Scottish Planning Policy (SPP) Compensatory Flood Storage / Flood Mitigation

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Joint SHG / SHGS meeting 8th September 2010
Smith Art Gallery and Museum, Dumbarton Road, Stirling

SEPA
Scottish Environment Protection Agency

Overview

- Roles and Responsibilities
- Planning Reform & Flood Act
- Compensatory Storage
    - Why is it required
    - When is it appropriate
    - Principles
    - Information & Modelling Requirements
- Summary

Roles and Responsibilities

We advise the Planning Authority in line with Scottish Planning Policy (SPP) “Planning and Flooding” and our Interim Position Statement

Local Authority determine applications taking into consideration advice from SEPA and their own flood specialists and any other material considerations

It is for the Local Authority to determine the planning application, not SEPA !

Source: www.bbc.co.uk/news

Planning Reform

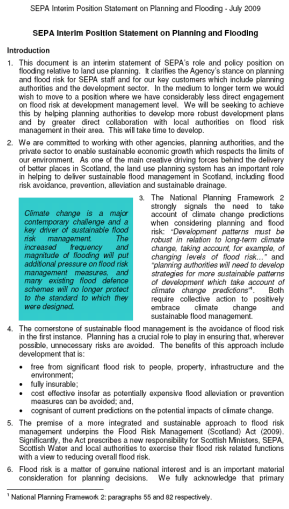
- Aim to provide a more solution orientated, plan led and faster responding planning system – to aid sustainable economic development
- Focus on development planning
- E-planning, transparency and efficiency
- Improving Guidance and customer engagement

Flood Risk Management (Scotland) Act

- Section 42
- Changing Definition of Flood Risk
- Developing Flood Risk Information
  - Modelling group
  - Planning and Flood Risk Group

➢ **Interim Position Statement on Planning and Flooding**

➢ **SEPA Flood Risk & Planning Briefing Note**


SEPA Interim Position Statement on Planning and Flooding - July 2009

SEPA Interim Position Statement on Planning and Flooding

Introduction

1. This document is an interim statement of SEPA's role and policy position on flooding relative to land use planning. It clarifies the Agency's stance on planning and flood risk for SEPA staff and for our key customers which include planning authorities and the development sector. In the medium to longer term we would wish to move to a position where we have considerably less direct engagement on flood risk at development management level. We will be seeking to achieve this by helping planning authorities to develop more robust development plans and by greater direct collaboration with local authorities on flood risk management in their area. This will take time to develop.
2. We are committed to working with other agencies, planning authorities, and the private sector to enable sustainable economic growth which respects the limits of our environment. As one of the main creative driving forces behind the delivery of better places in Scotland, the land use planning system has an important role in helping to deliver sustainable flood management in Scotland, including flood risk avoidance, prevention, alleviation and sustainable drainage.

Climate change is a major contemporary challenge and a key driver of sustainable flood risk management. The increased frequency and magnitude of flooding will put additional pressure on flood risk management measures, and many existing flood defence schemes will no longer protect to the standard to which they were designed.

3. The National Planning Framework 2 strongly signals the need to take account of climate change predictions when considering planning and flood risk: *"Development patterns must be robust in relation to long-term climate change, taking account, for example, of changing levels of flood risk..."* and *"planning authorities will need to develop strategies for more sustainable patterns of development which take account of climate change predictions"*[1]. Both require collective action to positively embrace climate change and sustainable flood management.
4. The cornerstone of sustainable flood management is the avoidance of flood risk in the first instance. Planning has a crucial role to play in ensuring that, wherever possible, unnecessary risks are avoided. The benefits of this approach include development that is:
   - free from significant flood risk to people, property, infrastructure and the environment;
   - fully insurable;
   - cost effective insofar as potentially expensive flood alleviation or prevention measures can be avoided; and,
   - cognisant of current predictions on the potential impacts of climate change.
5. The premise of a more integrated and sustainable approach to flood risk management underpins the Flood Risk Management (Scotland) Act (2009). Significantly, the Act prescribes a new responsibility for Scottish Ministers, SEPA, Scottish Water and local authorities to exercise their flood risk related functions with a view to reducing overall flood risk.
6. Flood risk is a matter of genuine national interest and is an important material consideration for planning decisions. We fully acknowledge that primary

[1] National Planning Framework 2: paragraphs 55 and 82 respectively.

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Roles and Responsibilities
Planning Reform & Flood Act
Compensatory Storage
- Why is it required
- When is it appropriate
- Principles
- Information Requirements

Summary

both at : http://www.sepa.org.uk/flooding/flood_risk.aspx

Compensatory Storage – Why is it required ?

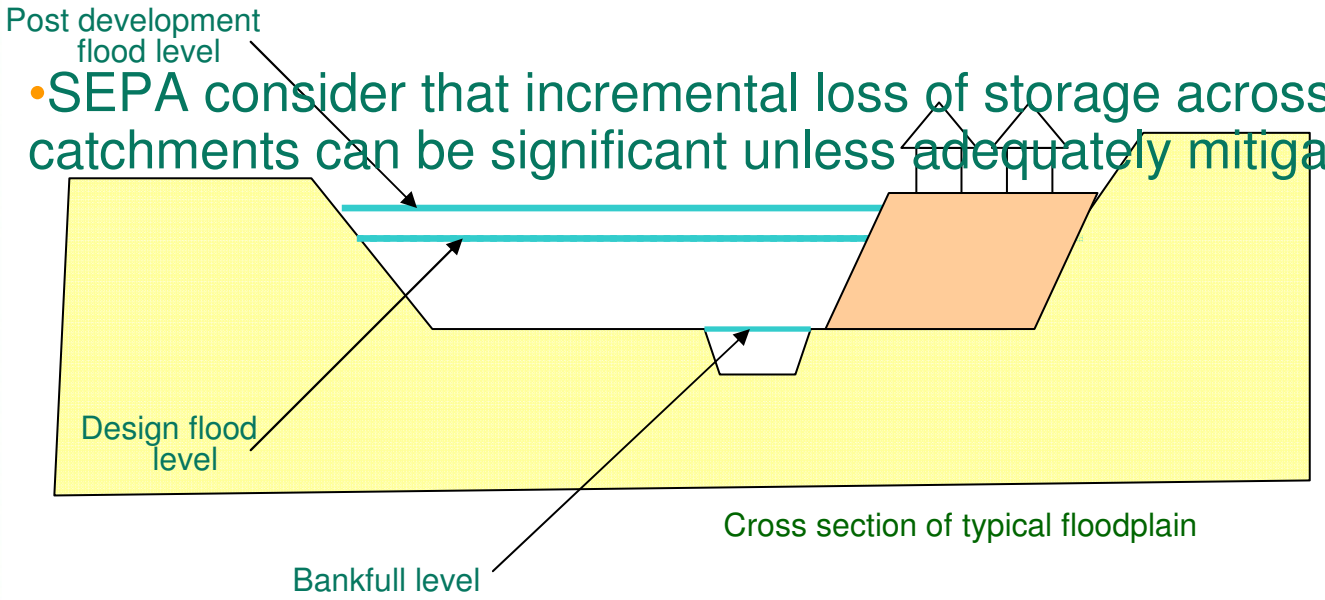
- Requirement of SPP (s208 etc)

  'Landraising …should be linked to the provision and maintenance of compensatory flood water storage to replace the lost capacity of the functional flood plain, have a neutral or better effect on the probability of flooding elsewhere, including existing properties,

  - Loss of floodplain will affect flow conveyance / storage

  - Impacts will be specific to the nature of the loss of storage

- SEPA consider that incremental loss of storage across catchments can be significant unless adequately mitigated



Cross section of typical floodplain

Compensatory Storage – when is it appropriate ?

First principle is *avoidance* of the risk (FRMSA, SPP & SEPA Interim Position Statement)

- Undeveloped floodplain, where an overriding need is demonstrated
- Redevelopment of brownfield sites

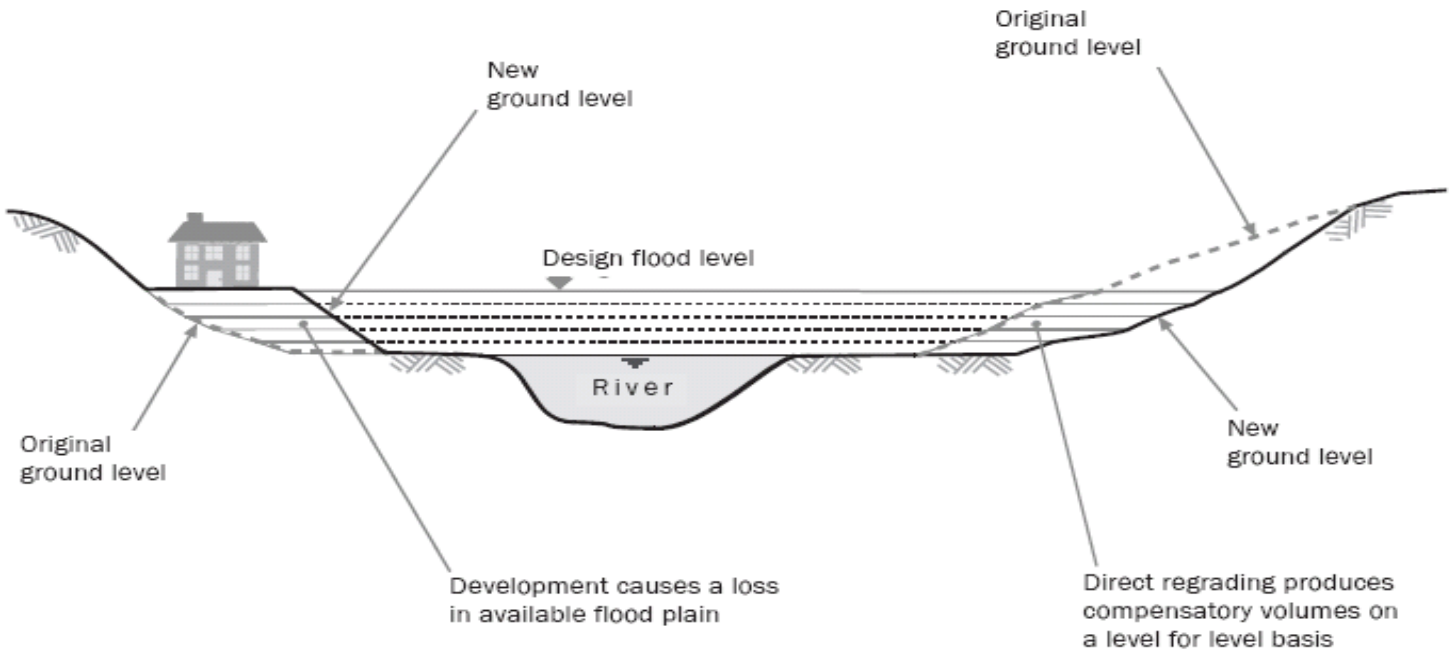
However:

- Successful implementation of compensatory storage is not straightforward
- Compensatory storage should NOT be used as an unplanned mitigation measure

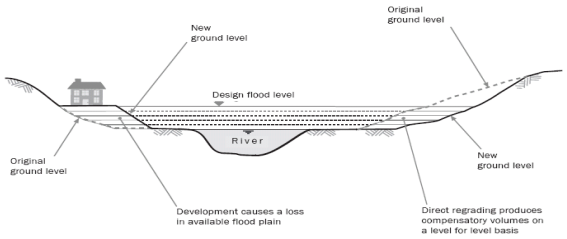
Compensatory Storage – Principles

Direct replacement

- Close to the point of lost floodplain
- Provides same volume *at same level* to that volume lost
- If implemented correctly provides confidence that risks can be managed; but is often difficult to implement for landtake reasons.



Compensatory Storage – Information / Modelling requirements



Direct replacement

- Drawings to demonstrate 'like for like' replacement
- Tables/Graphs demonstrating transfer of storage 'slices'.

Indirect Replacement

- Greater uncertainty due to;
    - Hydraulic model uncertainty (verification, data limitations, parameterisation)
    - Hydrological uncertainty, flood hydrograph shape, multiple events
- Hence where indirect replacement is proposed SEPA would expect detailed 1D/2D modelling, extensive sensitivity checks on key parameters

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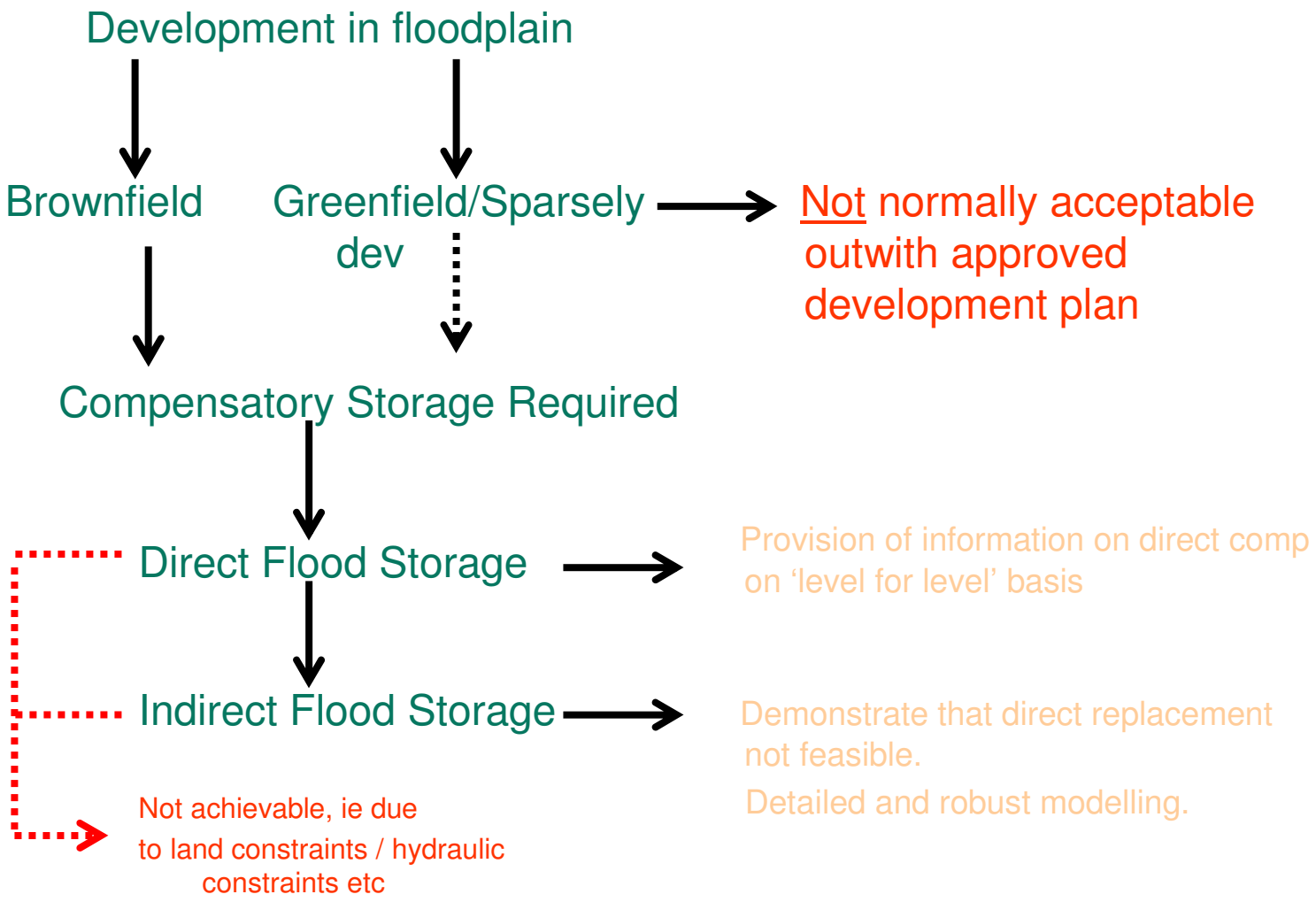
Summary of SEPA position on use of Compensatory Storage for flood risk management purposes



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FRA checklist

- **What?**

  Checklist outlining elements which should be reported in FRA.

- **Why?**

  Tool aimed at improving the consultation process and ensuring that required level of information is provided from the onset.

- **Where?**

  External SEPA website.

FRA checklist

Flood Risk Assessment (FRA) Checklist

(ES-NFR-F-001 - Version 8 - Last updated 26/04/2010)

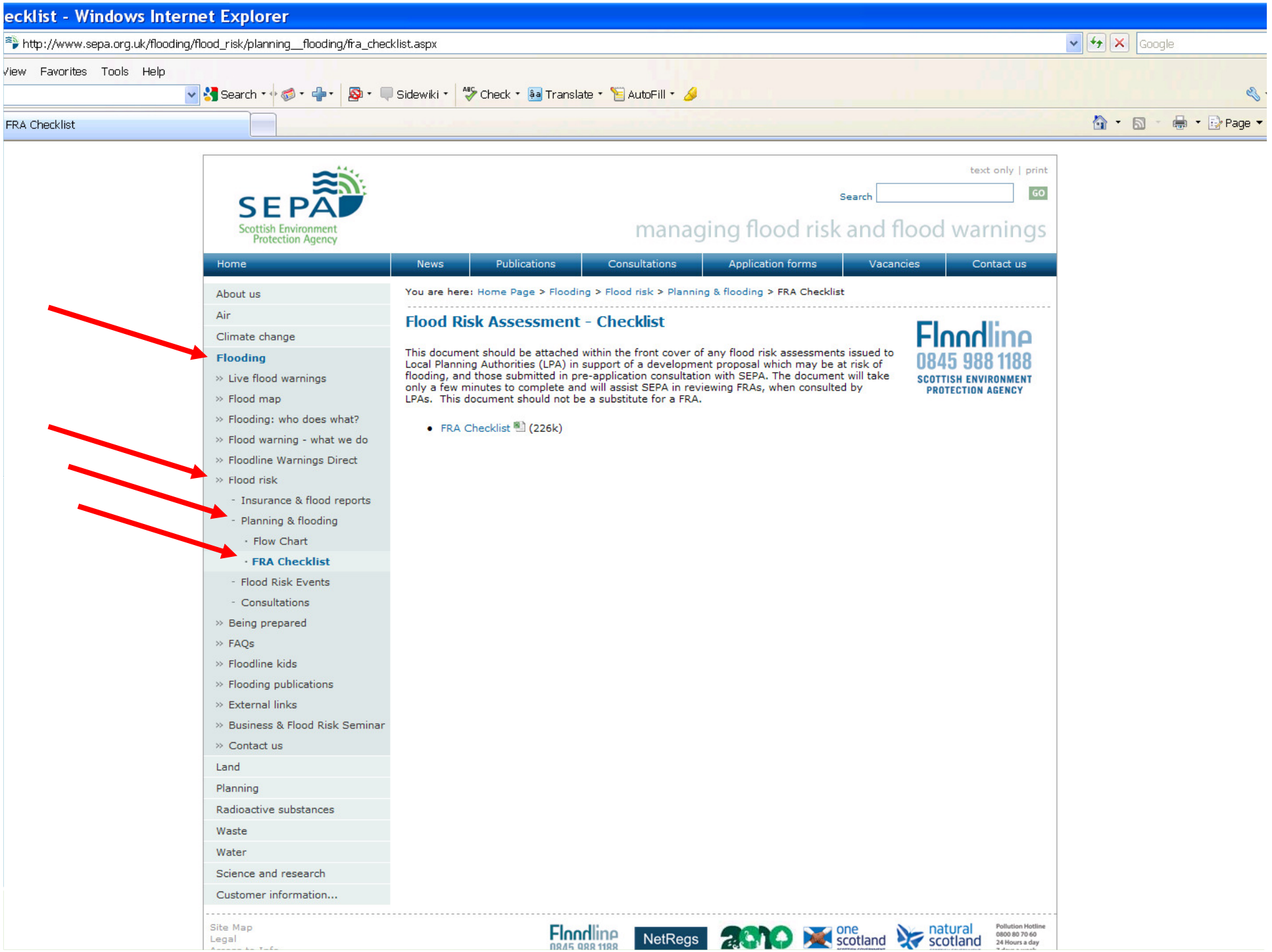
This document should be attached within the front cover of any flood risk assessments issued to Local Planning Authorities (LPA) in support of a development proposal which may be at risk of flooding. The document will take only a few minutes to complete and will assist SEPA in reviewing FRAs, when consulted by LPAs. This document should not be a substitute for a FRA.

Development Proposal								
Site Name								
Grid Reference	Easting:		Northing:					
Local Authority		Select from List						
Planning Reference number (if known)								
Nature of the development		Select from List	If residential, state type:					
Size of the development site			Ha					
Identified Flood Risk	Source:	Select from List		Source name:				
Supporting Information								
Have clear maps / plans been provided within the FRA (including topographic and flood inundation plans)		Select from List						
Has a historic flood search been undertaken?		Select from List						
Is a formal flood prevention scheme present?		Select from List	If known, state the standard of protection offered					
Current / historical site use								
Hydrology								
Area of catchment			km^2					
Qmed estimate			m^3/s	Method:	Select from List			
Estimate of 200 year design flood flow			m^3/s					
Estimation method(s) used *		Select from List		If other (please specify methodology used):				
				If Pooled analysis have group details been included	Select from List			
Hydraulics								
Hydraulic modelling method		Select from List		Software used:	Select from List			
If other please specify								
Modelled reach length			m					
Any structures within the modelled length?		Select from List		Specify, if combination				
Brief summary of sensitivity tests, and range:								
variation on flow (%)			%					
variation on channel roughness								
blockage of structure (range of % blocked)			%	Reference CIRIA culvert design guide R168, section 8.4				
boundary conditions:		**Upstream**			**Downstream**			
(1) type		Flow			Select from List			
	Specify if other			Specify if other				
(2) does it influence water levels at the site?		Select from List			Select from List			
Has model been calibrated (gauge data / flood records)?		Select from List						
Is the hydraulic model available to SEPA?		Select from List						
Design flood levels	200 year		m AOD	200 year plus climate change		m AOD		

Flood Risk Assessment (FRA) Checklist

(ES-NFR-F-001 - Version 8 - Last updated 26/04/2010)

Coastal								
Estimate of 200 year design flood level			m AOD					
Estimation method(s) used		Select from List		If other (please specify methodology used):				
Allowance for climate change (m)			m					
Allowance for wave action etc (m)			m					
Overall design flood level			m AOD					
Development								
Is any of the site within the functional floodplain? (refer to SPP7 para 16-18)		Select from List		If yes, what is the net loss of storage		m^3		
Is the site brownfield or greenfield		Select from List						
Freeboard on design water level (m)			m					
Is the development for essential civil infrastructure or vulnerable groups?		Select from List		If yes, has consideration been given to 1000 year design flood?	Select from List			
Is safe / dry access and egress available?		Select from List		Min access/egress level		m AOD		
If there is no dry access, what return period is dry access available?			years					
If there is no dry access, what is the impact on the access routes?	Max Flood Depth @ 200 year event:		m	Max Flood Velocity:		m/s		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http://www.sepa.org.uk/flooding/flood_risk/planning__flooding/fra_checklist.aspx
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FRA Checklist
Page
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Scottish Environment Protection Agency
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Consultations
Application forms
Vacancies
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Air
Climate change
Flooding
» Live flood warnings
» Flood map
» Flooding: who does what?
» Flood warning - what we do
» Floodline Warnings Direct
» Flood risk
- Insurance & flood reports
- Planning & flooding
· Flow Chart
· FRA Checklist
- Flood Risk Events
- Consultations
» Being prepared
» FAQs
» Floodline kids
» Flooding publications
» External links
» Business & Flood Risk Seminar
» Contact us
Land
Planning
Radioactive substances
Waste
Water
Science and research
Customer information...
You are here: Home Page > Flooding > Flood risk > Planning & flooding > FRA Checklist
Flood Risk Assessment - Checklist
Floodline
0845 988 1188
SCOTTISH ENVIRONMENT PROTECTION AGENCY
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FRA Checklist (226k)
Site Map
Legal
Floodline
NetRegs
one scotland
natural scotland
Pollution Hotline
0800 80 70 60
24 Hours a day