flooded in the past when similar conditions have been present

Caithness

Date	12/01/05
Location	Wick River C2A Wick riverside
Description	Combination of sustained heavy rainfall, a high water and storm surge, caused some flooding to the corner of Somerfield's carpark and extensive flooding to the adjacent public park
Work Undertaken	Sandbagging to the Norseman Hotel and Somerfield
Work Required	No, prevention will require detailed scheme
History of flooding?	Area known to flood under similar circumstances

Date	Exact date unsure, approximately 4 weeks earlier
Location	C21 Smithy Cottage, Ulbster
Description	Dog kennels and barn flooded to a depth of 200/300mm due to excessive amounts of water in the ditch behind the house. Flooded out onto the A9 trunk road as well, causing a hazard to drivers
Work Undertaken	
Work Required	A ditch in a neighbouring field needs to be cleaned out and a breached section repaired to keep water going to loch rather than running down to Smithy Cottage
History of flooding?	General area has a history of flooding, usually water passes behind Smithy Cottage and floods downstream, ditch/pipe at Smithy Cottage must have restricted flow this time

Date	Unknown
Location	C19 Roadside House, Scarfskerry
Description	The outbuildings had several inches of water in them, the owner had a small diameter pump running for two weeks to try and keep the level down and the house was at risk of being flooded
Work Undertaken	Trial hole to establish if culvert (stone built) had collapsed. A pipe was taken from a roadside manhole back to the culvert and also immediately after breaching the culvert and allowing the water to get away, the outbuilding started to drain
Work Required	Works have been completed, culvert was joined into the pipe from the roadside ditch and runs okay
History of flooding?	No

Caithness

Date	Unknown
Location	C22 Oakdean, Cowpark Lane, Halkirk
Description	Road drain outside property is choked causing the garden to flood up to 12" deep and also causing threat to electrical substation
Work Undertaken	Replaced polychannel with gully and connected to SW drain
Work Required	No further action
History of flooding?	The property was built within a natural depression and may be subject to further flooding not caused by the road surface water

Inverness

Date	03/07/04
Location	Redburn Avenue, Culloden
Description	Short term torrential rain resulted in burn overflowing through gardens. Solum of number 49 affected by water, plus two garages belonging to numbers 38 and 40
Work Undertaken	Large box culvert obstructed by flood prevention works being carried out. Obstruction removed by excavator – cleared the problem
Work Required	
History of flooding?	Yes

Date	03/07/04
Location	Moray Park Avenue, Culloden
Description	Stone culvert overflow at house number 79. Flow through gardens, garages and drives of numbers 99, 101 and 103. May have entered solum of number 101. (Short term torrential rain)
Work Undertaken	Sand bags placed to divert flow; culvert under road by number 79 jet cleaned; debris removed from road
Work Required	
History of flooding?	Yes

Inverness

Date	20/08/04
Location	22 Hazel Avenue, Culloden
Description	Water flowing off road toward property (the lowest point in a cul-de-sac), through garden and threatening to enter foundations of house
Work Undertaken	Gullies and drainage system tested and cleaned. It is possible that there was a partial blockage causing the gully to overflow
Work Required	It is unclear why this gully has proved ineffective on a number of occasions over the years during periods of heavy rainfall. Situation to be monitored. Options to raise the kerb levels and/or regrade the driveway may be effective alternatives should the problem re-occur
History of flooding?	Yes

Date	21/10/04
Location	Moray Park Avenue, Culloden
Description	Stone culvert overflow at house number 79. Flow through gardens, garages and drives of numbers 99, 101 and 103
Work Undertaken	Stone drain in numbers 79 and 99 exposed where it had been disturbed and reconstructed with cement bag walls and concrete slab soffit during electric cable laying for housing development. Slabs cracked/broken/collapsed. Invert covered by 100mm thick mat of roots, allowing blockages of silt, gravel and detritus. As much root as possible was removed, and the culvert was jet-cleaned to improve culvert capacity
Work Required	This is immediately downstream of the length of stone culvert exposed during extension to house at number 79. A length of approximately 5m was involved. It would be most appropriate to by-pass the stone culvert completely, as root blockage appears to be quite widespread
History of flooding?	Yes

Date	07/01/05
Location	C29 River Glass
Description	River Glass overflowed at various locations onto Mauld Bridge – Kerrow Brae Road
Work Undertaken	Road closed for duration of inundation. This used to happen frequently, but in recent years has been controlled by hydro dam discharges
Work Required	
History of flooding?	Yes

Inverness

Date	12/01/05
Location	51 Stuart Street, Ardersier
Description	Drainage outfall submerged by high tide and tidal surge. Flooding in Stuart Street depth approx. 100mm, some of which entered property
Work Undertaken	Sandbags placed by DLO at number 51 and other locations advised by concerned residents on same side of road
Work Required	
History of flooding?	Yes

Date	12/01/05
Location	River Ness 10 Huntly Place, Inverness
Description	Bank of River Ness overtopped by combined high flows and tidal surge. Roads were inundated, and water entered property. Owner/occupier complained of sewage contamination
Work Undertaken	Sandbags used in attempt to stem overflow from river over a considerable length. Recommended contact with Scottish Water re sewage contamination
Work Required	
History of flooding?	Yes

Date	13/08/05
Location	Harbour Road, Inverness
Description	Heavy rainfall threatened flooding of car showroom (Bannerman Seat)
Work Undertaken	Sandbags provided and placed across doors to car showroom
Work Required	
History of flooding?	Yes

Inverness

Date	20/08/05
Location	B9006 The Paddocks, by Croy
Description	Water ponding on road in heavy rain. Splash from passing vehicles is causing significant damage to private boundary wall. (Problem notified by landowner)
Work Undertaken	New gully installed on road, discharging to new soakaway made in adjacent field, with the agreement of the landowner
Work Required	
History of flooding?	Yes

Date	22/10/05
Location	20 Moray Park Avenue, Culloden
Description	Water overflowed from old stone culvert following short duration heavy rain (notified by landowner)
Work Undertaken	Inspected for cause of event (inconclusive)
Work Required	This overflow occurred downstream of the recently realigned culvert at Moray Park Avenue. It is suspected that there is a partial blockage of the culvert by detritus. There are no facilities available to properly clean this length of culvert, and it would appear necessary to construct a further length of realigned culvert to divert water (except for small base flow) past the problem area
History of flooding?	Yes

Lochaber

Date	19/01/04
Location	Glenborrodale, Foresters Cottage
Description	Culvert could not cope with volume of water. Threat to outbuildings only
Work Undertaken	Ditching
Work Required	Jetting culvert
History of flooding?	No

Lochaber

Date	19/01/04
Location	Glenborrodale, Achleek
Description	Burn overflowed, rear of house and water entered unoccupied house, also landslide
Work Undertaken	Cleared landslide on 20/01/03
Work Required	By landowner only
History of flooding?	No

Date	19/01/04
Location	River Moidart East Lodge, Glenmoidart
Description	River Moidart burst its banks and flood water entered property
Work Undertaken	No
Work Required	No
History of flooding?	Yes

Date	19/01/04
Location	Loch Shiel Cultalla, Acharacle
Description	Flood water from Loch Shiel threatening unoccupied property
Work Undertaken	Sand bags issued
Work Required	
History of flooding?	Yes

Lochaber

Date	19/01/04
Location	Loch Shiel Moss, Acharacle
Description	Overflow of Loch Shiel threatening neighbouring properties
Work Undertaken	Sand bags issued
Work Required	As per previous recommendations
History of flooding?	Yes

Date	19/01/04
Location	River Moidart Laundry Cottage, Glenmoidart
Description	Flood water from River Moidart threatening but did not enter house
Work Undertaken	No
Work Required	No
History of flooding?	No

Date	19/01/04
Location	River Moidart Glenmoidart Road
Description	River Moidart burst its bank, threatening neighbouring properties
Work Undertaken	Road closed
Work Required	
History of flooding?	Yes

Lochaber

Date	19/01/04
Location	Kenacarra/Old Mill, Kinlochmoidart
Description	Water overflow from burn, water entered properties
Work Undertaken	No
Work Required	Tenants carrying out work to burn
History of flooding?	No

Date	19/01/04
Location	Loch Shiel Pier Road, Acharacle
Description	Loch Shiel overflowed, resulting in closure of the road
Work Undertaken	
Work Required	
History of flooding?	

Date	19/01/04
Location	River Shiel Dorlin, Acharacle
Description	Flood water from the River Shiel, resulting in closure of the road
Work Undertaken	
Work Required	
History of flooding?	

Lochaber

Date	19/01/04
Location	A861 Kinlochmoidart Bridge
Description	Road closed due to collapse of bridge, abutment wash out
Work Undertaken	
Work Required	Replacement bridge
History of flooding?	

Date	19/01/04
Location	Camuschoirk, Strontian private bridge
Description	Bridge washed away
Work Undertaken	
Work Required	
History of flooding?	

Date	11/01/05
Location	A861, B8043, B849, B8007, B8008 Traigh, Inverie Knoydart, Isle of Muck, B863 Invercoe, Cuil Bay, West Bay car park Mallaig
Description	Storm damage with damage to roads and associated structures
Work Undertaken	
Work Required	
History of flooding?	

Lochaber

Date	16/08/04
Location	F Connell (B8044) Gobsheallach Acharacle PH36
Description	Heavy rain – swollen burn – local flooding, flooding of ground floor of property (150mm)
Work Undertaken	Sand bags, pumping out of water (fire brigade) hand machine (360) dig burn
Work Required	Check road culvert when water level drops
History of flooding?	No

Date	12/09/04
Location	Summit View, Banavie
Description	Water entering garage – blocked drain
Work Undertaken	
Work Required	
History of flooding?	No

Date	20/09/04
Location	Loch Shiel Cultalla, Acharacle
Description	Loch Shiel overflowed and threatened unoccupied property
Work Undertaken	Sand bags still there from last time
Work Required	
History of flooding?	Yes

Lochaber

Date	20/09/04
Location	Loch Shiel Moss Road, Acharacle
Description	Flooding of loch due to rainfall threatened 3 properties on Moss Road
Work Undertaken	Road flooding signs erected, continual monitoring
Work Required	
History of flooding?	Yes

Date	20/09/04
Location	Loch Shiel Pier Road, Acharacle
Description	Loch Shiel overflowed resulting in closure of the road
Work Undertaken	
Work Required	
History of flooding?	

Date	08/01/05
Location	Glen Nevis, by the hostel
Description	Road flooded
Work Undertaken	Flood signs erected
Work Required	Debris blocking culvert – requires machine and lorry
History of flooding?	

Lochaber

Date	09/01/05
Location	22 Lundy Road, Inverlochy
Description	Resident stated that water and sewage was 2" deep in his garden and threatening to enter property
Work Undertaken	Issued 20 sandbags
Work Required	
History of flooding?	

Date	10/01/05
Location	Black Parks Road (not council), and Soldier's Bridge
Description	Dangerously high water levels
Work Undertaken	Due high water and in the interest of public safety, a request to close the above was requested. Signs were erected
Work Required	
History of flooding?	

Date	10/01/05
Location	C52 Brackletter Road
Description	Flooding near water treatment plant
Work Undertaken	Road closed signs erected
Work Required	
History of flooding?	

Lochaber

Date	Unknown
Location	Acharacle area, Moss Road
Description	Flooding on Moss Road
Work Undertaken	
Work Required	
History of flooding?	

Nairn

Date	07/01/05
Location	Auldearn Burn U397 Balmakeith Park, Nairn
Description	Flood water adjacent to Balmakeith Park, Nairn putting houses at risk from flooding
Work Undertaken	Sand bags placed as a precaution to divert water
Work Required	Sediment and debris build up in invert requiring to be cleared
History of flooding?	No

Date	12/01/05
Location	River Nairn C68 Harbour Street, Nairn
Description	Floodwater adjacent to Harbour Street, Nairn, putting houses at risk
Work Undertaken	Sandbags placed as a precaution to divert flow
Work Required	No
History of flooding?	Yes, occasional flooding of road and properties when combined conditions of high tides, atmospheric surge and long durations of heavy rainfall occur. Flood occurred 25 th December 1999 flooding Shore Inn, Sun City Market and one house property

Ross and Cromarty

Date	06/02/04 and 21/05/04
Location	2 Seabank, Jemimaville, Cromarty, IV7 8LU
Description	Channel drains blocked and surface water breached property (beach outfall becomes buried). Property breached and sustained flooding and damage to carpets
Work Undertaken	Channel drain and road gullies cleaned, June 04
Work Required	Outfall on beach requires cover
History of flooding?	Not prior to 06/02/04

Date	27/06/04
Location	1 Manse Street, Tain, IV19 1AN
Description	Torrential rain. Gullies NOT blocked but could not cope with surface water. Overspill breached property. Water damage to carpets at above property
Work Undertaken	DLO attended
Work Required	
History of flooding?	

Date	15/08/04
Location	25 High Street, Alness
Description	Heavy Rainfall, inadequate drainage (gullies) 6" floodwater causing damage to shop stock. Stock damaged at shop
Work Undertaken	
Work Required	Routine maintenance of road gullies
History of flooding?	

Ross & Cromarty

Date	16/08/04
Location	49 Ord Terrace, Strathpeffer
Description	Water overflowing from housing car park down onto footpath and then down between houses. Flow scouring out side of footpath/steps and edge of garden. Edge of garden at fence line eroded
Work Undertaken	Passed to Joyce Kirkwood in Housing since car park not adopted
Work Required	
History of flooding?	

Date	18/08/04
Location	Pitcanlie Brae, Nigg
Description	Intercepting ditch at top of slope overflowed following very heavy rainfall event. Road safety threat. Debris washed out onto public road
Work Undertaken	Cut off ditch reformed and undergrowth cut back from banks. Slip material cleared off public road
Work Required	Maintenance inspection annually
History of flooding?	No but problems occurred in area which had already slipped and been repaired

Date	18/08/04
Location	Eathie
Description	Field ditch system and undersized connecting culvert unable to cope with water volume resulting in overland flow. Problem exacerbated by polythene protection covers over field crops preventing natural infiltration. Road safety threat due to slip/wash out of verge into steep sided gorge
Work Undertaken	Enlarged interconnecting culvert between ditches laid, cut off ditch formed around polythene covered crop, ditch cleared of debris/growth. Slip reinstated with rock fill
Work Required	
History of flooding?	No

Ross & Cromarty

Date	21/10/04
Location	Burn Farm, Killen
Description	Culvert blocked causing ditch to overflow, flooding adjacent road and properties. Burn Farm Cottage – driveway washed away
Work Undertaken	Ditching works/cleared culvert
Work Required	Monitor
History of flooding?	Previous flooding 5 years ago with successful insurance claim

Date	13/01/05
Location	U2/87 Glen Glass road below Assynt House
Description	Drainage channel in ground of Assynt House running parallel and above roadside drain burst its bank. Debris blocked roadside drain and water ran down road to location of an earlier land slip and repair. Repair failed and edge of road slid downhill. Threat to road
Work Undertaken	Breach in top drainage channel bank repaired. Dug out old repair to road and down to a greater depth. Backfilled with rock and imported material. Roadside drain cleared out to greater depth
Work Required	Improve drainage slope
History of flooding?	Yes

Date	13/09/05
Location	Frenchmans Burn Stromeferry Bypass
Description	Debris washed down filled stilling basin designed to trap this and resulted in overflows across A890 which deposited 75-100mm thick layer of debris onto road. Road safety threat due to water and debris deposits. Northern Constabulary closed A890 at gates
Work Undertaken	Debris removed from road and stilling basins
Work Required	Continual maintenance/control of deposits in stilling basins recorded as part of monthly rock slope inspection regime
History of flooding?	Yes

Ross & Cromarty

Date	13/09/05
Location	117 Doirganar, Sheildaig
Description	Water flooded over and breached existing course of hillside burn, thus spilling onto roadside verge and in turn crossing the road and washing down driveway of Mr & Mrs Calcott. Scouring of private driveway
Work Undertaken	
Work Required	Clear out hillside watercourse and cut roadside ditch and catchpit
History of flooding?	

Date	Unknown
Location	Whitelodge, The Square, Strathpeffer, IV14 9AL
Description	Water from blocked, possibly damaged, road drains runs down road and seeps into hall causing damage to property
Work Undertaken	
Work Required	
History of flooding?	

Skye & Lochalsh

Date	31/12/03
Location	Frontage of Allan Torrance Associates, The Square, Portree
Description	17:50 call from Police re flooding in the square. James Gordon turned out. 19:30 road closed by Isles Hotel and along the frontage of Allan Torrance Associates. 19:40, I phoned Bill Ross to advise. I phoned Ian Lewis to advise but not at home, I got hold of Mason rep to check their building. Along with Richard Blain we lifted manholes to try to establish the cause
Work Undertaken	
Work Required	
History of flooding?	Yes, once before

Skye & Lochalsh

Date	05/01/04
Location	C67 10 Ullinish, Struan, Isle of Skye
Description	Water running freely down hill in drain accumulating at culvert. The culvert was unable to cope with the water flow, water then flooding across road and flowing into the byre of this residence
Work Undertaken	Inspection of drainage and culverts
Work Required	Requires larger culvert, w/o raised for this works 06/02/04
History of flooding?	

Date	19/01/04
Location	Ashigary, Plockton
Description	Garden around property flooded due to blocked culvert
Work Undertaken	Inspection
Work Required	New culvert
History of flooding?	Yes

Date	19/01/04
Location	Saraig House, Ratagan
Description	Flash flood along with a large amount of timber, gravel and mud around and at the back of the house
Work Undertaken	Sand bags supplied, machine upstream to divert burn
Work Required	Repairs to the road
History of flooding?	No

Skye & Lochalsh

Date	19/01/04
Location	Old School, Letterfern
Description	Blocked culvert damaged the ground around the shed and the shed
Work Undertaken	Inspection
Work Required	Replacement culvert
History of flooding?	Yes

Date	19/01/04
Location	Duirlnish
Description	Threat to property, rising water on upstream side of the footbridge
Work Undertaken	Sandbags supplied, assisted sandbagging premises
Work Required	To be decided
History of flooding?	Yes

Date	13/09/04
Location	Torrin/Elgol
Description	Culvert through house access choked causing house to flood
Work Undertaken	
Work Required	
History of flooding?	Yes

Skye & Lochalsh

Date	13/09/04
Location	Torrin
Description	Culvert through main road not taking the flow of water. Water went down drive washing out Skye marble
Work Undertaken	
Work Required	
History of flooding?	Yes

Date	14/09/04
Location	Alt Slapin Twin culvert Torrin village
Description	Severe
Work Undertaken	No
Work Required	Clear trees and debris
History of flooding?	No

Date	14/09/04
Location	Alt an t-Stratha Bhig Twin concrete pipe by Torrin old quarry
Description	Severe
Work Undertaken	Clear rubble from top ends of pipes
Work Required	Make good wash out, outfall of pipes
History of flooding?	Yes

Skye & Lochalsh

Date	14/09/04
Location	Jac o Bite restaurant, Shiel
Description	Caused by choked ditch, threatening Jac o Bite restaurant
Work Undertaken	Clear ditch by hand, make offlets
Work Required	Clear above properly by machine
History of flooding?	No

Date	14/09/04
Location	Broadford/Torrin
Description	Caused by choked culvert
Work Undertaken	Clear bucket and rubbish from culvert
Work Required	No
History of flooding?	No

Date	15/09/05
Location	Torrin/Elgol
Description	Two culverts by Torrin old quarry rubble washed down the hillside choked both culverts
Work Undertaken	
Work Required	
History of flooding?	Yes

Skye & Lochalsh

Date	20/09/04
Location	38 - 39 Borneskitaig, Kilmuir
Description	Flooding driveway down past the property, roadside drains unable to cope with level of water due to drains requiring to be cleaned out
Work Undertaken	Cleared offlets and culverts within the vicinity
Work Required	Culvert cleaned out, road drain cleaned to either side of the access and opposite side of the road, offlets and culvert cleaning
History of flooding?	No

Date	20/09/04
Location	Dun Altin, Borneskitaig, Kilmuir
Description	Flooding front entrance to dwelling, road surface water running down the path to the front door
Work Undertaken	None
Work Required	Culverts cleaned out, land drain reopened to the side of the premises, offlets, drain formed at the opposite side of the road
History of flooding?	No

Date	06/01/05
Location	4 and 8, Mary Street, Bundalloch, Dornie
Description	Flooding to the rear of two houses above on the 6 th and 7 th of January 2005. Water course is running okay. Flooding is coming from the croft ground to the rear of the property. Have advised owners that croft ground requires drainage. Fire service was in attendance on the 6th
Work Undertaken	Sandbags supplied
Work Required	None involving The Highland Council
History of flooding?	Yes over the years but not so severe

Skye & Lochalsh

Date	09/06/05
Location	B886 Lochbay Cottage, Stein, Waternish
Description	Surface water running freely down hill on the road, with no offlets and drainage requiring cleaning. Water accumulating as it runs down hill. Crosses road at this property and runs down the field and down north side gable end of house, also continues to run down the road, entering the driveway threatening the garden, garage and house
Work Undertaken	Inspection of offlets, drainage and culverts
Work Required	Require to reopen offlets and drainage
History of flooding?	

Date	13/09/05
Location	Balmacara Macrae Jones Stores Reraig Balmacara
Description	Water from high ground to rear of stores overflowed cut off ditches and threatened property
Work Undertaken	Assisting Fire Brigade with supply of sandbags to divert water from the rear of the building
Work Required	Maintenance required to paths and ditches on National Trust land above
History of flooding?	Yes, the property has been threatened on previous occasions

Date	13/09/05
Location	1 The Square, Balmacara
Description	Flood of water from field and from road threatening property
Work Undertaken	Sandbags
Work Required	Offlets on the road and drainage done in the field to stop the water exiting onto the road
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	Clan Donald Farm road end
Description	Burn top of farm road burst its bank
Work Undertaken	Offlets
Work Required	Drainage repaired
History of flooding?	No

Date	13/09/05
Location	Grianach Waterloo
Description	Rain unable to clear the road area, threat to house close to the level of the road
Work Undertaken	Offlets and sandbags
Work Required	More offlets
History of flooding?	No

Date	13/09/05
Location	Bridge, Quirang, Staffin
Description	Culvert unable to cope with flow of water
Work Undertaken	
Work Required	Installation of larger culvert
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	Suledale Bridge, Suledale, Isle of Skye
Description	Culvert under bridge unable to cope with flow of water
Work Undertaken	
Work Required	Installation of larger culvert
History of flooding?	No

Date	13/09/05
Location	Knockbreck Primary School, Waternish, Isle of Skye
Description	Culvert blocked flooding the road
Work Undertaken	None
Work Required	Clean out culvert
History of flooding?	No

Date	13/09/05
Location	1 Glasphein, Glendale
Description	Ditches and culvert blocked , flooding the road and flooding the access road of the above address
Work Undertaken	None
Work Required	Clean out culvert, clean out the ditches and reinstate offlets, approximately 250 metres
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	13 Lochbay, Waternish, Isle of Skye
Description	Ditches and culverts blocked causing road to flood and also the property and shed at above address
Work Undertaken	Cleaned ditched and culverts
Work Required	Clean out the ditches approximately 120 metres and reinstate original ditch to top corner to divert water to the river
History of flooding?	No

Date	13/09/05
Location	A855 Storr's Loch, Isle of Skye
Description	Three culverts unable to cope, flooding over the top and on to the road surface flooding across the road excessively
Work Undertaken	Culverts checked and road temporarily closed
Work Required	Additional or larger culverts to be installed
History of flooding?	No

Date	13/09/05
Location	Woodland, Pladaig Road, Kyle
Description	Manhole would not take the amount of water, overflowed down Pladaig Road scouring the road
Work Undertaken	Manhole cleaned out, NoSWA had been working on Pladaig Road, Bill Fulton on the case
Work Required	Manhole requires tidy
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	6 Waterloo, Broadford
Description	Flood of water from the back of the house
Work Undertaken	Offlets
Work Required	More offlets
History of flooding?	No

Date	13/09/05
Location	Claigan dam, Dunvegan
Description	Culverts unable to cope with flow of water and the road became flooded
Work Undertaken	None
Work Required	Clean out culvert, larger or additional culverts
History of flooding?	No

Date	13/09/05
Location	20 Portnalong, Isle of Skye
Description	Ditches and culverts blocked, causing road to flood thus flooding property on opposite side of the road
Work Undertaken	Cleaned ditches and culverts, lip of tar over entrance
Work Required	Clean out ditches approximately 100 metres and replace 28 metres of culvert
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	18 Kilmuir Road, Dunvegan
Description	Road surface water cascading down the driveway and flooding round property
Work Undertaken	None
Work Required	Clean out culvert and approximately 100 metres of ditch either side of entrance
History of flooding?	No

Date	13/09/05
Location	Bridge, Marrishadder, Staffin
Description	1.3 metre culvert unable to cope with flow of water
Work Undertaken	None
Work Required	Installation of larger culvert
History of flooding?	No

Date	13/09/05
Location	A850 Edinbane loop road, Edinbane, Isle of Skye
Description	Culvert blocked causing water to flood the road
Work Undertaken	Cleaned culvert
Work Required	Clean out the ditches approximately 50 metres either side of culvert
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	5 Totescore, Kilmuir
Description	Unknown size of culvert unable to cope with the flow of water, flooding over the main road and through adjacent field, then onto the access road this water continuing to flood down the road passed the house and shed
Work Undertaken	Offlets cleaned on the access road
Work Required	Installation of larger culvert
History of flooding?	No

Date	13/09/05
Location	Back of Braedownie, Viewfield Road, Portree
Description	
Work Undertaken	Volume of water caused back log
Work Required	Clean the gully
History of flooding?	

Date	13/09/05
Location	1 Torvaig, By Portree
Description	
Work Undertaken	Road patched and plated
Work Required	Must replace culvert
History of flooding?	No

Skye & Lochalsh

Date	13/09/05
Location	Road to Scorrybreac House
Description	Water channel at entrance unable to cope with the volume of water, large puddle on driveway but did not reach the property

Work Undertaken	Channel cleared
Work Required	Channel to be improved
History of flooding?	Yes, since BT carried out works on a manhole in 2004 the works they carried out has diverted water down to the channel. The channel is unable to cope with the volume

Date	13/09/05
Location	Sluggans Road, Portree
Description	Road flooding in excessive weather conditions
Work Undertaken	None
Work Required	Improved drainage
History of flooding?	Yes in the past after building works undertaken nearby, the road has been liable to flooding

Date	13/09/05
Location	7a Torvaig, by Portree
Description	
Work Undertaken	
Work Required	Clear ditch above property
History of flooding?	

Skye & Lochalsh

Date	13/09/05
Location	Old Manse, Staffin
Description	Driveway being flooded from main road also from newly created car park at the Church of Scotland, threat to the property
Work Undertaken	Offlets created in driveway to divert water off the road
Work Required	Strip of tar over edge of the public road
History of flooding?	No

Date	Unknown
Location	Outside property ½ 3 Heaste
Description	Ditch overflowing causing water to flood through garden into low lying house
Work Undertaken	
Work Required	Clean drain
History of flooding?	Unknown

Sutherland

Date	24/12/03
Location	River Oykel U224 Strath Oykel Road at the Oykel Bailey Bridge
Description	River Oykel in spate flooding up and over the U224 Strath Oykel road to a depth of 600mm
Work Undertaken	Signing erected by Lairg roads squad
Work Required	Road requires to be built up above flood level with culverts to cope with river overflow
History of flooding?	Yes

Sutherland

Date	19/01/04
Location	S/3/10 Sawyer's Newsagent, High Street, Dornoch
Description	Back up of water behind weir
Work Undertaken	Fire Brigade on site using pump supplied by The Highland Council and drain stoppers and sand bags
Work Required	Investigation into cause with respect to newly constructed weir
History of flooding?	No

Date	19/01/04
Location	River Oykel U224 Strath Oykel Road at the Oykel Bailey Bridge
Description	River Oykel in spate flooding over the road
Work Undertaken	Road closed signs erected
Work Required	Road requires to be lifted above flood level
History of flooding?	Yes

Date	19/01/04
Location	River Carron S/3/26 C44 Ardgay to Croick at Culeave
Description	River Carron flooded out over the road
Work Undertaken	Road closed signs erected
Work Required	Road level requires to be raised above flood level
History of flooding?	Not known

Sutherland

Date	05/02/04
Location	River Oykel U224 Strath Oykel Road at the Oykel Bailey Bridge
Description	High river level necessitated closing the road (depth of water over the road 300mm). Road closed 0900 until 1600
Work Undertaken	
Work Required	
History of flooding?	

Date	10/02/04
Location	River Oykel U224 Strath Oykel Road at the Oykel Bailey Bridge
Description	River high and overtopping the road – depth gauge indicating 3' at 10:00hrs. Road reopened 09:15hrs 11/02/04
Work Undertaken	
Work Required	Verge markers to be installed on low section N of bridge
History of flooding?	Yes

Date	28/06/04
Location	Clachan Burn Tourist Information Office, Clachan, Bettyhill
Description	The Tourist Information Office/café was flooded to a depth of 150mm on the ground floor
Work Undertaken	Fire Brigade pumped out water back into Clachan Burn
Work Required	Inspection of flap valve in gabion wall required to view condition
History of flooding?	Yes, gabion wall erected in 1985 to help flooding problem

Sutherland

Date	06/07/04
Location	Duka Antiques, Lairg
Description	Heavy rain in Lairg, volume of water too great for the capacity of road drainage system at frontage of Duka Antiques (west side of Black Bridge) – flooded premises – Fire Brigade in attendance to pump out
Work Undertaken	Pumped out by Fire Brigade, road drainage checked by JDC, all clear
Work Required	Drainage at shop front is 305 x 150 dished channel to 2no. gullies and 150 diameter pipe outfalls to Little Loch Shin – reassess capacity
History of flooding?	

Date	18/08/04
Location	River Oykel U224 Strath Oykel Road at the Oykel Bailey Bridge
Description	High river level flooding road between A837 and bridge – road closed at 22:00 on the 18/08/04
Work Undertaken	
Work Required	
History of flooding?	

Date	07/10/04
Location	S/3/05 West side of Balnacoil Bridge
Description	River Brora flowing over western approach to bridge
Work Undertaken	Road blocked signs activated
Work Required	Infill low spot
History of flooding?	Twice before recorded. Many times unrecorded

Sutherland

Date	21/10/04
Location	A836 Mid Fearn
Description	Road drainage overtopped and ran across the road and ponded at low spot. Road passable with care
Work Undertaken	Flood signs erected
Work Required	Review flood drainage provision in area/check culverts
History of flooding?	Not known

Date	21/10/04
Location	S/3/28 A949 Whiteface
Description	Water ponding on the road
Work Undertaken	Flood signs erected
Work Required	
History of flooding?	Yes

Date	21/10/04
Location	S/3/21 C11 Birichen, Rearquhar
Description	Choked culvert
Work Undertaken	None
Work Required	
History of flooding?	

Sutherland

Date	25/10/04
Location	Industrial Estate, Dornoch
Description	Burn backing up and overtopping bank adjacent to property threatening wood store factory and road access to The Highland Council depot
Work Undertaken	None
Work Required	Larger diameter pipe required for flow. Short section of pipe too small
History of flooding?	Yes

Date	25/10/04
Location	Seafield, Edderton
Description	Road and hill drainage flooded into house from A836
Work Undertaken	Water diverted with sandbags
Work Required	Renew drainage at bottom of Bogrow divert into burn rather than A836
History of flooding?	Yes many times when administered from Dingwall

Date	28/10/04
Location	Birichen top road
Description	Choked culvert
Work Undertaken	Referred to John Clark to visit
Work Required	
History of flooding?	Recorded once previously on this system, but there is a much longer, involved history

Sutherland

Date	07/01/05
Location	C9 Hope to Altnaharra Road
Description	Water level rose and flooded the road approximately 0.3m deep
Work Undertaken	Flood signs erected
Work Required	Raise road
History of flooding?	Yes during very heavy rain there is always a chance of flooding here

Date	07/01/05
Location	C2 Skerry loop near it's junction with Torrisdale
Description	Drains overflow during heavy rain also stream rises beyond capacity of culverts
Work Undertaken	Drains cleared out periodically but problem returns during heavy rain
Work Required	Survey required as culvert and drains do not have the capacity to cope with the flow
History of flooding?	Yes, Mrs Henderson has photographs of the location during heavy rain

Date	13/02/05
Location	Numbers 1 – 12 Tulloch Road
Description	Water from field at rear of house number 6/7 overtopped and ran into the garden
Work Undertaken	None
Work Required	Lift manholes at rear of the property and inspect the drains. Lift contaminated stone from the top of the drain and replace with a clean stone
History of flooding?	Yes, works constructed in 1982 in response to ongoing flooding

Sutherland

Date	02/06/05
Location	S/3/09 Dalchalm, Brora
Description	Water running over the carriageway to a depth of 150 - 200 deep
Work Undertaken	Erect flood signs
Work Required	
History of flooding?	Yes floods over the A9 through fields into Dalchalm

Date	02/06/05
Location	Backies
Description	Water issued from drain and washed away the roadside drain
Work Undertaken	Remove stone etc from carriageway and cone off wash out area
Work Required	Clean out ditch downstream of flood, reform verge
History of flooding?	Yes

Date	02/06/05
Location	S/3/01 Rhives Farm, Golspie
Description	Water running from Rhives Farm to the A9
Work Undertaken	Opened drain in fields, unblocked gullies and drains overwhelmed by flood silt. Remove silt
Work Required	Clear out the gullies
History of flooding?	Yes, about 20 years ago same flood

Sutherland

Date	03/06/05
Location	S/2/15 Chilsey, Strath Halladale
Description	Culvert on C32 blocked by debris and burn overtopped the bank and flowed into properties garden/garage/green house
Work Undertaken	Water gate removed from upstream end of culvert
Work Required	Investigation into problem
History of flooding?	No

Date	03/06/05
Location	S/3/01 U415 Rhives Road/C39 Fountain Road/C4 Back Road
Description	Water flooding down from old filter station and hill tracks etc running down Rhives Road/Fountain Road to A9 junction and Back Road to BT exchange entrance
Work Undertaken	Squad arrived to clear debris 09:00 on the 03/06/05; gully cleaner mobilised by JPM 09:00
Work Required	
History of flooding?	

APPENDIX F

FLOOD ALLEVIATION IN THE HIGHLANDS

CONTACTS

For assistance during flooding...

Normal Working Hours:

COUNCIL AREA	TEC SERVICES Local Contacts
Cairnwell	01955 607761
Sutherland	01408 623400
Ross and Cromarty	01349 868440
Inverness	01463 703111
Nairn	01667 458522
Badenoch & Strathspey	01540 661206
Lochaber	01397 709600
Skye and Lochalsh	01478 612727

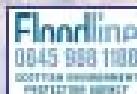
Out of Hours Emergency Numbers:

Housing Services	0845 700 2005
Social Work Services	0845 769 7284
TEC Service	0845 769 7284

Other Information Sources:

SEPA for more advice on flood risk and how to prepare for and react to flooding.

www.sepa.org.uk/flooding



SCOTTISH WATER emergency number:
0845 600 8855

To request this information in an alternative format
e.g. large print, Braille, computer disk, audio
tape, or suitable language, please telephone:

01463 702604

What should you do if affected by flooding?

If you have sufficient warning move valuables and items of personal value, such as photographs, to a safe location e.g. upstairs, top of wardrobe etc.

Report any flooding, or risk of flooding, to the Council's TEC Services contact number for your area.

Turn the electricity supply off, as the water may come in contact with junction boxes under the floor. If your house is flooded do not turn electricity back on before having the wiring checked by a qualified electrician.

Contact your insurance company to notify them that your property has been affected by flooding and take their advice on what to do next. If your property is not insured take advice from a reputable builder on the work required to repair your property.

Floodwater can, in some areas become contaminated by sewage. If you come in contact with floodwater outside your home you should, as soon as possible, remove outdoor clothing particularly footwear and wash your hands thoroughly especially before preparing food. Contact your local Council Environmental Health Office or Service Point for hygiene advice.



What can the Council do?

Although the Council maintains watercourses to reduce the risk of flooding there will be occasions when the intensity or duration of rainfall will result in some properties being flooded.

The Council's TEC Services will make filled sandbags available at suitable locations in areas which are liable to be affected by flooding. Where there is a request from elderly, infirm or housebound people sandbags will be delivered to affected areas.

Contact Social Work Services and/or TEC Services if you are aware that a frail or vulnerable person is affected. Contact numbers are provided in this leaflet.



Flood Alleviation in the Highlands



www.highland.gov.uk



RESPONSIBILITIES

Property Owners

Under Common Law the main responsibility for reducing flood risk lies with the owner of the property. It is long established that a property owner should take responsibility for the safety and security of their own property. This includes taking steps to reduce the risk of flooding provided these actions do not increase the risk of flooding to other properties.

Owners can be held liable under common law if they cause flooding to their neighbours by, for example, dumping of rubbish, building of structures or features which reduce the size of the watercourse.

Owners can help to maintain the hydraulic efficiency of a watercourse and reduce the risk of flooding by taking the following advice:

- Carry out regular maintenance to remove obstructions, such as excessive vegetation, which could cause blockages and increase the risk of flooding.
- Do not use the watercourse as a dump for garden rubbish, which may cause a blockage downstream.
- Do not reclaim land by filling in an open watercourse and piping the water without first obtaining technical advice from a professional engineer.
- Do not build any form of structure or feature, which reduces the size of the watercourse.

The Highland Council

The Council has a duty, under the Flood Prevention and Land Drainage (Scotland) Act 1997 to:

- Periodically assess watercourses to determine whether there is a risk of flooding to property built on non-agricultural land.
- Maintain a watercourse (remove mud, silt and debris) where doing so will substantially reduce the likelihood of flooding to property built on non-agricultural land. This duty does not apply where failure to maintain the watercourse would result only in flooding of land in the same ownership as the watercourse requiring maintenance.
- To publish a biennial report, which contains information about areas affected by flooding and the actions taken to reduce the risk of future flooding.

The Council carries out regular maintenance of culverts, inlet screens and other areas where there is a known risk of flooding to properties.

Scottish Water

Scottish Water is responsible for:

- Dealing with surface drainage i.e. water from driveways, hard standing and the roofs of buildings that is drained to their sewers.
- Dealing with the immediate impact of flooding from sewers.

Scottish Environment Protection Agency (SEPA)

SEPA provide:

- Floodline - 0845 988 1188 - a 24 hours a day, 365 days a year public information service providing Scotland-wide flood alert information through Flood Watch, more specific alerts for areas covered by Flood Warning schemes, and general advice on how to prepare for and cope with flooding. Flooding can also be reported through Floodline. The service is supported by the flood update at www.sepa.org.uk/flooding
- 9 flood warning schemes in the Highlands, operated in partnership with the police and local authorities.
- Flood warnings to the police and local authorities.
- Advice to local authorities on flood prevention and flood risk for planning purposes.
- Answers to public queries on potential flood risk to areas and properties.

Major Flood Alleviation Schemes

Where the risk of flooding affects a significant number of properties the Council has powers to promote a formal flood alleviation scheme. These works are normally extensive and require a Flood Prevention Order promoted by the Council. This process can take a number of years to complete and involves public consultation. Objections to the scheme may lead to a Public Inquiry.

Details of flood alleviation schemes in progress can be found in the Council's capital programme.

BE PREPARED

Flooding is a natural process that can happen suddenly. While official bodies like the Highland Council, Scottish Environment Protection Agency (SEPA) and the police all play a part in giving warnings and assistance, the person who can do most to help is you.

What can you do to be prepared?

If you live in an area that is prone to flooding, do what you can now to prepare for a flood. Don't wait until it happens, you may not have time.

- Make sure you have adequate insurance. Flood damage is included in most buildings insurance policies but do check your home and contents are covered.
- Make up a flood kit - including key personal documents, torch, battery or wind-up radio, mobile phone, rubber gloves, wellington boots, waterproof clothing, first aid kit and blankets. Keep details of your insurance policy and the emergency contact number somewhere safe - preferably as part of your flood kit.
- Make a list of useful numbers you may need - local Council Service Point, the emergency services and your SEPA Floodline quick-dial code - obtained during your first call to Floodline.
- Get into the habit of storing valuable or sentimental items and important documents upstairs or in a high place.
- Keep some sandbags or other purpose-made flood protection products to block doorways and airbricks - a list of manufacturers and suppliers is available through Floodline.
- Make sure you know where to turn off your gas, electricity and water. If you're not sure, ask the person who checks your meter when they next visit. Mark the tap or switch with a sticker to help you remember.