



**Flood Risk and Land Use Vulnerability Guidance**

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This document will be reviewed approximately six months from the date of publication. Any comments or suggestions on the content should be emailed to [elaine.fotheringham@sepa.org.uk](mailto:elaine.fotheringham@sepa.org.uk) and will be considered as part of the review.

# Flood Risk and Land Use Vulnerability Guidance

## Context

This guidance supports [Policy 22 of the National Planning Framework 4 (NPF4)](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf) by explaining vulnerability in a flooding context, and the relative vulnerability of different land uses to flooding. Policy 22 sets out exceptions where development can be permitted in a flood risk area. This guidance aims to support application of the first three of those exceptions, specifically the emboldened terms:

1. **Essential infrastructure** where the location is required for operational reasons.
2. **Water compatible uses**; and
3. Redevelopment of an existing building or site for **an equal or less vulnerable use**.

## What is ‘vulnerability’ in a flooding context?

Vulnerability is a key factor of flood risk. The greater the vulnerability, the greater the risk.

The relative vulnerability of a land use or development to flooding has four components:

**Vulnerability**

## Vulnerability categories

[Table 1](#Table1) categorises land uses and developments by their vulnerability taking the components above into account. All development that floods is inherently vulnerable making this categorisation relative rather than absolute. The five categories of vulnerability are:

1. Most vulnerable uses
2. Highly vulnerable uses
3. Least vulnerable uses
4. Essential infrastructure
5. Water compatible uses

## Essential Infrastructure and Water Compatible Uses

Essential infrastructure and water compatible uses are defined [in the glossary of NPF4](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf). These definitions are included in Table 1 below for completeness, and to help understand relative vulnerability when considering changing between vulnerability categories. Planning authorities should consider whether [SEPA’s Standing Advice](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sepa.org.uk%2Fmedia%2Fhbghpr1p%2Fflood-risk-standing-advice.docx&wdOrigin=BROWSELINK) applies to development deemed to fall within the Essential Infrastructure or Water Compatible Uses categories.

## Equal or less vulnerable uses

Redeveloping existing buildings and sites within the flood risk area offers an opportunity to reduce flood risk, allowing existing communities to adapt incrementally to flooding over time. In most cases betterment can be achieved by redeveloping these sites for uses that are equally or less vulnerable than previously. However, it may not always be the case that redevelopment for an equal or less vulnerable use alone will result in an equal or reduced overall vulnerability to flooding, particularly for developments which remain in the most or highly vulnerable categories. As well as the categorisation in [Table 1](#Table1), the following factors should be considered when comparing the relative vulnerability of the existing and proposed use, to ensure there is not an increase in risk overall:

* The **type of building structure** and its effect on the susceptibility of the structure to damage by floodwater, for example a tent or caravan is less robust than a brick building[[1]](#footnote-2).
* The **permanence of the structure**: impermanent structures may be more susceptible to damage or movement by flood waters, but more permanent structures can be more difficult to remove or relocate in future (both physically and financially).
* The **design of the development** including site layout, ground and floor levels, basements, above-ground floor levels, proximity to the flood source, and resilient construction features.
* The **users of the site**: the number of people using a site, the pattern of their use (e.g., daytime, overnight, seasonal) and the specific vulnerabilities of some user groups are important to consider, including the effect this has on how the site could be evacuated or its users respond during a flood event.
* **Evacuation** requirements: in addition to the people using the site, physical factors that could affect evacuation routes. The availability of flood warning could also be considered.
* The **number of properties** at risk: an increase in density, for example conversion of a large single use building with no overnight accommodation into a densely flatted development could increase the number of properties and households at risk of flooding and increase the number of people at risk overall.
* The wider **community** impact of the development flooding.

Planning authorities should consider whether [SEPA’s Standing Advice](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.sepa.org.uk%2Fmedia%2Fhbghpr1p%2Fflood-risk-standing-advice.docx&wdOrigin=BROWSELINK) applies to development deemed to fall within Policy 22 exception (iii) Redevelopment of an existing building or site for an equal or less vulnerable use, or whether consultation with SEPA is required. Please note that [Table 1](#Table1) is not exhaustive and planning authorities can determine how to categorise development types not specifically shown there. Note that the definitions of Essential Infrastructure and Water Compatible uses are taken from [the Glossary of NPF4](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf).

**Table 1: Categories of Vulnerability**

| **Most Vulnerable** | **Highly Vulnerable** | **Least Vulnerable** | **Essential Infrastructure [[2]](#footnote-3)** | **Water Compatible** |
| --- | --- | --- | --- | --- |
| * Police Stations * Ambulance Stations * Fire Stations * Command centres and telecommunications installations required to be operational during flooding. * Emergency dispersal points * Hospitals * Schools * Care homes * Nurseries * Residential institutions e.g., prisons, children’s homes * Basement dwellings * Isolated dwelling(s) in sparsely populated areas * Dwelling houses situated behind informal embankments. * Caravans, mobile homes, chalets and park homes intended for permanent residential use. * Holiday caravan, chalet and camping sites * Installations requiring hazardous substance consent (but where there is demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or with energy infrastructure, that require a coastal or water side location, or other high flood risk areas, then the facilities should be classified as Essential Infrastructure) | * Buildings used for dwelling houses. * Social services homes (ambulant/adult) * Hostels and hotels * Student halls of residence * Non-residential uses for health service * Landfill and sites used for waste management facilities for hazardous waste. | * Shops * Financial, professional, and other services * Restaurants and cafes * Hot-food takeaways * Drinking establishments * Nightclubs * Offices * General industry * Storage and distribution * Non-residential institutions not included in Most Vulnerable or Highly Vulnerable Uses * Assembly and leisure * Land and buildings used for agriculture and forestry that are subject to planning control. * Waste treatment (except landfill and hazardous waste facilities * Minerals working and processing (except for sand and gravel) | [As per NPF4 Glossary](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf), includes:   * Digital communications infrastructure * Telecommunications infrastructure * All forms of renewable, low-carbon and zero emission technologies[[3]](#footnote-4) for electricity generation and distribution and transmission electricity grid networks and primary sub stations * Water and wastewater infrastructure * Transport proposals and travel networks identified in the local development plan. | [As per NPF4 Glossary](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf), comprises:   * Flood control infrastructure * Environmental monitoring stations * Water transmission infrastructure and pumping stations * Sewage transmission infrastructure and pumping stations * Sand and gravel workings * Docks, marinas and wharves * Ministry of Defence (MOD) defence installations * Ship building, repairing, and dismantling. * Dockside fish processing and refrigeration and compatible activities requiring a waterside location. * Water-based recreation (excluding sleeping accommodation) * Lifeguard and coastguard stations * Amenity open space * Nature conservation and biodiversity * Outdoor sports and recreation and essential facilities such as changing rooms * Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific operational warning and evacuation plan. |

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1. SEPA has no remit to advise on building design and construction, including the structural stability of buildings. Building Standards are set by the Scottish Government and administered by local authorities. [↑](#footnote-ref-2)
2. Note that the [NPF4 definition of Essential Infrastructure](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf) applies to other policies in addition to Policy 22. [↑](#footnote-ref-3)
3. [NPF4 Policy 11](https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf) identifies development included within renewable, low-carbon and zero emission technologies: wind farms including repowering, extending, expanding and extending the life of existing wind farms; enabling works, such as grid transmission and distribution infrastructure; energy storage, such as battery storage and pumped storage hydro; small scale renewable energy generation technology; solar arrays; proposals associated with negative emissions technologies and carbon capture; and proposals including co-location of these technologies. [↑](#footnote-ref-4)