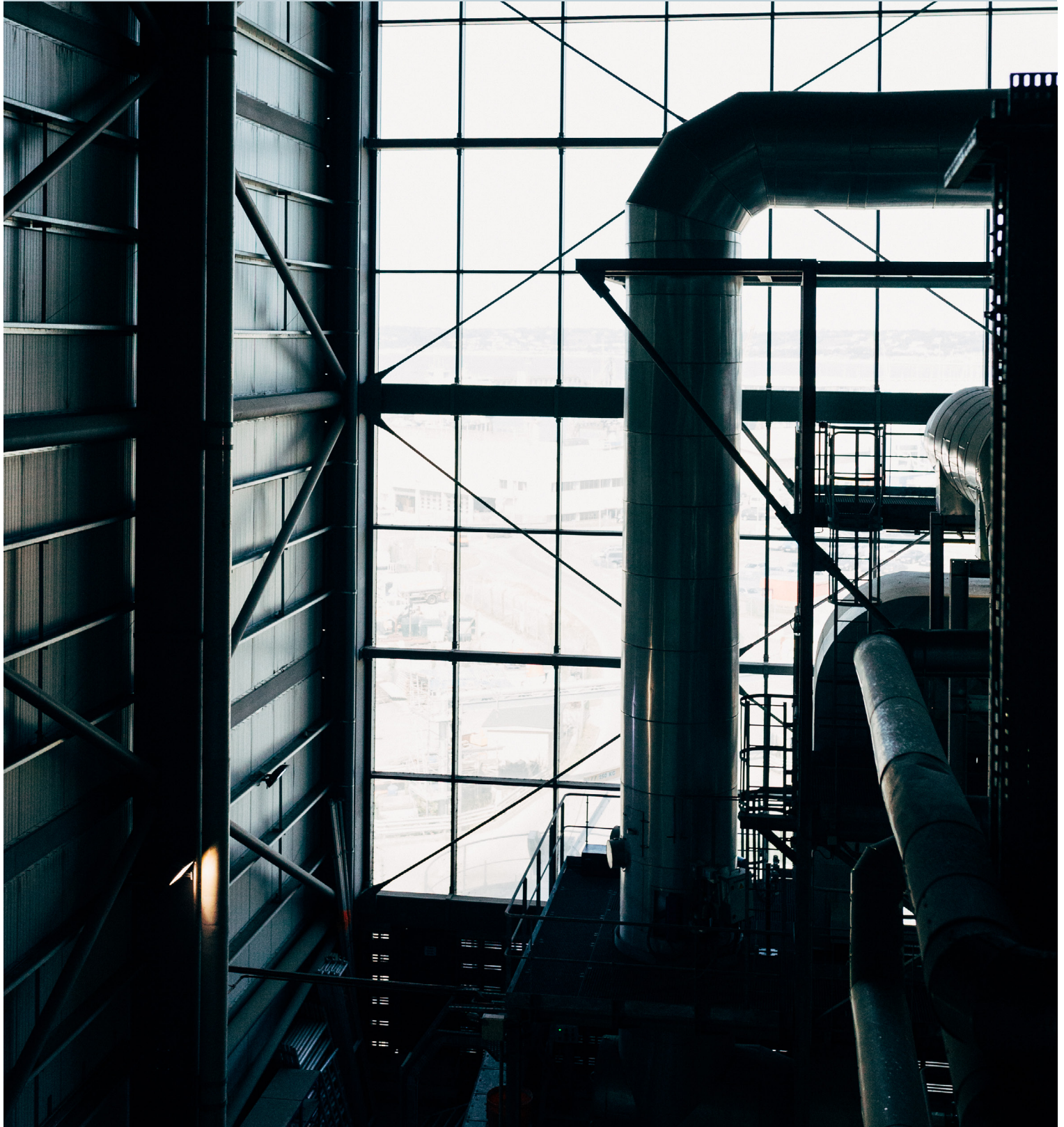


# Volume 3

Minimising waste and environmental risk



# Minimising waste and environmental risk

## Solid waste management

The island's solid waste service includes the management and disposal of industrial, construction and demolition materials, commercial and household refuse, incinerator ash and agricultural, clinical and hazardous waste. The Government of Jersey's Solid Waste Strategy (2005)<sup>1</sup> provides the framework for the management of solid waste and seeks to align solid waste management in the island with standards of international best practice.

The Island Plan's waste management policies reflect and endorse the hierarchy of waste management principles. This hierarchy, illustrated below, ranks the options according to their relative environmental benefits or dis-benefits and seeks to ensure that, before waste is finally disposed of in landfill, all alternative measures have been considered.

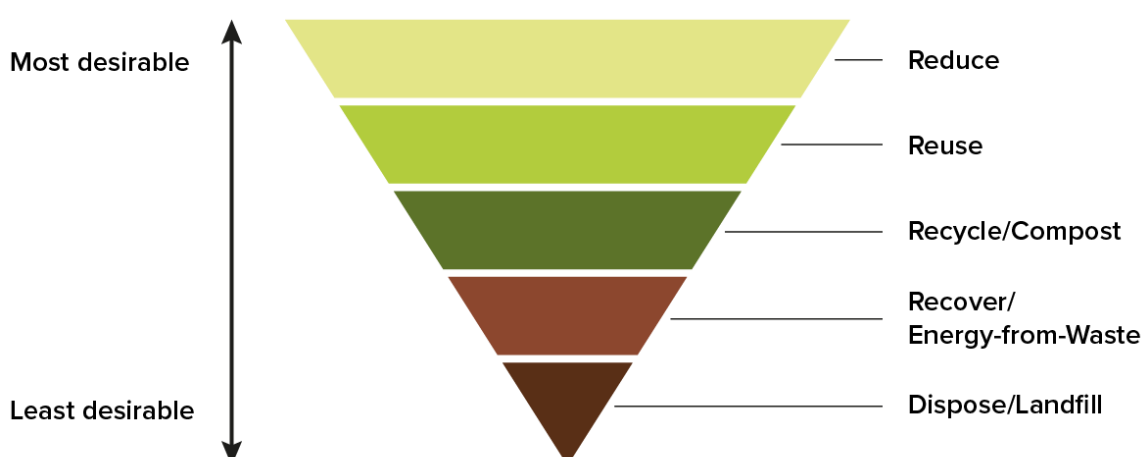


Figure WER1: Waste hierarchy

In order to make the best use of the available resources and to reduce the potential environmental impacts of waste management, the Island Plan policies are designed to:

- reduce the amount of waste created as a result of development;
- ensure that waste is well managed throughout the design, demolition and construction phases of a development project; and
- allow more efficient investment in waste management infrastructure.

### Waste minimisation and new development

Household and commercial rubbish that has not been separated for recycling is delivered to La Collette Energy Recovery Facility for processing. This forms part of the island's solid waste strategy which delivers a partnership between local energy recovery and recycling. In basic terms, an energy recovery facility burns rubbish and uses the heat from the fire to generate steam. This steam is then used to drive a turbine which generates electricity which is sold to the Jersey Electricity Company (JEC). The process also produces an ash called incinerator bottom ash. This bottom ash is sent to the UK where it gets fully recycled into building aggregate.

<sup>1</sup> [Solid Waste Strategy \(2005\)](#)

Whilst this process represents a relatively sustainable option for the management of waste, it also generates emissions that contribute to the island's carbon footprint, and its use, therefore, represents an ongoing challenge in order for the island to meet its carbon neutrality objectives. However, reduction of waste will, always, have a much greater impact upon carbon neutrality objectives than recovery.

Waste that is not recycled, and is not suitable for incineration, is destined primarily for use in land reclamation which yields useful land areas which can then be used to accommodate new development or amenity space. The actual amount of inert type waste that is landfilled in containment cells is relatively small. La Collette infill site commenced operation in 1996 and has been taking an average of approximately 183,000 tonnes of waste per annum between 2015 and 2019<sup>2</sup>. The lifespan of La Collette is now limited, and it could reach capacity within this plan period. The benefits of waste minimisation, in accordance with the waste hierarchy are now, therefore, especially significant.

Waste minimisation is the most important element of sustainable waste management because it:

- reduces the amount of waste generated in the first place, which must then be managed
- reduces the potential pollution from waste disposal activities; and
- brings significant savings in raw material and waste disposal costs.

In support of the Solid Waste Strategy, and the heightened need to promote and enforce sustainable waste practices, the Island Plan makes it a requirement for all development schemes where there is potential to generate significant quantities of waste materials – involving the demolition of substantial structures (such as a house or other individual building) or construction activity of five or more dwellings, or the development of floorspace of 200 sqm or more - to include satisfactory plans for the implementation of steps to be taken to minimise and manage waste generation both on and off the site during demolition and construction. Such details should form the basis of a site waste management plan (SWMP).

The site waste management plan must:

- identify the volume and type of waste materials, including whether they are hazardous or not, generated during the development process (e.g. materials from demolition and excavation works and from construction activities);
- establish opportunities for reuse, recycling, recovery and treatment of materials (i.e. promote the waste hierarchy);
- demonstrate how off-site disposal of waste will be minimised and managed;
- generally, assist in improving materials resource efficiency on construction sites; and
- act as a tool for monitoring the successful implementation of sustainable waste management during development projects

In order to ensure compliance with the approved SWMP, the developer, or appointed agent, will be required to demonstrate how the approved SWMP is being implemented, and to update it, as demolition and construction progresses. All waste transactions, involving disposal, re-use, recycling or recovery of waste, should be accurately and clearly recorded or referenced in the plan, to show evidence of compliance. A log of all waste-

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<sup>2</sup> [Minerals Waste and Water Study](#)



related paperwork and records of actions must be made accessible for relevant officers of the Government of Jersey to inspect upon request.

The measures contained in site waste management plans should be developed in accordance with the published supplementary planning guidance<sup>3</sup>, as may be revised, and their implementation will be secured through planning conditions or obligations, as appropriate. Failure to comply with an approved SWMP may result in enforcement action being instigated, where deemed necessary.

### **Policy WER1 – Waste minimisation**

To minimise the waste arising from demolition and construction activity, and to recycle, re-use and recover as much as possible of the generated waste materials in accordance with the waste hierarchy, development involving the demolition of substantial structures or with the potential to generate significant quantities of waste material through construction activity (such as the development of five homes or 200m<sup>2</sup> floorspace), will only be supported where a satisfactory site waste management plan has been provided.

This must include details of opportunities that have been taken to maximise on-site management of waste.

Upon the commencement of the development, all waste transactions must be clearly recorded in the site waste management plan and be available for inspection.

## **Managing flood risk**

Flooding is a natural process and has the potential to happen at any time, in a variety of locations across the island. It constitutes a temporary covering of land not normally covered by water and presents a risk when people and built or natural assets are present in the area that floods. Assets at risk from flooding can include housing, transport and public service infrastructure, commercial and industrial businesses, agricultural land, and environmental and cultural heritage. Major sources of flooding include, and may be any combination of:

- **Coastal** – inundation of floodplains by the sea due to overtopping of defences, breaching of defences and wave action;
- **Inland** – inland flooding covers two main sources including overland run-off from adjacent land (also referred to as pluvial or surface water), and out of bank flow from watercourses, as can result from natural water levels exceeding the bank levels and blockage of culverts;
- **Sewer** – surcharging of piped drainage systems (public sewers, highway drains etc.);
- **Groundwater** – caused by the water table rising after prolonged rainfall to emerge above ground level remote from a watercourse which is most likely to occur in low-lying areas underlain by permeable rock (aquifers);
- **Infrastructure failure** – of reservoirs; industrial processes; burst water mains; blocked sewers or failed pumping stations

The consequences of flooding vary between different flood events, but all can have the potential to result in property damage, disruption to lives and businesses, and lead to lasting implications for the lives and livelihoods of islanders. How severe these

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<sup>3</sup> [Site Waste Management Plans](#)

consequences are can be influenced by the type of development, age-structure of the population, and the presence and reliability of mitigation measures.

In areas where there is a potential for flooding to happen, even if flood management measures are in place, there is always a possibility that these could be overtopped, exceeded, fail or breached. Because of this, it is never appropriate to class a previously identified flood risk area as 'not at risk' due to flood management infrastructure being in place.

### **Flood risk framework for development within areas at risk of flooding**

The Jersey Strategic Flood Risk Assessment<sup>4</sup> has been undertaken to support the development of an appropriate planning framework to deal with the various types of flood risk in Jersey. The aim of the flood risk framework is to ensure that the Island Plan can support development that is suitably resilient to the challenges of flood risk, within the context of a changing climate.

Flood risk categories have been established, based on the probability of coastal flooding, and inland flooding:

<b>Risk Category</b>	<b>Inland Flooding</b>	<b>Coastal Flooding</b>
<b>Little or No Risk</b>	Annual probability of inland flooding is less than 0.1% AEP (1 in 1000-year probability).	-
<b>Low Risk</b>	Annual probability of 0.1% AEP (1 in 1000-year probability) inland flooding risk.	-
<b>Medium Risk</b>	Annual probability of 1% AEP (1 in 100-year probability) inland flooding risk.	Annual probability of 0.5% AEP (1 in 200-year probability plus a 2120 epoch for climate change) flood event.
<b>High Risk</b>	Annual probability of 3.3% AEP (1 in 30-year probability) inland flooding risk.	Annual probability of 0.5% AEP (1 in 200-year probability for the present day) flood event.

Table WER1: flood risk categories, Jersey Strategic Flood Risk Assessment, AECOM (2021)

The Island Plan proposals map indicates these flood risk areas for the consideration of development proposals.

<sup>4</sup> Jersey Strategic Flood Risk Assessment (2021): see [IPR evidence base](#)

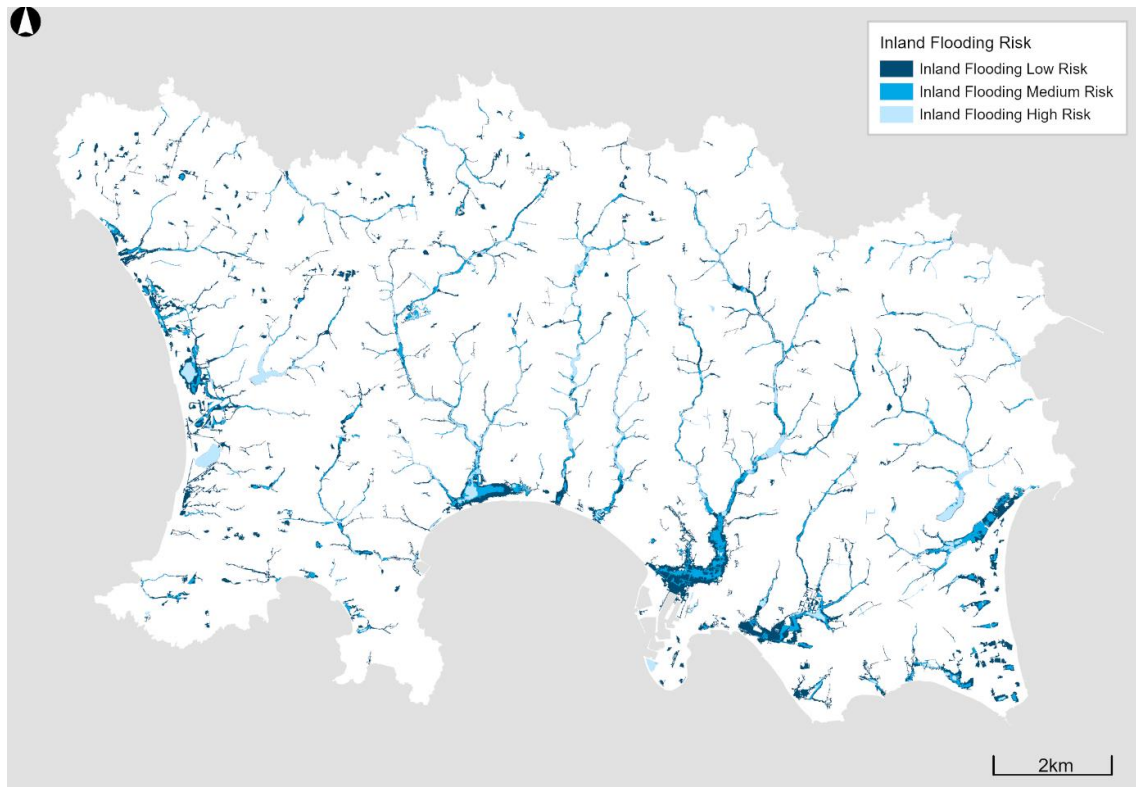


Figure WER2: Inland flood risk areas, Jersey Strategic Flood Risk Assessment, AECOM (2021)

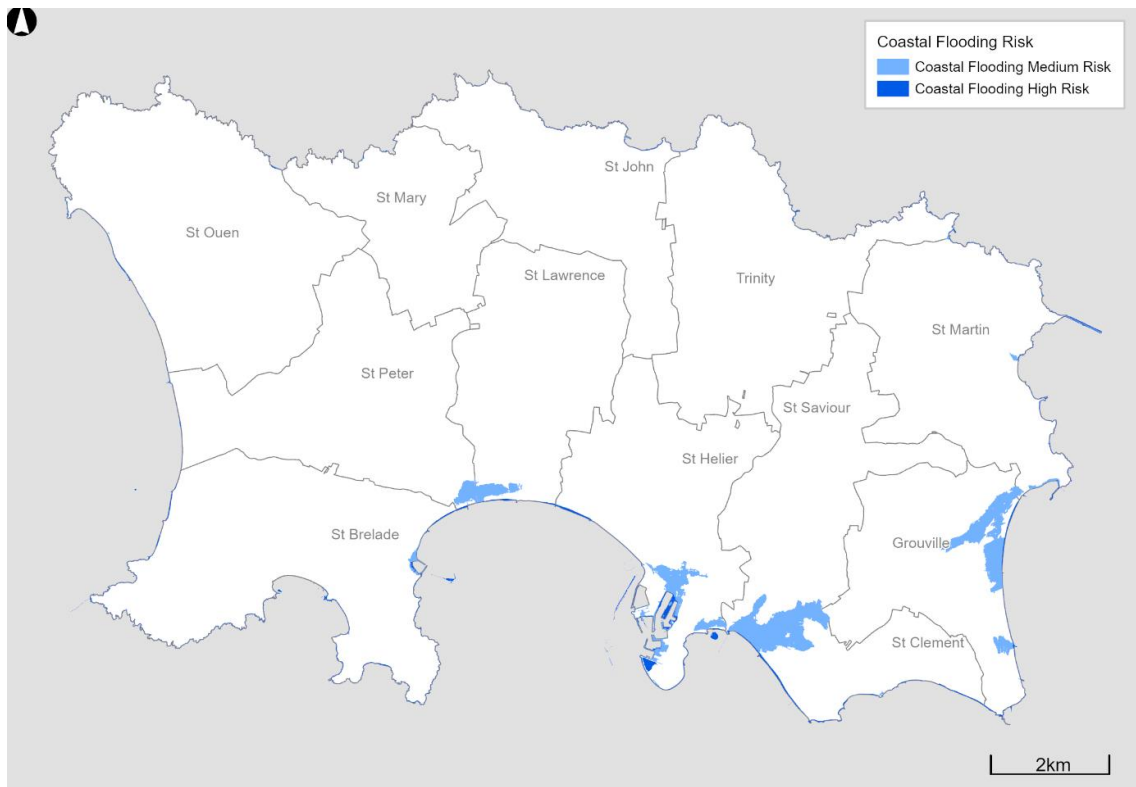


Figure WER3: Coastal flood risk areas, Jersey Strategic Flood Risk Assessment, AECOM (2021)

When making decisions about the suitability of development in relation to the risk of flooding, it is also necessary to consider the sensitivity of the proposed development or land use to flooding. This is referred to as the vulnerability of the development. Development types have been assigned a vulnerability classification based on the significance of the impacts that would occur if the development were to flood. The vulnerability classifications are defined in Table 2.

Vulnerability Classification	Development Definitions
<b>Essential Civil Infrastructure</b>	<ul style="list-style-type: none"> <li>• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.</li> <li>• Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.</li> <li>• Wind turbines.</li> <li>• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.</li> <li>• Hospitals.</li> </ul>
<b>Highly Vulnerable</b>	<ul style="list-style-type: none"> <li>• Emergency dispersal points.</li> <li>• Basement dwellings.</li> <li>• Caravans, mobile homes and park homes intended for permanent residential use.</li> <li>• Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').</li> <li>• Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.</li> <li>• Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.</li> <li>• Non-residential uses such as health services, nurseries and educational establishments.</li> <li>• Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; and assembly and leisure.</li> <li>• Landfill and sites used for waste management facilities for hazardous waste.</li> <li>• Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.</li> </ul>
<b>Less Vulnerable</b>	<ul style="list-style-type: none"> <li>• Land and buildings used for agriculture and forestry.</li> <li>• Waste treatment (except landfill and hazardous waste facilities).</li> <li>• Minerals working and processing (except for sand and gravel working).</li> <li>• Water treatment works which do not need to remain operational during times of flood.</li> <li>• Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.</li> </ul>
<b>Water Compatible</b>	<ul style="list-style-type: none"> <li>• Flood control infrastructure.</li> <li>• Water transmission infrastructure and pumping stations.</li> <li>• Sewage transmission infrastructure and pumping stations.</li> <li>• Sand and gravel working.</li> <li>• Docks, marinas and wharves.</li> <li>• Navigation facilities.</li> <li>• Defence installations.</li> <li>• Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.</li> <li>• Water-based recreation (excluding sleeping accommodation).</li> <li>• Lifeguard and coastguard stations.</li> <li>• Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.</li> <li>• Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.</li> </ul>

Table WER2: Development Vulnerability Classifications, Jersey Strategic Flood Risk Assessment, AECOM (2021)

Planning decisions in flood risk areas will be made using the flood risk categories (Table 1) and the development vulnerability classifications (Table 2). The approach differs for built-up areas and rural areas to avoid locating more vulnerable developments within areas which may not have supporting flood management measures. Table 3 (for built up areas) and Table 4 (for rural areas) specify the types of development that may or may not be acceptable in different flood risk categories, and define the appropriate approach to planning decisions for each scenario:

**Table legend:**

✓ Development is appropriate

— Development will need to identify wider justification for its location

✓ Development is appropriate subject to mitigation

✗ Development should not be permitted

Built-up areas: development suitability and planning approach				
Flood Risk Category	Essential Civil Infrastructure	Highly vulnerable	Less vulnerable	Water compatible
High	✗	—	—	✓
Medium	—	—	✓	✓
Low	—	✓	✓	✓
Little or No risk	✓	✓	✓	✓

Table WER3: Built-up areas: development and suitability planning approach, Jersey Strategic Flood Risk Assessment, AECOM (2021)

Rural areas: development suitability and planning approach				
Flood Risk Category	Essential Civil Infrastructure	Highly vulnerable	Less vulnerable	Water compatible
High	✗	✗	—	✓
Medium	—	—	✓	✓
Low	—	✓	✓	✓
No risk	✓	✓	✓	✓

Table WER4: Rural areas: development and suitability planning approach, Jersey Strategic Flood Risk Assessment, AECOM (2021)

Where a development site is identified as being at risk of flooding, even if it is only a low risk, it is necessary for the development proposal to acknowledge this risk and identify suitable mitigation so the impacts of flooding can be managed, enabling the development and its occupants to be more resilient to future flooding and climate change. A flood risk assessment (FRA) should be prepared for any development within identified flood risk areas in order to assess the level of risk, potential mitigation measures, and to ensure its acceptability. The level of detail required within the FRA should be proportionate to the



level of risk and vulnerability category of the proposed development, taken in the context of the scale of the proposal<sup>5</sup>.

Flood risk should be considered at an early stage in deciding the layout and design of a site to provide an opportunity to avoid and reduce the risk of flooding within the development and outside of it. Many large development proposals will include a variety of land uses of varying vulnerability to flooding events. Where possible, built development should be located in the lowest risk areas (considering all sources of flooding), for example, residential elements should be restricted to areas at lower probability of flooding whereas parking, open space or proposed landscaped areas can be placed on lower ground where there may be a higher probability of flooding.

In terms of specific design measures to increase resilience, all development in areas at medium or high risk of coastal flooding should have finished floor levels at a minimum of 300mm above the 1 in 200-year (0.5% AEP) flood level. Highly vulnerable development, in areas at medium or high risk of coastal flooding, should have finished floor levels at a minimum of 300mm above the 1 in 200 year (0.5% AEP) flood level for the year 2120, to account for the future impact of climate change. When this is not possible, additional mitigation measures will be required, details of which should be provided in the flood risk assessment.

Ideally, flood mitigation should be an integral element of design, and should not require intervention in order to deal with the level of risk posed. For this reason, flood prevention devices that require active intervention to achieve a reduction in the impact of flooding, such as removable flood barriers and gates designed to fit openings, will only be accepted as a last resort if all other mitigation options have been considered, and it is robustly justified that they are not reasonably achievable on the individual development site.

### **Policy WER2 – Managing flood risk**

Where possible, development which is vulnerable to flooding, or could increase the probability of flooding elsewhere, should be located away from areas at risk of flooding.

When a development is proposed to take place within an area at risk of flooding, the development will be assessed based on its location and subsequent exposure to inland and/or coastal flooding risk within a risk category (little or no risk, low, medium and high risk), and its vulnerability to flooding within a risk category, based on its vulnerability categorisation. This assessment will determine if:

- development is appropriate;
- development is appropriate subject to mitigation;
- development will need to identify wider justification for its location; or
- development should not be supported

All development proposals at low, medium or high risk of flooding will require a flood risk assessment (FRA). Development will only be supported where sufficient information has been provided in relation to a required FRA, and when adequate steps have been taken to ensure:

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<sup>5</sup> Jersey Strategic Flood Risk Assessment (2021) Appendix D provides further guidance about the details required for a flood risk assessment: see [IPR evidence base](#)

1. the design and layout will locate the most vulnerable type of development on the site towards the areas at lowest risk of flooding within the site, where this is possible;
2. the development adopts all reasonable measures to ensure the development will be sufficiently resilient to current and future flood risk, including land raising, when this is appropriate; and,
3. the development will not adversely affect flood routing and thereby increase flood risk elsewhere.

## Development along coastal flood defences, the coastline and watercourses

### Coastal flooding and sea defences

The Jersey coastline has evolved over time, influenced by geology, coastal processes and human interaction. The island encompasses a diverse range of natural features, the interactions between which have combined to create the unique character of the coastline.

Whilst large parts of the island's coastline remain undeveloped, some of the lowest-lying areas across the south, east and western coastline are developed and populated. These areas, including Town, rely on adequate coastal sea defences to protect residential and business property and key public infrastructure from coastal flooding and erosion. The ongoing protection of these assets is essential to business continuity, access to homes, schools, amenities and the sustainability of Jersey as a place to live.

Climate change is predicted to cause rising still water sea water levels, increasing wave heights, and an increased severity and occurrence of storms, leading to an increase in the risk of coastal flooding in the future. In response to this challenge, the Government of Jersey has prepared a Shoreline Management Plan (SMP) for Jersey<sup>6</sup>, as a large-scale assessment of the risks associated with these coastal processes. The aim of the SMP is to provide a proactive and climate resilient management plan for coastal activity in Jersey. This will reduce risks to the community, environment and economy over 100 years, across three management epochs which broadly correspond to the following time periods (management epochs):

1. Present Day (2020-2040)
2. Medium Term (2040-2070)
3. Long Term (2070-2120)

The SMP divides the Jersey coastline into six coastal management areas (CMAs) where the key features, activities and future predicted behaviour of the coast in terms of flood risk and coastal erosion are identified. These are then further subdivided into 36 coastal management units (CMU) to ensure a policy response proportionate to the local scale. The CMAs are located around the following main areas and illustrated in Figure 4 below:

- South Coast;
- Grouville Bay;
- St Catherine's;
- North Coast;
- St Ouen's Bay; and
- St Brelade.

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<sup>6</sup> [Jersey Shoreline Management Plan](#) (2020)

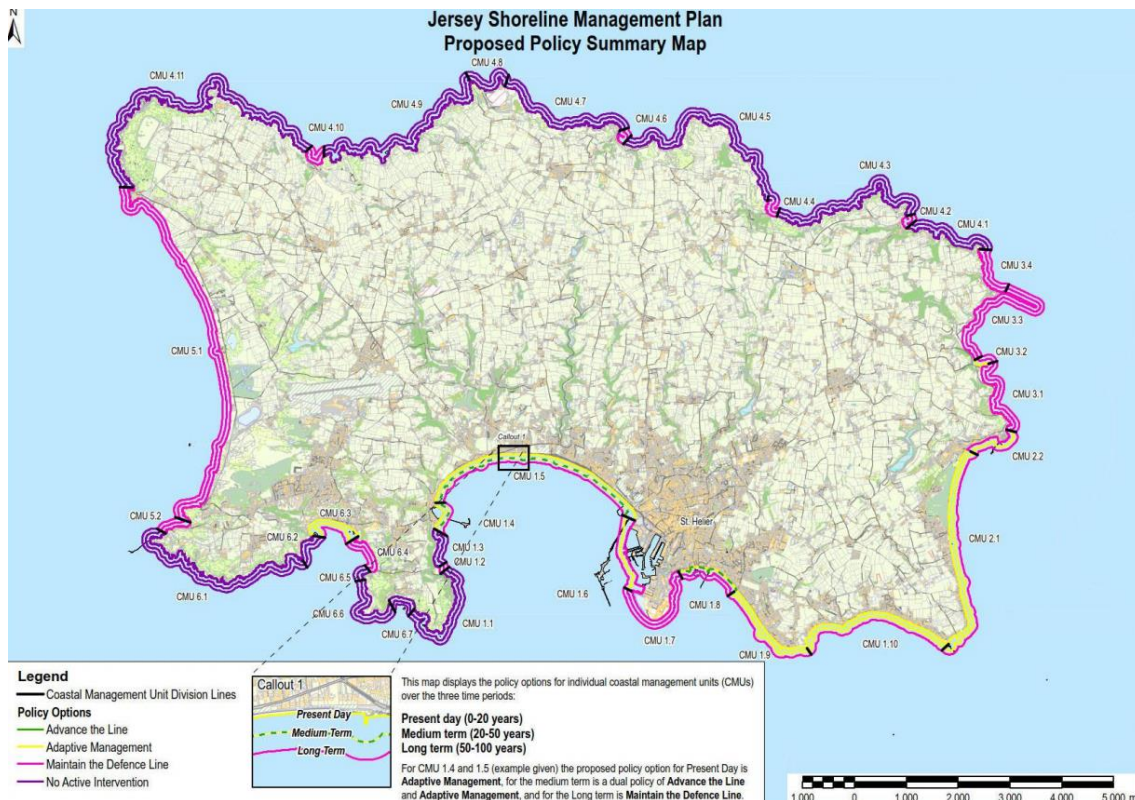


Figure WER5: Jersey Shoreline Proposed Policy Summary Map (Jersey Shoreline Management Plan, 2020)

Each CMU has been assessed and allocated a proposed policy implementation response. These are as follows:

- **no active intervention:** the shoreline will be left to naturally evolve without intervention. This generally applies to natural areas of the coastline which are currently undefended.
- **maintain the defence line:** existing coastal defences are maintained. The level of flood protection may decrease in some locations over time due to climate change resulting in sea level rise. This generally applies where the existing defences currently provide a reasonable standard of flood protection or prevent erosion of the shoreline.
- **adaptive management:** proactive management and mitigation of coastal flood or erosion risk. This could include improving the standard of flood protection for an existing sea defence, constructing new defences, raising awareness of flood risk to local communities or recommending flood protection for individual properties.
- **advance the line:** new sea defences are built seaward of existing defences. This approach will only be implemented in areas where there is currently a significant risk of coastal flooding or erosion, or where it will deliver additional benefits for the community, environment and economy, such as creating a new amenity space or other development opportunity.

The SMP identifies that a total of 460 properties in the island are currently at risk of coastal flooding, increasing to 2,822 by 2120 as a result of climate change, with the potential for additional GVA / business disruption losses for economy of up to £110m between 2020 and 2030, with present levels of coastal and flood risk management. It is, therefore, important that new development considers and responds to its vulnerability to the risks of coastal flooding and erosion, and ensures that it does not adversely impact on the ability for Jersey to reduce these risks in the strategic manner set out within the SMP.

### **Inland flooding and watercourses**

Inland flooding is defined as areas of overland flow and watercourses that cause flooding when water is unable to soak into the ground or enter drainage systems. It can quickly run off land and result in localised flooding. Water will naturally flow to the lowest point, so it is often possible to tell where surface water will collect in a flood by looking at the topography of the ground and using that to identify flow paths and watercourses.

Areas of overland flow can be defined as individual catchments. A catchment is the area of land, including the hills, woodlands, and buildings from which water drains, before flowing into watercourses and into the sea. The outside edge of a catchment is always the highest point. Gravity causes all rain and run-off in the catchment to run downhill where it naturally collects in a watercourse. Rain falling outside the edge of one catchment is falling on a different catchment and will flow into other streams and watercourses.

Intense rainstorms and poorly managed overland flow paths and watercourses can mean the potentially destructive power of the water can cause damage to land, property and possibly lives. If overland flow is obstructed it can act as a dam and cause a build-up of water that, if released, can result in significant consequences.

To support the future effective management of inland flood risk associated with watercourses, a catchment flood management plan (CFMP) should be developed for the island.

#### **Proposal 34 – Catchment Flood Management Plan**

The Minister for the Environment will work with the Minister for Infrastructure to further explore opportunities for the strategic management of inland flooding in the form of a catchment flood management plan (CFMP).

The CFMP should consider all types of inland flooding including surface water, watercourse and reservoir-related, and include the likely impacts of climate change, the effects of how we use and manage the land, and how we can sustainably develop land in the future.

### **Protection of the coastal defences and watercourses**

To ensure that the island is resilient to the risk posed by flooding it is important that adequate protection is provided to those natural and designed features which help manage that risk. Around the island's coastline, this takes the form of the existing sea defences that have been created to protect the land and development from the impact of rising sea levels and storm events. As set out in the SMP, these will need to be maintained, extended or developed anew to continue to deal with the increasing risk of coastal flooding. Inland, the island's natural and culverted streams and watercourses, along with areas that provide flood attenuation, serve to help manage risk from inland flood risk.

In order to ensure that the operation of coastal defences and watercourses are not compromised the Island Plan seeks to ensure that new development does not compromise their functionality and allows for their maintenance and enhancement, and will seek to secure a buffer strip alongside areas of coastline or coastal defences and watercourses.



Further work needs to be undertaken to define appropriate guidance and parameters for the establishment of buffer strips, both along the coastline and inland watercourses, recognising that, in many areas, existing development may be on, or in close proximity to, existing infrastructure, particularly around the coast. The Minister for the Environment will work with the Minister for Infrastructure to develop appropriate guidance, which will be issued for consultation and engagement with the parishes, stakeholders and the public before adoption.

### **Proposal 35 – Coastline and watercourse buffers**

The Minister for the Environment will work with the Minister for Infrastructure to develop supplementary planning guidance to define and establish an appropriate width and characterisation of buffer-strip alongside areas of coastline, coastal defences and watercourses, which will be used to support the implementation of flood risk policies.

### **Policy WER3 – Flood infrastructure**

Development within close proximity to a coastal sea defence, the coastline or watercourse will only be supported in such cases where the development has been proven to be appropriate and necessary, and will not otherwise prevent the effective operation, maintenance and/or extension of:

1. a coastal sea defence or be vulnerable to coastal erosion in accordance with the Shoreline Management Plan; or
2. a designated watercourse or other flood defence.

Proposals for new or replacement coastal defence schemes will be supported where they are consistent with the management approach for the coastline presented in the Jersey Shoreline Management Plan; meet the required specification in order to be able to provide mitigation against flood risk; and where the environmental impact of the development has been appropriately considered and, where necessary, mitigated or compensated.

## **Land reclamation**

The incremental reclamation of the foreshore of St. Helier has been taking place for more than 200 years, with the last half of a century seeing an acceleration of this activity to provide a means for inert waste disposal, whilst also creating new developable land which has contributed significantly to the development of new homes, leisure facilities and other employment land uses in Town.

Key reclamation projects have included La Collette I and the area to the West of Albert Pier, which were completed in 1981 and 1996 respectively. When the current land reclamation scheme at La Collette II is complete, the total reclaimed area from the three sites will be in excess of 65 hectares (160 acres/ 364 vergées)

Whilst, as a small island, the management of inert waste will remain a long-term challenge, strategic provision is made in the plan for the disposal of inert waste through the safeguarded inert waste management and disposal site at La Gigoulande Quarry, which has the benefit of planning permission.

A key challenge for the community - both now and into the future - is the impact of rising sea levels associated with climate change and the increasing risk of coastal flooding as a result, particularly along the island's south coast. The Shoreline Management Plan<sup>7</sup> (SMP) has been developed to provide a proactive and climate resilient management plan for Jersey, and the measures within it are specifically designed to reduce risks to the community, environment and the economy over the next 100 years.

For the areas where there is the most significant risk of coastal flooding, the proposed shoreline management approach includes the policy option to 'advance the line', which means creating new sea defences seaward and beyond existing coastal defences. This has the potential to deliver additional benefits for the community, environment and economy where developable land is created as a by-product of optimal sea defence design. The SMP identifies that this policy option may be appropriate for the management of flood risk along sections around the island's coastline, and specifically around Town in the short- to medium- term.

This Island Plan provides a policy framework that is supportive of a policy response to the challenge of climate change involving land reclamation where it will directly contribute to the implementation of the Shoreline Management Plan.

Land reclamation activities are not without significant environmental impact in their delivery and outcome. The environmental cost and impact of any scheme would require careful consideration, balanced against the strategic and long-term benefits that the island may achieve from its implementation.

Land reclamation proposals are required to be accompanied by an environmental impact assessment (EIA)<sup>8</sup>. The scoping stage of developing an EIA will determine the environmental considerations that must be assessed and reported on as part of the planning application.

Land reclamation sites, during their development, can represent intrusive elements in the coastal fringe, the impact of which will be dependent upon their relationship with, for example, Town. Where they are designed to deliver shoreline management schemes, the timescale for their delivery should be expedited as far as practicably possible, relative to their impact upon sensitivity of the locality.

Normally, where the condition of land is altered for a temporary period to, for example, extract minerals or process or dispose of inert waste, there is a requirement for full working land restoration plans to be developed at the outset, and be part of the assessment of the original proposal. To ensure that the purposing of reclaimed land best meets the community's needs, which may change over time and during the process of reclamation, there may be instances where the initial restoration plans can provide a framework of broad aims, and be subject to further masterplanning and more detailed restoration proposals that are subject to community engagement, depending upon the extent of land reclamation. It may be appropriate and acceptable for a range of meanwhile uses to be secured, to be delivered through a phased process of reclamation, pending more detailed masterplanning.

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<sup>7</sup> [Jersey Shoreline Management Plan](#) (2020)

<sup>8</sup> [Planning and Building \(Environmental Impact\) \(Jersey\) Order 2006](#)

## Policy WER4 – Land reclamation

Proposals for further land reclamation sites will be supported where:

1. it can be demonstrated that they provide an appropriate response to protect the island from future coastal flood risks associated with climate change, in accordance with the Shoreline Management Plan; or,
2. it is proven to be in the island's strategic interest, in the absence of suitable alternative options, and where the development will not unduly hinder the implementation of schemes required to protect the island from future coastal flood risks associated with climate change.

In all cases, it must be proven that:

- a. the development will lead to significant and long-term benefits to the community, and these benefits are deemed to sufficiently outweigh any environmental impact that will arise as a result of the development; and,
- b. the anticipated environmental impact of the development will be acceptable, with anticipated effects mitigated as far as possible, and appropriately compensated for.

The fill material for land reclamation schemes, other than for engineering elements, will comprise inert waste derived material that cannot economically be processed to meet an engineering material specification and that meets the structural and environmental protection standards required for the scheme.

Restoration schemes, setting out the wider potential community benefits of land reclamation, should be submitted with the development proposals and included in the associated environmental impact assessments. These should demonstrate that the site will deliver appropriate uses which respond to community needs within a reasonable timeframe.

## Water quality

It is important that the island's aquifers and watercourses are protected from pollution, so as to maintain a high-quality water supply and prevent harm to the natural environment and ecosystems. The water pollution safeguard area, as defined on the proposals map, was identified in the 2002 Island Plan, encompassing the water catchment areas that feed the island's reservoirs.

Within this area, there is a need to have regard to the implications of development for both the quantity and quality of water, particularly when there is a higher risk of pollution arising from new development, such as through foul and surface water drainage. Where a development proposal is within the defined water pollution safeguard area, Jersey Water will be consulted prior to determining the planning application, to ensure that the public water supply is not put at risk from pollution.

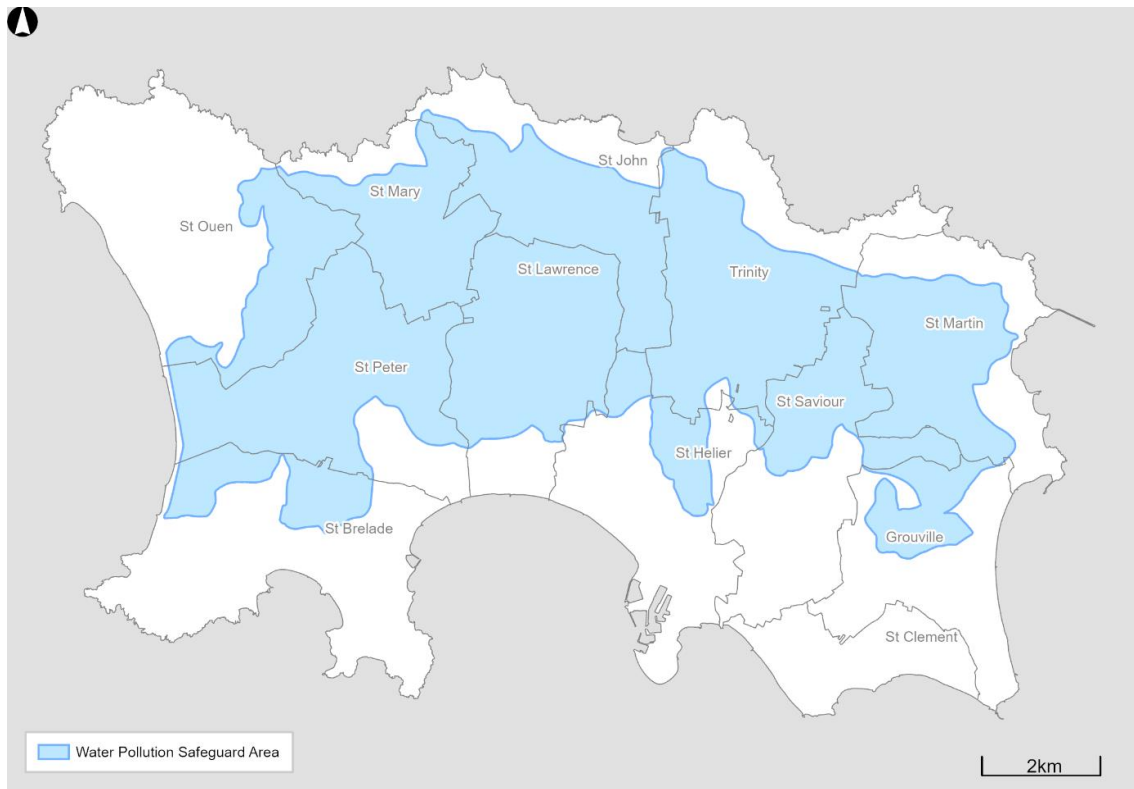


Figure WER6: designated water pollution safeguard area

### Policy WER5 – Water pollution safeguard area

Development within the water pollution safeguard area that would lead to unacceptable impacts on the aquatic environment, including surface water and groundwater quality and quantity, will not be supported.

## Surface water drainage

Rain falling on buildings and hard surfaces is unable to infiltrate into the ground, which means it needs to be purposefully drained in order to prevent problems of localised flooding downstream. New development can increase the area of impermeable ground and, therefore, increase surface water run-off.

Historic drainage systems provided as part of development, have sought to remove rainfall from impervious surfaces as quickly as possible, piping it away to discharge to the public sewerage system or nearby watercourses and water bodies. These methods can often lead to problems, including:

- **downstream flooding:** caused by high rates of surface water flow for shorter periods;
- **poor water quality:** in streams and ground water due to certain contaminants contained in surface water outfalls (e.g. oil, organic matter and toxic chemicals);
- **lowering the water table:** reducing the amount of water available for infiltrating into the ground will reduce the volume of ground water storage leading to a drop in ground water levels and the base flow of streams; and
- **ecological damage:** the above factors, combined with the erosion and deposition associated with higher flows and the reduction in oxygen level due to the suspension of high levels of silt can seriously damage natural habitats, flora and fauna.



The use of sustainable drainage systems (SuDS) can prevent surface water drainage from new development damaging the environment or posing a risk to inland flooding. These are typically softer engineering solutions, inspired by natural drainage processes such as ponds and swales, which manage surface water as close to its source as possible, rather than discharging it as quickly as possible. Wherever possible, a SuDS technique must seek to contribute towards:

- reducing flood risk to the site, and neighbouring or downstream areas;
- reducing pollution; and,
- providing landscape and wildlife benefits.

To ensure the most sustainable approach to managing surface water, the discharge of surface water run-off must be made as high up the hierarchy of drainage options as reasonably practicable, as follows:

1. store rainwater for later use, in accordance with the supply and use of water policy<sup>9</sup>
2. use infiltration techniques, such as porous surfaces;
3. attenuate run-off in open water features for gradual release to a watercourse;
4. attenuate run-off by storing in tanks or sealed water features for gradual release to a watercourse;
5. discharge run-off direct to a watercourse;
6. attenuate rainwater by storing in tanks or sealed water features for gradual release to a surface water drain; and
7. discharge rainwater to the public surface water sewer.

Consideration should be given to the whole life management and maintenance of SuDS to ensure that it remains functional for the lifetime of the development, and these should be implemented for all development sites unless it is appropriately demonstrated that SuDS are not suitable.

Cases where SuDS may not be suitable include where they would be likely to cause significant land or water pollution; the site's ground conditions would preclude their use; the size of the site would prevent their use; or, they would cause damage to adjacent buildings or sites.

All discharges of surface water to groundwater, or to local watercourses and waterbodies, are required to meet water quality standards and conditions set by the Government of Jersey, and will not be supported where this would lead to pollution. Often, and particularly for larger sites, a successful SuDS solution will utilise a combination of techniques, providing flood risk, pollution and landscape/wildlife benefits. SuDS can also be employed on a strategic scale, for example, with a number of sites contributing to large-scale jointly funded and managed SuDS, but each development site must offset its own increase in runoff, and attenuation cannot be "traded" between developments.

Further guidance on the different appropriate types of SuDS is available in the Jersey Strategic Flood Risk Assessment<sup>4</sup>.

Where discharge of surface water to the public sewerage system is unavoidable, the responsibility for the cost of making a connection, and/or providing increased capacity to accept the additional flows, must be borne by the development, and this may be the subject of a planning obligation agreement.

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<sup>9</sup> See associated 'Policy UI3 – Supply and use of water' – Utilities infrastructure chapter

If a development proposal is within the defined water pollution safeguard area, Jersey Water will be consulted prior to determining the planning application, to ensure that the public water supply is not put at risk from pollution.

### **Policy WER6 – Surface water drainage**

Development that will lead to a change in surface water flow, by virtue of new or extended buildings or landscaping, will only be supported where it incorporates sustainable drainage systems (SuDS) into the overall design which includes:

1. the reduction and management of surface water run-off as near to the source as possible;
2. the use of minimal areas of impermeable surfaces;
3. surface water run-off being discharged as high up the hierarchy of drainage options as practicable; and
4. discharge rates being limited to pre-existing natural rates of run-off so as to avoid causing or exacerbating flooding, either locally or remotely, except where, in appropriate circumstances, flood risks are high and there may be a requirement to reduce the pre-existing discharge of run-off.

Exceptions for the use of SuDS will only be supported where:

5. they would be likely to cause significant land or water pollution
6. the site's ground conditions would preclude their use
7. the size of the site would prevent their use
8. they would cause damage to adjacent buildings or sites.

Discharges of surface water to groundwater, or to local watercourses and waterbodies, will be required to meet quality standards and conditions set by the Government of Jersey and will not be supported where this could lead to pollution. In some cases, the development may be required to incorporate remedial measures into drainage systems to avoid the risk of pollution from oil and other chemicals, where this is necessary.

Discharges of surface water to the public sewerage system will not be supported unless approved by the Minister for Infrastructure and, if accepted, will be required to be separate from foul sewage.

Where an existing combined foul and surface water sewer exists, its separation will be required.

In those cases where it is necessary to provide increased capacity in the public sewerage system and pumping stations, so as to accept the additional flow from the development, the use of planning obligation agreements may be required to fund any such connection or increase in capacity.

Development proposals will be required to submit sufficient information regarding the means of surface water disposal to allow a proper assessment of the development proposals. Where this information is not provided, the development may not be supported.

## Foul sewerage

The availability of foul sewerage and the suitability of existing and proposed foul sewerage are vitally important so as to ensure that development does not lead to negative environmental, amenity or public health problems.

In 2014, the Waste Water Strategy<sup>10</sup> estimated that around 87% of properties across the island were connected to the foul sewer system, with an ambition to increase this to 90% over the 20 year period of the strategy. There are approximately 6,000 properties not presently connected to the foul sewer network, predominantly in rural areas, and these rely on a variety of alternative foul water systems, including septic tanks and soakaways, tight tanks and private sewage treatment plants.

New and existing developments that rely on these alternative foul water systems can individually and cumulatively increase the risk of pollution to the water environment. Such pollution can be caused by issues such as overloading, poor maintenance, inadequate soakaways, irregular emptying of sludge and the limited effective life of the systems.

Given the potential hazards associated with such systems, the primary aim is to ensure that when new development takes place, it becomes connected to the island's public sewerage system. The cost of making a connection and/or providing increased capacity in the public sewers and pumping stations is the responsibility of the person undertaking the development, and this may be secured by a planning obligation agreement.

When connection to the public foul sewer is not possible or feasible, alternative systems will be considered in a sequential order, starting with systems that carry the least risk of a future pollution incident. If a suitable system cannot be agreed, the development will be not be supported. There may be exceptional instances where small-scale development, that is not served by the public mains foul sewage system, is supported where the existing non-mains system is performing adequately, and where it has capacity to receive additional loading: this may apply to the following forms of development, including:

- extensions and alterations to existing residential properties;
- conversions of existing non-residential buildings to create no more than two homes or other similar small-scale uses;
- incidental buildings within domestic property boundaries;
- essential rural workers' accommodation; and
- other small-scale developments.

Development proposals will be considered in light of the Minister for the Environment's published supplementary planning guidance for disposal of foul sewage<sup>11</sup>. If a development proposal is within the defined water pollution safeguard area, Jersey Water will be consulted prior to determining the planning application, to ensure that the public water supply is not put at risk from pollution.

In some circumstances, a discharge permit will be required. A discharge permit is an authorisation to discharge into controlled waters, a substance or energy that would otherwise be classified as polluting. Most of the discharge permits issued by the Minister for the Environment relate to effluent from private drainage systems being released from

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<sup>10</sup> [Waste Water Strategy](#) (2014)

<sup>11</sup> Supplementary Planning Guidance: advice note – [Disposal of Foul Sewage](#) (2012)

the soakaway underground. This discharge may eventually reach groundwater and, therefore, requires appropriate control and management.

### **Policy WER7 – Foul sewerage**

Development that results in any additional discharge of sewage will only be supported where it provides a system of foul drainage that adequately connects to the mains public foul sewer.

When a new or upgraded connection to the public foul sewer system is required, the developer will be responsible for the cost of making the connection and/or realising increased capacity in the sewerage system and/or pumping stations, where this may be necessary to accept additional flow arising from the proposed development.

In exceptional circumstances, where it has been demonstrated that connection to the mains public foul sewer is not economically feasible, taking into account viability and practicability, development served by a packaged treatment plant offering full treatment, will only be supported where it is demonstrated that:

1. the final effluent will meet adopted standards and conditions; and
2. adequate provision is made for future operation, monitoring / telemetry and maintenance throughout the life of the plant, supported by a planning obligation agreement, and meeting the terms and conditions of any required discharge permit.

In exceptional cases, small-scale development which results in an increase discharge of foul sewage, where it is served by non-mains sewage disposal, including existing septic tanks and tight tanks, may be supported where it is demonstrated that:

3. the system can be shown to be performing adequately;
4. it will have sufficient capacity to receive the additional loading, and where:
5. connection to mains drains is not feasible;
6. the installation of a packaged treatment plant would be unreasonable;
7. the increase in the amount of effluent as a result of development will be negligible;
8. ground conditions are appropriate and the development plot is of adequate size to provide an adequate sub-soil drainage system;
9. development will not create or add to a pollution problem;
10. the development will not place an unacceptable burden on amenity or cause public health or environmental problems; and
11. adequate provision is made for maintenance and monitoring.

Where it is proposed to increase sewage discharge into an existing non-mains sewerage system, there will be a requirement for the developer to make suitable improvements to the system, where required.

In all cases, the use of septic tank systems, tight tanks and other such systems will not be supported where a discharge permit is unlikely to be granted, or where the proposals are put forward as a temporary measure with the intention of connecting drainage to the mains public foul sewer at a later date and may give rise to problems referred to above.



Development proposals must be accompanied by sufficient information regarding the means of sewage disposal to allow a proper assessment of the proposals. Where this information is not adequately provided, the development will not be supported.

## Safety zones for hazardous installations and new hazardous installations

Successive Island Plans have identified safety zones, primarily around bulk fuel storage facilities and also other major hazard risk sites, such as the storage of explosives at Crabbé. These zones are defined because the level risk posed by an existing development needs to be carefully considered when other development proposals in the vicinity are put forward. The primary concern in these areas is to ensure the safety of the public and occupiers of nearby homes, business and land.

The existence of hazardous installations effectively represents a constraint on development in the vicinity. The extent of that constraint is dependent upon the nature of the hazard(s) and the sensitivity of the development proposal. La Collette serves as a strategic location for the receipt and storage of much of the island's fuel and, given the nature and scale of hazard here, development proposals within the vicinity will be considered relative to the Health and Safety Executive's Planning Advice for Developments near Hazardous Installations (PADHI)<sup>12</sup>, through our own Health and Safety Inspectorate. The PADHI methodology establishes different sensitivity levels of development and guides where these may or may not be considered acceptable within the safety zones, defined by the latest land use planning risk assessment for the site.

Within all other zones associated with hazardous installations, as defined on the proposals map, development proposals will be considered individually relative to the nature of the proposal, its relationship to the hazard, and the level of risk anticipated if the development were to take place. All planning applications within the designated safety zones, or any new hazardous development that may arise, will be referred to the Health and Safety Inspectorate and Jersey Fire and Rescue Service, for consultation, who may escalate a referral to the Island-wide Hazard Review Group<sup>13</sup> in order that the extent of risk might be comprehensively considered as part of the planning process.

In some cases, it will be necessary for development proposals to be accompanied by additional reports to identify the nature of risk, evaluate the level of risk, and specify ways in which such risks can be eliminated or appropriately controlled. Such reports must be undertaken by a suitably qualified specialist consultant, and the Health and Safety Inspectorate should be consulted at an early stage to determine the scope of any report, as may be necessary.

### Policy WER8 – Safety zones for hazardous installations

Where development is proposed to take place within a designated safety zone, the health and safety of the public, and the extent to which any risks can be managed or mitigated, will be the overriding consideration.

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<sup>12</sup> [HSE PADI land use methodology](#)

<sup>13</sup> This is a sub-group of the Jersey Resilience Forum.

Development will only be supported where adequate information to understand the level of risk associated with the development has been provided, and where the level of risk exposure to the public will remain acceptable and/or can be properly controlled. Where these requirements have not been satisfied, development proposals will not be supported.

It is important that safety zones remain under review to ensure that they provide an adequate and proportionate representation of the land use risks that may exist. The Minister for the Environment, in partnership with the Minister for Home Affairs, will seek to work with landlords and occupants within existing or emerging safety zones, to ensure that appropriate data is made available, through the planning process, and outside of it, to inform future land use management and emergency planning.

### **Proposal 36 – Review of safety zones**

The Minister for the Environment, working in partnership with other Ministers, will seek to ensure that work is undertaken to review existing safety zones and to define new zones, as may be appropriate, during the plan period.

There will inevitably be future strategic needs for different types of infrastructure and operations that may present a new, extended or redefined hazard risk.

A particular example of this is the recognition, established in the Carbon Neutral Strategy, that Jersey must progressively reduce its dependence on hydrocarbons such as gas, petrol, diesel, and kerosene for heating homes, fuelling transport and other purposes, and move towards more sustainable fuel options. The speed of this transition is currently being considered and will be established in a carbon neutral roadmap informed by the recommendations of the Jersey's Citizens Assembly on Climate Change.

It is, however, unlikely that the need for bulk fuel storage in the island will see any substantial reduction in the near-term, even under a significantly accelerated transition to carbon neutrality. To ensure continued on-island fuel security, it is essential that appropriate bulk fuel storage facilities are available and remain adaptable to changing demands. The planning process will play an essential role in ensuring that any such demands can be appropriately met, but without unduly compromising the availability of developable land, the environment, or the safety of islanders.

### **Policy WER9 – New, extended or altered hazardous installations**

Proposals for new, extended or redefined hazardous installations will only be supported where:

1. it is demonstrated that the development is essential to meet a specific need;
2. the proposed site is considered to be the best option, having been assessed against a reasonable list of alternative sites;
3. the proposal will not lead to an unacceptable sterilisation of land;
4. the environmental impact of the development has been appropriately considered and is acceptable; and
5. the nature of risk has been appropriately assessed, and a conclusion reached that the development will not lead to an unacceptable or unmanageable risk to the safety of islanders in and around the development.

Any proposals for new, extended or redefined hazardous installations must be accompanied by adequate information in order that the risk to public safety might be properly assessed; and without which they will not be supported.

## Aircraft noise zones

Aircraft landing and taking off are the main sources of aviation noise. Those living close to the airport are likely to experience 'ground noise' from the activities within the airport, such as taxiing aircraft. For those living near to the airport or below flight paths, aircraft noise can result in distraction, speech interference, sleep disturbance and increased stress<sup>14</sup>, having an adverse impact on people's overall quality of life and wellbeing. Noise performance of the aviation industry has improved dramatically over the last 50 years, but this has not been matched by an improved public perception of aviation noise.

Noise is measured using the standard decibel scale (dBA). A series of aircraft noise events can be averaged over any given period of time using the equivalent continuous sound level (Leq). Leq is the method of averaging recommended in the UK Government's planning guidance on noise and in guidelines issued by, for example, the World Health Organisation.

To assess the impact of aviation noise, noise maps are produced. These noise maps depict contours which connect points with the same average noise exposure. The contours are generated using computer models, based upon the known characteristics of aircraft noise generation and attenuation. The dBA values used relate to the Leq 16-hour daytime period from 7am to 11pm because daytime rather than night movements are the relevant factor in considering capacity issues. The maps are used to identify areas where the noise level exceeds the thresholds outlined above.

In Jersey, three noise zones have been identified with differing degrees of restrictions to be applied when dealing with noise sensitive development. The definition of noise sensitive development for this policy is:

- all residential development, including extensions to existing dwellings and the conversion of buildings (or part thereof) to residential use;
- all public buildings such as schools and health facilities, and other buildings within which people would be expected to work or would occupy for continuous periods during the Airport's operational hours; and
- offices, shops, visitor accommodation, restaurants, some warehouses and other commercial premises, where exposure to noise may prejudice the level of amenity that could reasonably be expected of such a development.

### Policy WER10 – Aircraft noise zones

Proposals for noise-sensitive development within the defined aircraft noise zones will only be supported where, in:

- **noise zone one** (> 72: Air noise exposure level (Leq dB(A)) 16hr), it is related to airport operational activities;

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<sup>14</sup> CAA: [Managing Aviation Noise](#)

- **noise zone two** (66 – 72: Air noise exposure level ( $L_{eq}$  dB(A)) 16hr), it is demonstrated that there are no suitable alternative sites available for the proposed purpose, such as extensions or conversions of existing buildings. Planning conditions will be used to ensure a commensurate level of protection against noise; and
- **noise zone three** (57 – 66: Air noise exposure level ( $L_{eq}$  dB(A)) 16hr ) it is subject to planning conditions to ensure a commensurate level of protection against noise, where appropriate

## Airport public safety zones

Whilst air travel is generally a very safe method of travel, incidents are most likely to occur during take-off or landing. Public safety zones are areas of land at the ends of a runway, within which development is restricted in order to control the number of people on the ground who may be at risk of death or injury in the event of an aircraft accident on take-off or landing.

Individual risk contours exist for Jersey Airport, which determine the extent of the public safety zones for planning purposes. The individual risk contours determine the extent of individual risk of being killed as a result of an aircraft accident to which a person remaining in the same location for a period of a year would be exposed. This level of risk has resulted in the delineation of two distinct zones, as defined on the Island Plan proposals map.

Public safety zone 2, represented by the individual risk contour at  $10^{-5}$ , defines the area within which it is estimated there is a 1 in 100,000 chance that an individual would be killed by a crashing aircraft if they spent a year continuously at that location. The areas for which the risk is greater than 1 in 10,000 i.e.  $10^{-4}$  is represented by public safety zone 1.

The areas of the public safety zones correspond to a simplified form of the risk contours, in order to make the zones easier to understand and represent on maps, and also in recognition of the necessarily imprecise nature of the forecasting and modelling work.

Within the airport public safety zones, there should be no increase in the number of people living, working or congregating. As such, there is a general presumption against new development, or changes of use of existing buildings and land within these zones. For existing properties and buildings within safety zone 2, some exceptions are made to the general presumption against new development - but only where it would not result in an increase in the number of people living, working or congregating within the zone.

In the areas of greatest risk, within safety zone 1, the number of people living, working or congregating within the area should be reduced. The Island Plan can assist this by resisting proposals for new and replacement buildings in safety zone 1 as and when proposals for redevelopment come forward. At present, there are two residential properties in this area.

Although people travelling along a road are likely to be within the public safety zone for a short period of time, the average density of occupation during the day may be quite high, and equivalent to fixed development. The location of infrastructure such as road junctions, traffic lights and roundabouts may lead to an increase in the number of stationary vehicles within the zone and any such proposals for any of the main roads within the zone, including Grande Route des Mielles; Route de Beaumont and Vallée de St Pierre, will need

to be carefully assessed in terms of the average density of people that might be exposed to risk.

### **Policy WER11 – Airport public safety zones**

In order to keep people safe and reduce their exposure to risk, new development within the defined airport public safety zones will not be supported except for, in:

**public safety zone 1:** where the level of risk is greatest:

1. long-stay car parking;
2. buildings into which people do not normally go, such as those which house plant or machinery, or are associated with the supply of electricity or water; or
3. low density recreational uses such as golf courses (without clubhouse facilities)

**public safety zone 2:**

1. the replacement of an existing building, which would not significantly increase the number of people living or using it;
2. an extension or alteration to an existing building which would not increase the number of people using or occupying the property or, if greater, the number authorised by any extant planning permission;
3. a change of use which would not increase the number of people working or using the property or, if greater, the number authorised by any extant planning permission
4. long-stay car parking;
5. erection of buildings into which people do not normally go, including those which house plant or machinery, or are associated with the supply of electricity or water;
6. erection of buildings for open storage and certain forms of warehousing, which have a low-density of on-site employees;
7. public open space, where there would be low intensity use which would not regularly attract large numbers of visitors; or
8. low density recreational uses such as golf courses (without clubhouse facilities) and allotments.

Where development is allowed within the airport public safety zones, it may be subject to planning conditions restricting the number of users and preventing future intensification of use.

The evidence for the definition of both the aircraft noise and public safety zones is based on the volume and type of aircraft that was using Jersey Airport at the end of the 1990s. Whilst this evidence may have included, and taken account of forecasts about the changing nature of planned reductions in the generation of aircraft noise through regulation, it is likely that both the safety and noise performance of aircraft has changed since that time. Similarly, it is also likely that the volume and type of aircraft flying to Jersey has also changed.

In light of this, further work will be undertaken during the plan period, in consultation with the Ports of Jersey, to establish whether or not these changes are likely to be material, relative to the definition of existing noise and public safety zones; and where they are, explore the possibility that the existing zones around Jersey Airport might be reviewed to inform the next Island Plan Review.



### **Proposal 37 – Aircraft noise and public safety zone review**

The Minister for the Environment will seek to explore the need to, and viability of, updating the defined aircraft noise and public safety zones for Jersey Airport to reflect any changes in the type and volume of aircraft visiting the island to inform the next Island Plan Review.