

HAMPSHIRE COUNTY COUNCIL, NEW FOREST NATIONAL PARK AUTHORITY, PORTSMOUTH CITY
COUNCIL, SOUTH DOWNS NATIONAL PARK AUTHORITY & SOUTHAMPTON CITY COUNCIL

Hampshire Minerals & Waste Plan

Strategic Flood Risk Assessment

October 2023



Contents

Non-technical Summary	1
1. Introduction	3
What is the purpose of this Assessment?	3
Potential Allocations	4
What is the Hampshire Minerals & Waste Plan?	4
2. Planning Policy and Guidance	6
National Planning Policy Framework (September 2023) and Flood Risk and Coastal Change Guidance (August 2021)	6
Flood and Water Management Act (2010)	9
River Basin Management Plans (2016)	9
Catchment Flood Management Plans (CFMPs)	9
Shoreline Management Plans	11
3. Flood Risk – High Level Review	12
Hampshire	12
Southampton	15
Portsmouth	18
4. Site Specific Analysis Methodology	21
Climate Change Assessment	23
5. Analysis of Submitted Sites	25
Loddon Catchment	25
Wey Catchment	34
Arun & Western Streams Catchment	39
East Hampshire Catchment	42
New Forest Catchment	55
Avon Catchment	64
Test & Itchen Catchment – Test Lower Operational Catchment	76
Test & Itchen Catchment – Test Upper Operational Catchment	85
Test & Itchen Catchment – Itchen Operational Catchment	100
6. Conclusions	109
Appendix 1: Sequential Test of Sites	111
Appendix 2: Sequential Test Methodology	119
Appendix 3: Catchment Flood Management Plan maps	120
Appendix 4: North Solent Shoreline Management Plan	123

Map 1: Hampshire Waste and Minerals Plan Authorities and assessed sites	5
Map 2: Hampshire River Catchments.....	13
Map 3: Southampton River Catchments.....	16
Map 4: Portsmouth River Catchments.....	19

Non-technical Summary

1. Hampshire County Council, Portsmouth City Council, Southampton City Council, the New Forest National Park Authority and the South Downs National Park Authority (collectively referred to as the 'Hampshire Authorities') are working together to prepare a partial update to the Hampshire Minerals & Waste Plan (HMWP), adopted 2013.
2. This Strategic Flood Risk Assessment (SFRA) forms part of the evidence base for the HMWP Partial Update.
3. A SFRA is a study carried out by one or more Local Planning Authorities to assess the risk to an area from flooding from all sources, now and in the future, taking into account the impacts of climate change, and to assess the impact that land use changes and development in the areas will have on flood risk.
4. Mineral and waste development is vulnerable to flooding, most commonly from fluvial (river) sources, but damage or inconvenience can also arise from surface water runoff and groundwater. The planning system can help to reduce the risk of flooding by locating development in areas that avoid flood risk, ensuring it does not exacerbate flooding elsewhere and that new development is resilient to the effects of flooding.
5. 36 potential minerals and waste site allocations were identified through a 'call for sites' to industry, agents and landowners within the Plan area.
6. This SFRA provides an assessment of each potential site allocation in terms of flood risk considering the sequential approach and identifying any sites which are not considered appropriate or have specific constraints which need to be addressed if sites are taken forwards. The proposed HMWP Policies in relation to Flood Risk and Water Quality are taken into account within the site assessments.
7. Of the 36 sites assessed, 28 are not within Environment Agency Flood Zones 2 or 3 or Groundwater Source Protection Zones 1 or 2. 8 sites are all either wholly or partially within Environment Agency Flood Zones 2 and /or 3 and /or groundwater Source Protection Zone 1.
8. All of the assessed sites are considered acceptable use in terms of the sequential test providing suitable measures are undertaken in terms of the sequential layout of the site and / or suitable mitigation in relation to flood risk or contamination. In addition, given the majority of sites relate to minerals extraction and waste management, there are benefits that can be sought during the restoration phase

with potential for both flood risk and environmental benefits through pond creation and other measures.

9. Based on the strategic assessments of the potential site allocations, and based on the intended use of the sites as set out in the Proposed Submission Plan, it is considered that all of the sites are viable, from a flood risk perspective, providing suitable measures and mitigation are provided.

1. Introduction

What is the purpose of this Assessment?

- 1.1 Mineral and waste development is vulnerable to flooding, most commonly from fluvial (river) sources; but damage or inconvenience can also arise from surface water runoff and groundwater. The planning system can help to reduce the risk of flooding by locating development in areas that avoid flood risk, ensuring it does not exacerbate flooding elsewhere and that new development is resilient to the effects of flooding.
- 1.2 The National Planning Policy Framework (NPPF)¹ sets out the requirements for Local Planning Authorities to take account of flood risk. Paragraph 160 requires Local Plans to be supported by a Strategic Flood Risk Assessment (SFRA) and to develop policies to manage flood risk. A 'sequential approach' to site selection should be taken to locate development in the areas at lowest flood risk.
- 1.3 A SFRA is a study carried out by one or more Local Planning Authorities to assess the risk to an area from flooding from all sources, now and in the future, taking into account the impacts of climate change, and to assess the impact that land use changes and development in the areas will have on flood risk.
- 1.4 The SFRA is used to apply the sequential test which aims to steer new development to areas with the lowest probability of flooding. If there are alternative sites in areas of lower flood risk, development should not be allocated or permitted. If it is not possible for the development to be located in flood zones with a lower probability of flooding, it must be demonstrated that the development provides wider sustainability benefits that outweigh flood risk, and a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime without increasing flood risk.
- 1.5 The SFRA will form part of the evidence base for the Hampshire Minerals & Waste Plan (HMWP) Partial Update.

¹ National Planning Policy Framework (NPPF) 2023 - https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf

Potential Allocations

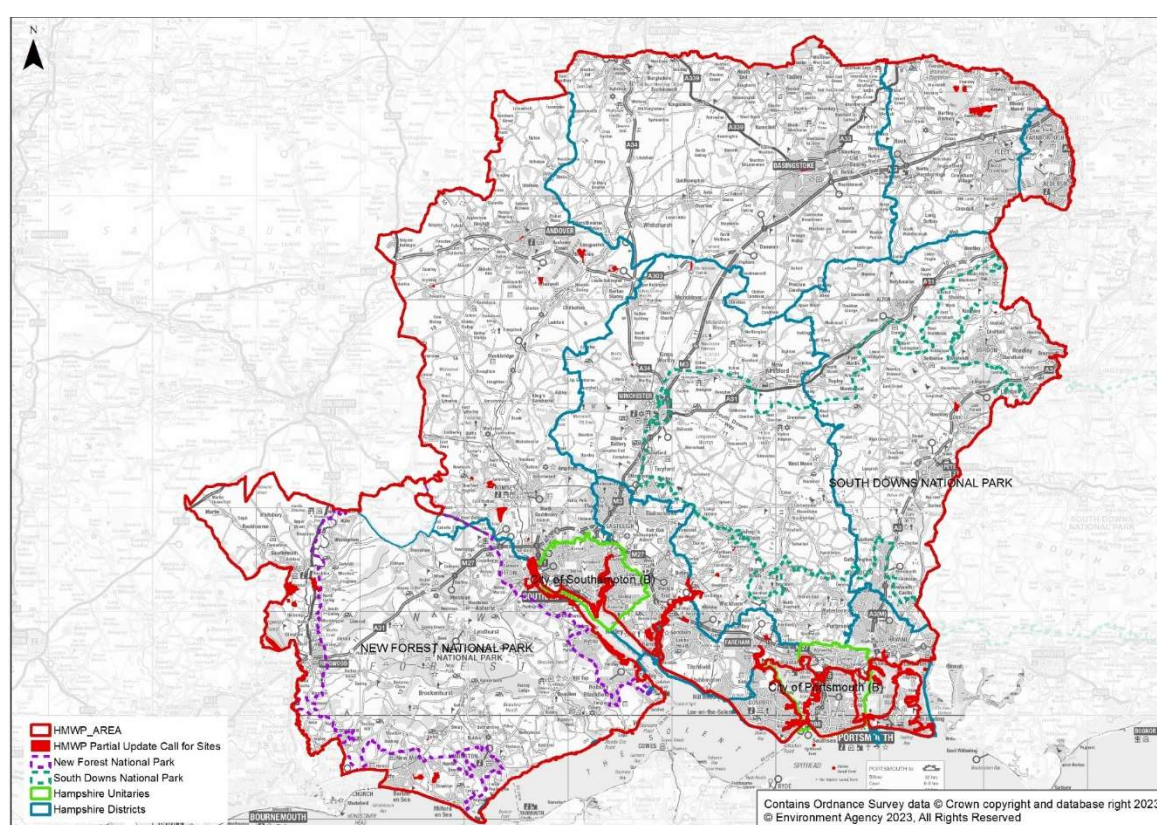
- 1.6 36 potential allocations were identified through a 'call for sites' to industry, agents and landowners across the Plan area.
- 1.7 This SFRA provides an assessment of each potential site allocation in terms of flood risk considering the sequential approach and identifying any sites which are not considered appropriate or have specific constraints, which need to be addressed if sites are taken forward. The proposed HMWP Policies in relation to Flood Risk and Water Management are taken into account within the site assessments.

What is the Hampshire Minerals & Waste Plan?

- 1.8 The HMWP covers the administrative areas of Hampshire County Council, New Forest National Park Authority, Portsmouth City Council, Southampton City Council and South Downs National Park Authority (collectively referred to as the 'Hampshire Authorities').
- 1.9 Minerals are an important natural resource that makes an essential contribution to Hampshire's economy, prosperity, and quality of life. It is essential that there is a steady and adequate supply of material to provide for infrastructure, development, and goods that local communities, industry and the economy requires. This provision must follow the principles of sustainable development. The extraction of minerals from the land has a fundamental role to play in meeting Hampshire's need for aggregates.
- 1.10 The HMWP seeks to enable sufficient minerals development to meet their demands for sand and gravel and other aggregates. To do this, sustainable and suitable locations for the extraction of sand and gravel will need to be identified.
- 1.11 The HMWP indicates what provision of waste facilities is required, where these may be located; when they are to be provided and how they will be delivered during the Plan period to 2030. Where necessary, the Plan will indicate what waste management developments and facilities are required in Hampshire and the most suitable locations for these facilities. Identifying what potential there is for delivering sustainable waste management is important because positive planning is concerned with opportunities and not just constraints. Plans must be justifiable, founded on a robust and credible evidence base which should be as up to date as possible.
- 1.12 The HMWP Partial Update extends the Plan period to 2040 and takes into account the current guidance and information covering this period i.e., climate change.

- 1.13 For the purposes of the HMWP Partial Update, a Level 1 SFRA has been undertaken. This assessment provides enough detail for the sequential test to be applied. The SFRA for the HMWP has drawn upon the existing SFRAs undertaken for East Hampshire District Council & South Down National Park, Partnership for Urban South Hampshire, Hart District Council, New Forest District Council & New Forest National Park Authority, Southampton City Council, Test Valley Borough Council and Winchester City Council.
- 1.14 The SFRA will consider flood risk from all sources within the HWMP area. All sites assessed within the SFRA, with the relevant authority boundaries are shown on Map 1.

Map 1: Hampshire Waste and Minerals Plan Authorities and assessed sites



2. Planning Policy and Guidance

- 2.1 There is a significant amount of legislation and guidance which has implications for flood risk. These are detailed in the Strategic Flood Risk Assessments undertaken by individual Local Planning Authorities. The key documents which have been used in relation to the site assessment are summarised below.

National Planning Policy Framework (September 2023) and Flood Risk and Coastal Change Guidance (August 2022²)

- 2.2 As set out in the National Planning Policy Framework (NPPF)³ the aim of the Sequential Test is to steer developments to areas of lowest flood risk from all sources with exceptions made only for certain types of developments where there are overriding sustainability reasons for allocation. Sites where an exception is made must then pass the Exception Test to show that they can be developed safely without increasing offsite flood risk. Only on passing both the Sequential and Exception Tests should a site be allocated.
- 2.3 The flood zones described below are the starting point for this sequential approach. Zones 2 and 3 are shown on the flood map⁴ with Zone 1 being all the land falling outside of Flood Zones 2 and 3. These flood zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences. Flood Zones are defined as follows:

Zone 1- low probability

Definition

This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%). (All land outside Zones 2 and 3).

Appropriate uses

All uses are appropriate in this zone. Allocation may need to be avoided where sites are highly constrained by other sources of flooding.

Flood risk assessment requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment.

Zone 2 – medium probability

Definition

Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea

² [Flood risk and coastal change - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/flood-risk-and-coastal-change)

³ National Planning Policy Framework (NPPF) 2023 -

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf

⁴ [Flood map for planning - GOV.UK \(flood-map-for-planning.service.gov.uk\)](https://www.gov.uk/government/publications/flood-map-for-planning)

flooding. Appropriate uses Essential infrastructure and water compatible, less vulnerable, and more vulnerable uses⁵, as set out in NPPF, are appropriate in this zone. Highly vulnerable uses are only appropriate if the Exception Test is passed. Allocation may need to be avoided where sites are highly constrained by other sources of flooding. Flood risk assessment requirements All development proposals in should be accompanied by a flood risk assessment.
Zone 3a – high probability Definition Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. Appropriate uses The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. Remaining uses must pass the Exception Test. Flood risk assessment requirements All development proposals in this zone should be accompanied by a food risk assessment.
Zone 3b – the functional floodplain Definition This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. Appropriate uses Only the water-compatible uses and the essential infrastructure listed in the NPPF that has to be there should be permitted in this zone. Essential infrastructure must pass the Exception Test. Flood risk assessment requirements All development proposals in this zone should be accompanied by a food risk assessment. The development should be designed and constructed to: • Remain operational and safe for users in times of flood; • Result in no net loss of floodplain storage; • Not impede water flows; and • Not increase flood risk elsewhere. Note that this zone is not separately distinguished from Zone 3a in EA flood maps.

- 2.4 Priority for allocating sites should be given to Flood Zone 1 with sites only allocated in Flood Zones 2 or 3 if there is a) no alternative sites with a lower risk of flooding suitable for accommodating the development and b) the vulnerability rating for that

⁵ Less vulnerable uses include waste treatment (except landfill and hazardous waste facilities) and minerals working and processing (except for sand and gravel working). More vulnerable uses include landfill and sites used for waste management facilities for hazardous waste

type of development is deemed appropriate for the Flood Zone. This is done by ranking sites by their flood risk before allocating them.

- 2.5 The NPPF classifies development types by their vulnerability to the impacts of flooding. The flood zones and vulnerability classifications are then used to determine what types of development are deemed appropriate in each flood zone. Table 1 below shows which development types are deemed appropriate, which should not be permitted, and which can only be considered appropriate if they pass the Exception Test first.

Table 1: Flood Risk Vulnerability and flood zone compatibility Table (from Flood Risk and Coastal Change guidance table 3)

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	OK	OK	OK	OK	OK
Zone 2	OK	Exception Test	OK	OK	OK
Zone 3a	Exception Test	X	Exception Test	OK	OK
Zone 3b	Exception* Test	X	X	X	OK*

OK - Development is appropriate

X - Development should not be permitted

* - Uses, should be designed and constructed to:

- remain operational and safe for users in times of flood.
- result in no net loss of floodplain storage.
- not impede water flows and not increase flood risk elsewhere.

- 2.6 Sand and gravel workings are classed as 'water compatible development', landfill and waste management facilities dealing with hazardous waste are classed as 'more vulnerable' and other mineral workings and waste treatment facilities are classed as 'less vulnerable'. The NPPF acknowledges that minerals can only be worked where they occur.

- 2.7 However, although sand and gravel extraction are classed as 'water compatible' the sequential approach should be undertaken in relation to the site layout. This means that ancillary activities within the site such as processing, stockpiling, and offices which are not considered 'water compatible' should be located in areas of the site at lower flood risk. The NPPF also acknowledges that minerals sites may provide opportunities to reduce flood risk by providing flood storage and attenuation.

- 2.8 Waste and water treatment facilities are classed as 'less vulnerable' development which is not permitted in Flood Zone 3b but is appropriate elsewhere. Landfill and other waste management facilities handling hazardous waste are classed as 'more vulnerable' development; suitable only in principle for Flood Zones 1 and 2 - any proposals in Flood Zones 3a would need to be accompanied by an 'Exception Test'. In Flood Zone 3b (the functional floodplain) such developments should not be permitted. Sand and gravel workings are considered as water compatible and are permitted in all flood zones. Those falling in Flood Zone 3b must meet the design requirement set out in Table 1 above to be deemed appropriate. Table 1 above does not remove the need to allocate development to the sites of the lowest risk where possible.
- 2.9 Once sites have been allocated, consideration should be given at planning application stage to the use of the sequential approach to the site layout. This involves avoiding parts of the site at risk of flooding from any source. If this is not possible then the elements of the development that are the least vulnerable flooding should be located in the unavoidable areas at risk.

Flood and Water Management Act (2010)

- 2.10 This Act establishes the role of the Lead Local Flood Authorities (LLFAs) as Upper Tier or Unitary Authorities and gives them responsibility for managing flood risk from local sources. The LLFAs are required to produce a Local Flood Risk Management Strategy outlining how local flood risks will be managed. Other key responsibilities include:
- Consenting and enforcement body for Ordinary Watercourses
 - Statutory Consultee in relation to surface water on major developments

River Basin Management Plans (2016)

- 2.11 These provide a framework for protecting and enhancing the benefits provided by the water environment to ensure social, economic and environmental needs are met and maintained into the future.
- 2.12 They set out the current state of the water environment including key pressures, objectives for protection and improvement of the water environment and actions needed to achieve the objectives.

Catchment Flood Management Plans (CFMPs)

- 2.13 CFMPs seek to understand the scale and extent of flooding now and in the future at a catchment scale and set policies for managing flood risk within the catchment. These plans should be used to inform planning and decision making by key stakeholders. This includes local authorities who can use these plans to inform

spatial planning activities. CFMPs aim to promote more sustainable approaches to managing flood risk.

- 2.14 There are 6 policies used within each CFMP area (see table 2 below). Each CFMP identifies which areas should be applying which policy. There are 6 CFMPs that are relevant to this SFRA, and the sites being assessed. Which CFMP policy is relevant has been identified for each site in the site-specific assessments. The relevant maps of each CFMP can be seen in Appendix 3.

Table 2: CFMP catchment policies

Policy Number	Policy
Policy 1	Areas of little or no flood risk where we will continue to monitor and advise. This policy will tend to be applied in those areas where there are very few properties at risk of flooding. It reflects a commitment to work with the natural flood processes as far as possible.
Policy 2	Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions. This policy will tend to be applied where the overall level of risk to people and property is low to moderate. It may no longer be value for money to focus on continuing current levels of maintenance of existing defences if we can use resources to reduce risk where there are more people at higher risk. We would therefore review the flood risk management actions being taken so that they are proportionate to the level of risk.
Policy 3	Areas of low to moderate flood risk where we are generally managing existing flood risk effectively. This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, we keep our approach under review, looking for improvements and responding to new challenges or information as they emerge. We may review our approach to managing flood defences and other flood risk management actions, to ensure that we are managing efficiently and taking the best approach to managing flood risk in the longer term.
Policy 4	Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change. This policy will tend to be applied where the risks are currently deemed to be appropriately managed, but where the risk of flooding is expected to significantly rise in the future. In this case we would need to do more in the future to contain what would otherwise be increasing risk. Taking further action to reduce risk will require further appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

Policy 5	Areas of moderate to high flood risk where we can generally take further action to reduce flood risk. This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.
Policy 6	Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. This policy will tend to be applied where there may be opportunities in some locations to reduce flood risk locally or more widely in a catchment by storing water or managing run-off. The policy has been applied to an area (where the potential to apply the policy exists) but would only be implemented in specific locations within the area, after more detailed appraisal and consultation.

Shoreline Management Plans

- 2.15 The coastline is split into different sections, each with a Shoreline Management Plan which details the policies associated with detailed areas. These can consist of:

HTL	Hold The Line
NAI	No Active Intervention
ATL	Advance The Line
MR	Managed Realignment
HTRL	Hold the Realigned Line
RTE	Regulated Tidal Exchange
AM	Adaptive Management
NPFA	No Public Funding Available

- 2.16 Any development near the coast will need to consider these policies to ensure the future risk of coastal flooding is assessed.

3. Flood Risk – High Level Review

- 3.1 Hampshire is affected by a range of flooding types including fluvial (river) flooding, surface water run-off, groundwater, and sewers. The risk and impacts vary considerably depending on location, receptor type and site-specific circumstances. As such, each site requires a specific assessment to look at the flood risks identified in this high-level review in more detail.
- 3.2 For the purposes of the HMWP SFRA each of the three upper tier authorities are examined in turn. No sites have currently been put forward for the Portsmouth City area.

Hampshire

- 3.3 Hampshire County Council is one of the largest counties in England covering 3769 square kilometres or 376,900ha (refer to Map 1). It surrounds the two unitary authorities of Southampton and Portsmouth City Councils and stretches from Ringwood in the west, Havant in the east to Farnborough in the north.
- 3.4 There are two National Parks partly within the County Council area, South Downs National Park and New Forest National Park and the Hampshire assessment covers both of these elements that feature within the Plan area.

Hydrological Background

- 3.5 Hampshire is bordered to the south by the Solent, and the county is drained by 8 separate river catchments. To the north and east, the rivers Kennet & Pang, Loddon and Wey drain towards the Thames. Much of central Hampshire is dominated by the catchments of the Test and Itchen, both high quality chalk rivers which drain in a southerly direction to Southampton Water and the Solent.
- 3.6 In the west of the county, the Avon drains to the south and the New Forest catchment towards the Solent and Southampton Water. Whilst towards the south and east, the East Hampshire catchment drains south to Portsmouth Harbour and the Solent. The different characteristics of these rivers and catchments influence the flood risk of the surrounding areas, with slow responding groundwater dominated catchments (such as the Test and Itchen) more prone to groundwater flooding, whilst quick responding catchments may be more prone to river or surface water flooding. Flooding from the sea is the predominant source of flood risk to Hampshire's most populated areas on low lying coastlines in Portsmouth, Southampton, Gosport, Havant, Hayling Island, Fareham, Eastleigh, and the New Forest.

Main River Flooding

- 3.7 Main Rivers are managed through the use of River Basin Management Plans and Catchment Flood Management Plans which set out the plans and policies in each area. Hampshire is covered by 3 River Basin Districts containing 8 different Management Catchments as shown in Map 2.
- 3.8 The Environment Agency Flood Map for Planning (Rivers and the Sea) indicates the areas that are at risk of flooding from fluvial sources. This shows that 4.24% of Hampshire is designated as Flood Zone 3, areas of land with a 1% (1 in 100), or greater, chance of flooding each year from rivers, or with a 0.5% (1 in 200) chance, or greater, of flooding each year from the sea.

Map 2: Hampshire River Catchments

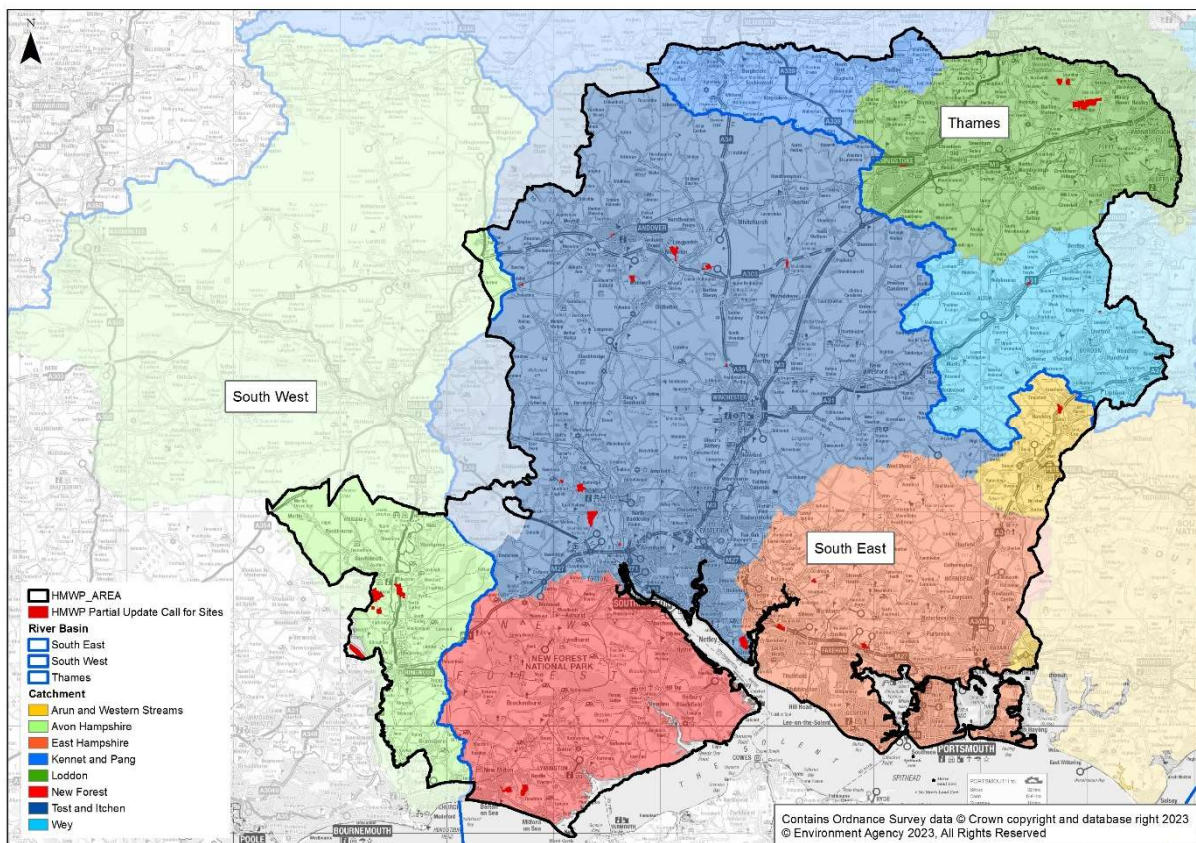


Table 3: HWMP area River Basin Districts and Catchments

River Basin District	Management Catchments	Operational Catchments
Thames	Loddon & Tributaries	Loddon
	Kennet & Tributaries	Kennet
	Wey & Tributaries	Wey
South East	Test & Itchen	Itchen
		Test (Lower) and Southampton Streams
		Test Upper and Middle
	New Forest	Becton Bunny
		Langdown Stream
		New Forest – Bartley Water
		New Forest – Hatchet Sowley
		New Forest – Lymington and Beaulieu
	East Hampshire	East Hampshire Rivers
	Arun & Western Streams	Rother Western
Western Streams		
South West	Avon Hampshire	Avon Hampshire

Tidal / Coastal Flooding

- 3.9 To the south of Hampshire, there are 350 miles of coastline between Hayling Island and Highcliffe. High tide, storm surges, and storms put pressure on coastal features and can lead to flooding either directly from tidal influences or as a secondary source as rivers are restricted in terms of discharge.

Surface Water Flooding

- 3.10 Localised surface water flooding from catchment run-off and/or sewer system failure following heavy rainfall is also a risk to properties, including those in defended areas.
- 3.11 The nature of surface water runoff means that areas throughout the County are considered to be at risk and specific site assessment is required consider the risk and ensure flooding can be appropriately managed in accordance the policies and the NPPF.

Groundwater Flooding

- 3.12 The presence of large areas of chalk aquifers can lead to significant groundwater emergency and flooding. This type of flooding is long duration and can affect vast

areas. Flood alert areas are established for those areas known to be susceptible to longer duration groundwater flooding and are governed by the Environment Agency.

- 3.13 There is also a risk of groundwater emergence along some watercourses where the presence of 'river terrace gravels' provides an underground flow path. There is a dynamic link between the groundwater levels in the gravels and adjacent watercourses that influence each other. As a consequence, properties situated away from the direct influence of the river are also at risk of flooding due to high groundwater levels.

Sewer Flooding

- 3.14 The overcharging of the sewer system due to inflows exceeding the underground system capacity is a problem in parts of the County. The sewer systems in Hampshire are managed by several different sewerage providers namely Thames Water, Southern Water and Wessex Water all of which collect and records incidents of sewer flooding on the DG5 register. The register does not provide a specific location of flooding incidents; rather it provides a total number of flooding incidents over the past ten-year period for a particular postcode prefix area.

Reservoir Flooding

- 3.15 The Environment Agency produce Reservoir Flood Maps for large reservoirs over 25,000 cubic metres of water. There are several reservoirs identified within the County including Fishers Pond, Timsbury Lake, Testwood Lakes and Alresford Pond. The risk associated with these reservoirs / lakes can be found at from the long-term flood risk map and the impact of these waterbodies is included where applicable within the site-specific assessment.

Southampton

- 3.16 Southampton is the largest settlement in South Hampshire located in the south of the HMWP area, between the Districts and Boroughs of New Forest, Test Valley and Eastleigh (refer to Map 2). The total area of the City is approximately 50km² of which around 80% is currently developed⁶.

Hydrological Background

- 3.17 Southampton is a densely urbanised area with the River Itchen, River Test, Tanners Brook, Rolles Brook, and Southampton Waters forming key waterways alongside densely populated areas. Much of the City is directly affected by coastal influences

⁶ PUSH Strategic Flood Risk Assessment – 2016 Update (Guidance Document – Southampton City Council) - <https://www.push.gov.uk/wp-content/uploads/2018/05/Southampton.pdf>

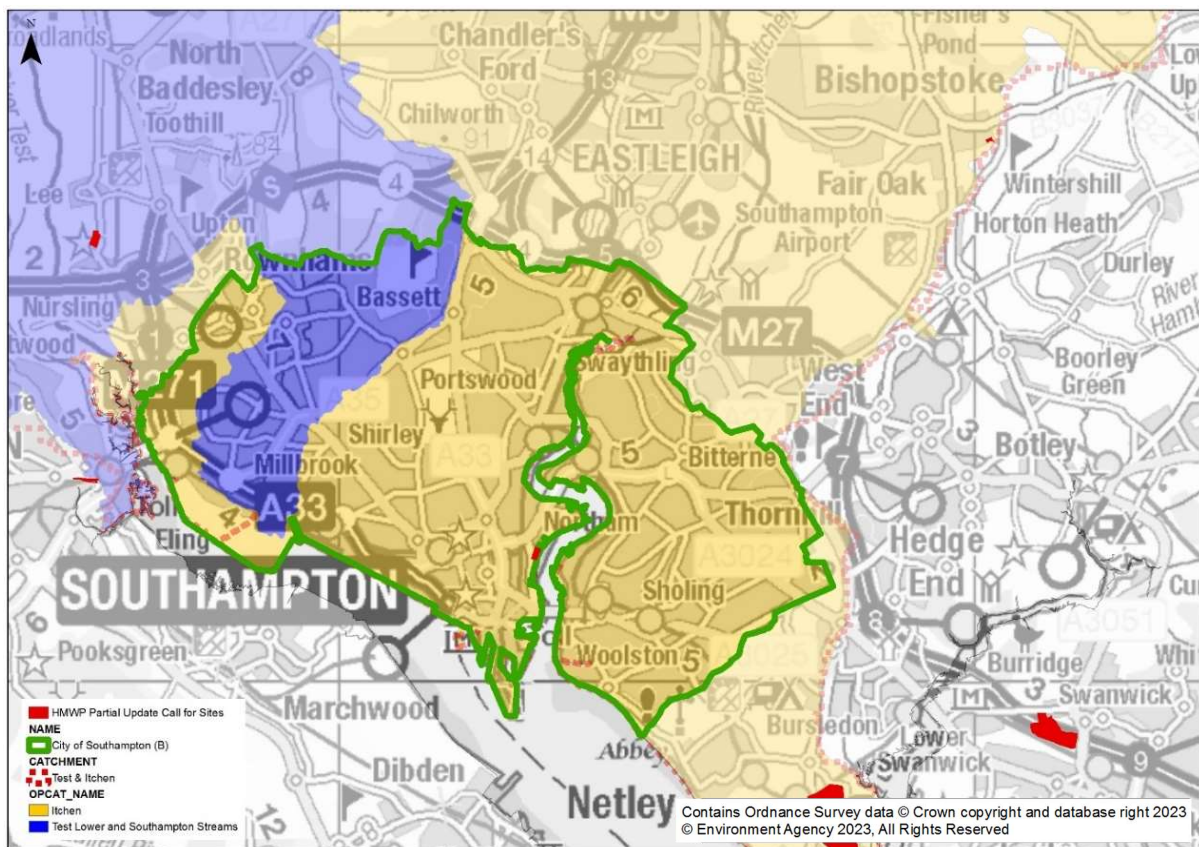
both in terms of costal flood risk and tide locking restrictions on the outfalls of drainage systems and watercourses.

- 3.18 Southampton generally slopes downwards from the outer edges of the administrative boundary towards the River Test, River Itchen and coastal areas and given its urbanised nature, is highly responsive to rainfall.

Main River and Ordinary Watercourse Flooding

- 3.19 Located in the South East River Basin District, Southampton is covered by the Test and Itchen Management Catchment which includes the Itchen and Test Lower and Southampton Streams operational catchments.

Map 3: Southampton River Catchments



- 3.20 The Environment Agency Flood Map for Planning (Rivers and the Sea) indicates the areas that are at risk of flooding from fluvial sources. This shows that 3.64% of the total City area is designated as Flood Zone 3, areas of land with a 1% (1 in 100), or greater, chance of flooding each year from rivers, or with a 0.5% (1 in 200) chance, or greater, of flooding each year from the sea.

Tidal / Coastal Flooding

- 3.21 Southampton has approximately 35km of tidal frontage including the River Test and River Itchen estuaries. High tide, storm surges, and storms put pressure on coastal features and can lead to flooding either directly from tidal influences or as a secondary source as rivers are restricted in terms of discharge. There is also a tidal regime which has a daily double high water due to the impacts of the Isle of Wight.
- 3.22 Approximately 13% of the city is considered as high or medium flood risk from tidal sources as identified in Southampton City Council's SFRA Guidance Document⁷.

Surface Water Flooding

- 3.23 Localised surface water flooding from catchment run-off and/or sewer system failure following heavy rainfall is also a risk to properties, including those in defended areas.
- 3.24 The nature of surface water runoff means that areas throughout the city are considered to be at risk and specific site assessment is required consider the risk and ensure flooding can be appropriately managed in accordance the policies and NPPF.

Groundwater Flooding

- 3.25 There is risk of groundwater emergence towards the north of Southampton where higher permeable geology is present. In addition, groundwater flooding has been observed in the Tanner's Brook area and other parts of the City, particularly in low lying areas have potential for perched water tables due to the underlying geology.

Sewer Flooding

- 3.26 The overcharging of the sewer system due to inflows exceeding the underground system capacity is a problem in parts of the City. Southern Water collects and records incidents of sewer flooding on the DG5 register. The register does not provide a specific location of flooding incidents; rather it provides a total number of flooding incidents over the past ten-year period for a particular postcode prefix area.

Reservoir Flooding

- 3.27 The Environment Agency produce Reservoir Flood Maps for large reservoirs over 25,000 cubic metres of water. There are three man-made lakes that include

⁷ PUSH Strategic Flood Risk Assessment – 2016 Update (Guidance Document – Southampton City Council) - <https://www.push.gov.uk/wp-content/uploads/2018/05/Southampton.pdf>

retaining embankments identified within the City including Model Yachting Lake, Cemetery Lake and Ornamental Lake. The risk associated with these reservoirs / lakes can be found at from the long-term flood risk map and the impact of these waterbodies is included where applicable within the site-specific assessment.⁸

Portsmouth

3.28 Portsmouth is a densely urbanised area located to the southeast of the HMWP area. It covers an area of approximately 40km² split between Portsea Island and the mainland. Information in relation to flood risk has been taken from the Partnership for Urban South Hampshire Strategic Flood Risk Assessment⁹ which represents the most detailed information for this area.

Hydrological Background

3.29 Portsmouth is bordered by coastal frontage on three sides with three main rivers within the area. Much of the City is directly affected by coastal influences both in terms of coastal flood risk and tide locking restrictions on the outfalls of drainage systems and watercourses.

3.30 Portsmouth is generally low level, however there is significant elevation to the north at Portsdown Hill. Much of Portsmouth is below 10mAOD although Portsdown Hill does rise to 125mAOD. Given its urbanised nature and limited numbers of naturalised main rivers, is highly responsive to rainfall.

Main River and Ordinary Watercourse Flooding

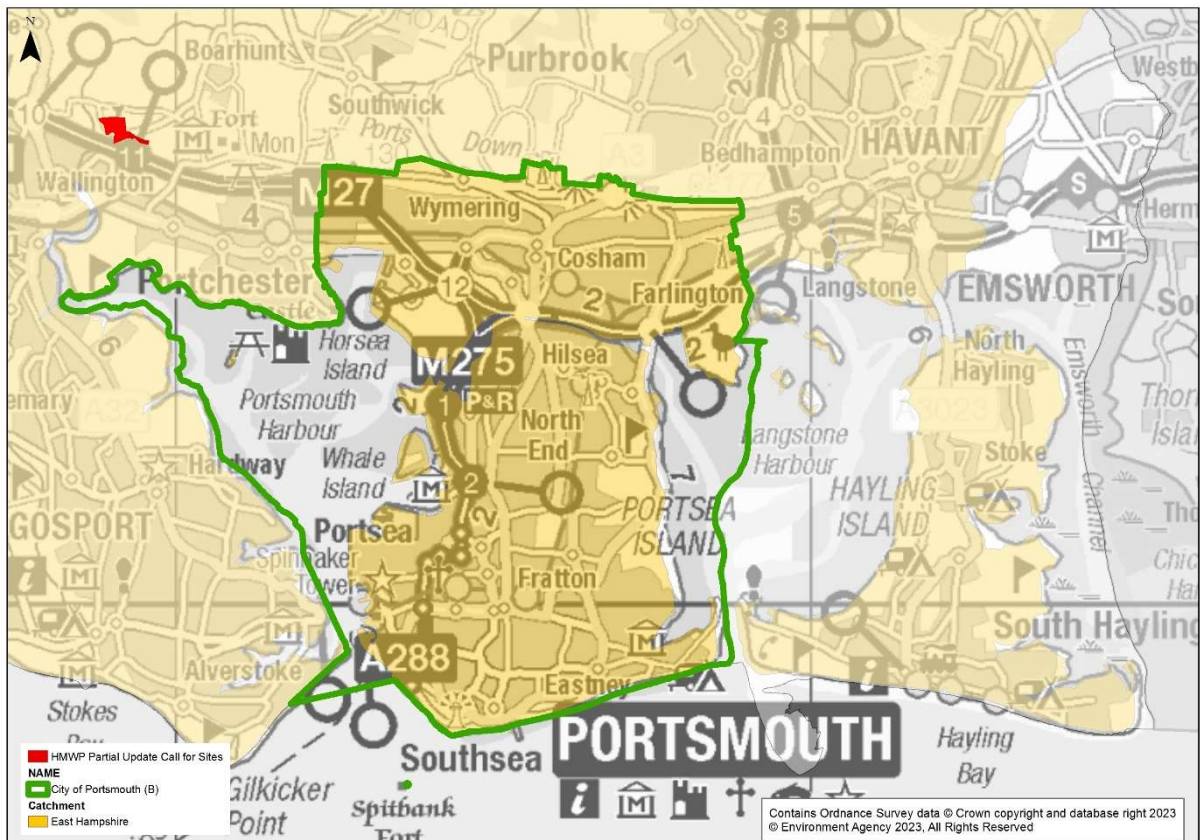
3.31 Portsmouth is within the East Hampshire management and operational catchment as shown in Map 4.

3.32 According to the Environment Agency Flood Zones, there are no main rivers which pose a fluvial flood risk within Portsmouth. As such, site specific FRAs in the city do not generally need to consider this type of flood risk. The risk of flooding from small, localised drainage ditches and channels should still be assessed where they exist close to a development site.

⁸ [Check the long term flood risk for an area in England - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/guidance/check-the-long-term-flood-risk-for-an-area-in-england)

⁹ [Strategic flood risk assessment - Portsmouth City Council](#)

Map 4: Portsmouth River Catchments



Tidal / Coastal Flooding

- 3.33 Portsmouth has approximately 45km of tidal frontage. High tide, storm surges, and storms put pressure on coastal features and can lead to flooding either directly from tidal influences or as a secondary source as rivers are restricted in terms of discharge.
- 3.34 The Environment Agency Flood Map for Planning (Rivers and the Sea) indicates the areas that are at risk of flooding from fluvial and tidal sources. This shows that 47% of the total City area is designated as within Flood Zones 2 and 3.
- 3.35 The coastal frontages are almost entirely defended from wave overtopping or tidal flooding from coastal defences however the impacts of climate change are expected to see this protection reduced significantly.

Surface Water Flooding

- 3.36 Localised surface water flooding from catchment run-off and/or sewer system failure following heavy rainfall is also a risk to properties, including those in defended areas.
- 3.37 The nature of surface water runoff means that areas throughout the city are considered to be at risk and specific site assessment is required consider the risk and ensure flooding can be appropriately managed in accordance with Local Plan policies and the NPPF.

Groundwater Flooding

- 3.38 There have been no observed incidences of groundwater flooding in Portsmouth however the water table will be extremely high due to tidal impacts.

Sewer Flooding

- 3.39 The overcharging of the sewer system due to inflows exceeding the underground system capacity is a problem in parts of the City. Southern Water collects and records incidents of sewer flooding on the DG5 register. The register does not provide a specific location of flooding incidents; rather it provides a total number of flooding incidents over the past ten-year period for a particular postcode prefix area.

Reservoir Flooding

- 3.40 The Environment Agency produce Reservoir Flood Maps for large reservoirs over 25,000 cubic metres of water. There are no known reservoirs with manmade embankments in Portsmouth however the Environment Agency mapping does highlight an area of risk in Drayton between A2030 and the railway line. The risk associated with these reservoirs / lakes can be found at from the long-term flood risk map and the impact of these waterbodies is included where applicable within the site-specific assessment.

4. Site Specific Analysis Methodology

4.1 This analysis should be read in conjunction with the Sustainability Assessments for each site.

4.2 Each site has been assessed as follows:

- **Flooding history**

- Review of existing Strategic Flood Risk Assessments (including sewer flooding) and internet search of reported flooding incidents since 1990.

- **Fluvial flooding risk**

- Review of flood zones both within and surrounding each site, using Environment Agency maps.
- The following Environment Agency definitions have been used –
 - Flood Zone 3 – defined as land having a 1 in 100 or greater annual probability of river flooding, or a 1 in 200 or greater annual probability of flooding from the sea.
 - Flood Zone 2 – defined as land having between a 1 in 100 and a 1 in 1,000 annual probability of river flooding or between a 1 in 200 and a 1 in 1,000 annual probability of flooding from the sea.
 - Flood Zone 1 – land having less than a 1 in 1,000 annual probability of river or sea flooding.

- **Surface water risk**

- Review of surface water risk both within and surrounding each site, using Environment Agency mapping tools.
- The following Environment Agency definitions have been used –
 - High risk – each year this area has a chance of flooding of greater than 3.3%.
 - Medium risk – each year this area has a chance of flooding of between 1 and 3.3%.
 - Low risk – each year this area has a chance of flooding of between 0.1 and 1%.
 - Very low risk – each year this area has a chance of flooding of less than 0.1%.

- **Groundwater risk**

- Review of groundwater flood and quality risk both within and surrounding each site based on flood alert areas, historic records, and Source Protection Zones, using Environment Agency mapping tools.
- Source Protection Zones are in place to protect groundwater such as wells, boreholes and springs used for public drinking water supply.

- These zones show the risk of contamination from any activities that might cause pollution in the area – the closer the activity, the greater the risk.
 - Zone 1 – defined as the 50-day travel time from any point below the water table to the source.
 - Mineral extraction or waste operation is not usually permitted in this zone.
 - Zone 2 – defined by a 400-day travel time for a point below the water table to the source.
 - Minerals and waste proposals in this zone should be accompanied by a hydrological assessment.
 - Zone 3 – defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.
 - Minerals and waste proposals in this zone should be accompanied by a hydrological assessment.

- **Reservoir flooding risk**

- Review of reservoir flooding risk both within and surrounding each site, using Environment Agency mapping tools.
- According to the Environment Agency, reservoir flooding relates to an area considered at risk if peoples' lives could be threatened by an uncontrolled release of water from a reservoir.
- The likelihood of reservoir flooding is much lower than other forms of flooding. Current reservoir regulation, which has been further enhanced by the Flood and Water Management Act (2010), aims to ensure that all reservoirs are properly maintained and monitored in order to detect and repair any problem.

4.3 The sites have been analysed in the above areas and given a 'RAG' status according to the following breakdown.

	Red	Amber	Green
Flooding history	Two or more flood events recorded in the past twenty years	One-off flood event recorded in the past twenty years	No reported flood events in the past twenty years
Fluvial flooding risk	Majority (over 50%) of site in Flood Zone 3	Majority of site in Flood Zone 2, or some (small) areas of flood zone 3 on site. Access to site may be impeded by Flood Zones	Site in Flood Zone 1, or minority of site in Flood Zone 2
Surface water risk	Majority of site is medium-high or high surface water risk	Low-medium or medium surface water risk over majority of site, or some (small) areas	Majority of site low or no surface water risk.

		of medium-high or high surface water risk	
Groundwater risk – flooding and / or pollution risk	Majority of site in Source Protection Zone 1 or 2. Medium-high or high groundwater risk covering majority of site	Majority of site in Source Protection Zone 3. Low-medium or medium groundwater risk covering majority of site, or some (small) areas of medium-high or high groundwater risk	Majority of site low or no groundwater risk. No Source Protection Zones
Reservoir flooding risk	Potential reservoir flooding with a maximum height of 2m covering majority of site, at speeds of between 0.5 and 2 metres per second	Potential reservoir flooding with a maximum height of 0.3m covering majority of site, at a speed of below 0.5 metres per second	No risk of reservoir flooding

4.4 A summary of the analysis of each site can be found after the table setting out the 'RAG' status.

4.5 To supplement this analysis, a Sequential Test of the sites has been completed (see Appendix 1).

Climate Change Assessment

4.6 All of the proposed sites will be subject to the ongoing effects of climate change which can have significant effects on flood risk, including anticipated change of:

- peak river flow
- peak rainfall intensity

4.7 The Environment Agency have provided climate change allowances¹⁰ which must be used when applying for planning applications on any site. The allowances ensure that the development will still be resilient to flooding over the lifespan of the development taking into account the projected impacts of climate change.

4.8 Every development must be able to resist a 1 in 100-year flood event plus the specific Climate Change Allowance for the development.

4.9 Each development will be required to calculate its Climate Change allowance based on the physical characteristics of the site and the vulnerability of the

¹⁰ [Flood risk assessments: climate change allowances - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/flood-risk-assessments-climate-change-allowances)

development. This information will be submitted as part of the development's Flood Risk Assessment.

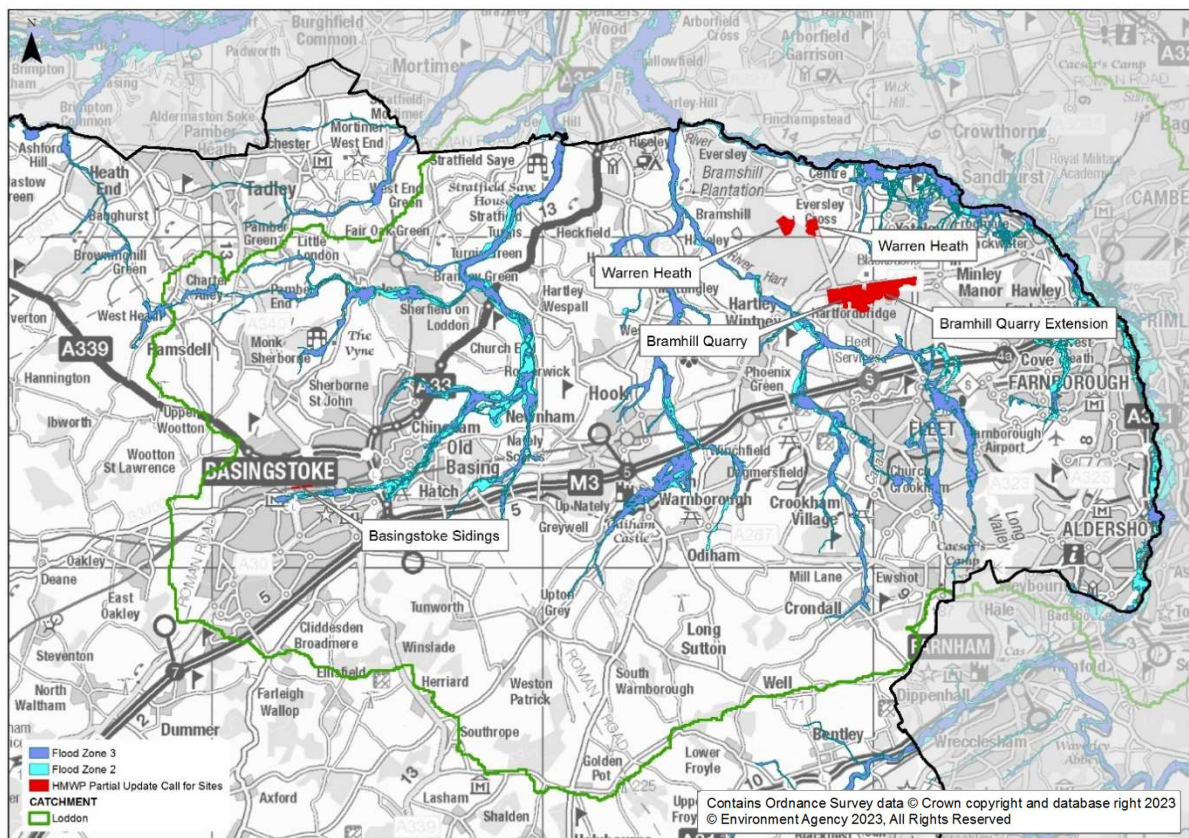
- 4.10 In order to ensure the proposed development is viable when climate change is taken into account, flood zone 2 has been used to represent the worst-case extent of flood zone 3 + climate change for sites where the flood zone does not intrude on the site boundary. This assessment ensures when climate change is considered, there is a suitable level of confidence that the site will not be affected by Flood Zone 3. For sites where flood zone 2 intrudes on the site boundary, modelling has been requested from the Environment Agency (where available) to confirm the additional risk as a result of climate change. Where detailed modelling is not available, Flood Zone 2 has been considered to give an assessment of the risk. This is to ensure that there is sufficient space within the site to allow a sequential approach to the site layout and structures can be located outside the floodplain even for water compatible development.

5. Analysis of Submitted Sites

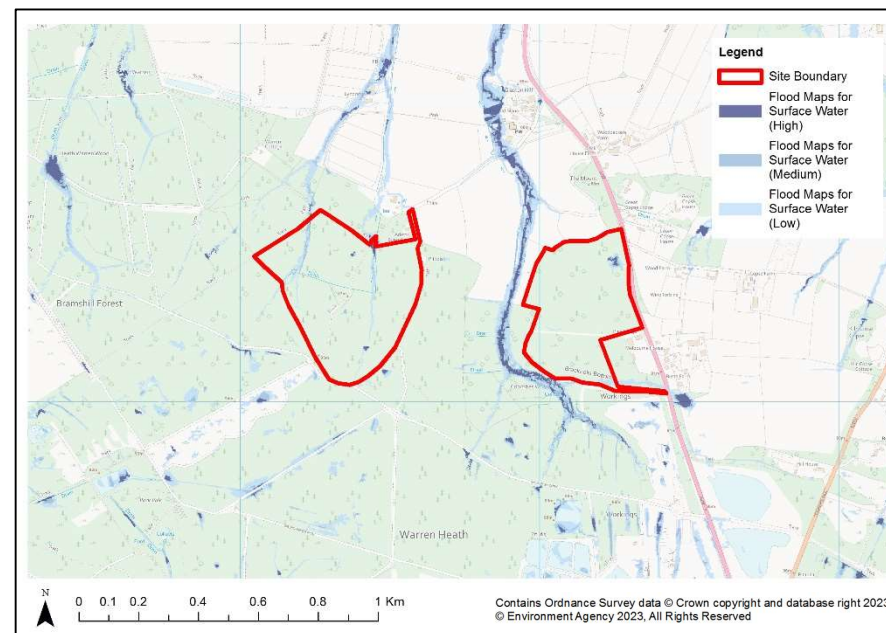
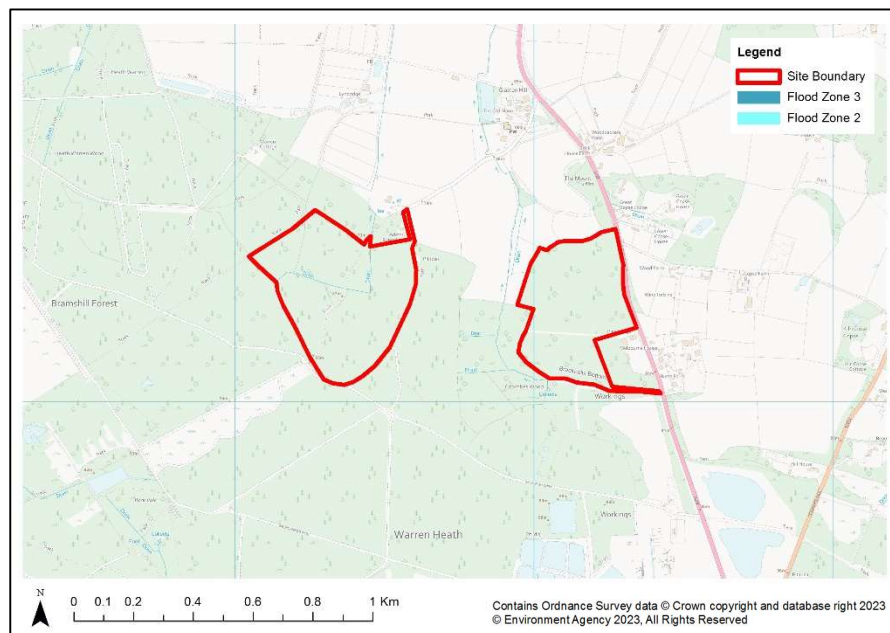
Loddon Catchment

- 5.1 The River Loddon catchment covers approximately 430 km² across north Hampshire and encompasses four of the assessed sites as shown below in Figure 1.

Figure 1: Catchment area of the River Loddon within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites



Warren Heath



Flood history	No known records of flooding	■
Fluvial flood risk	100% Flood Zone 1	■
Surface water flood risk	96% Very Low; 3% Low; 0.5% Medium; 0.5% High	■
Groundwater flood risk	Not in a groundwater flood alert area	■
Reservoir flood risk	Not in an area at risk of reservoir flooding	■
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	■

Warren Heath – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

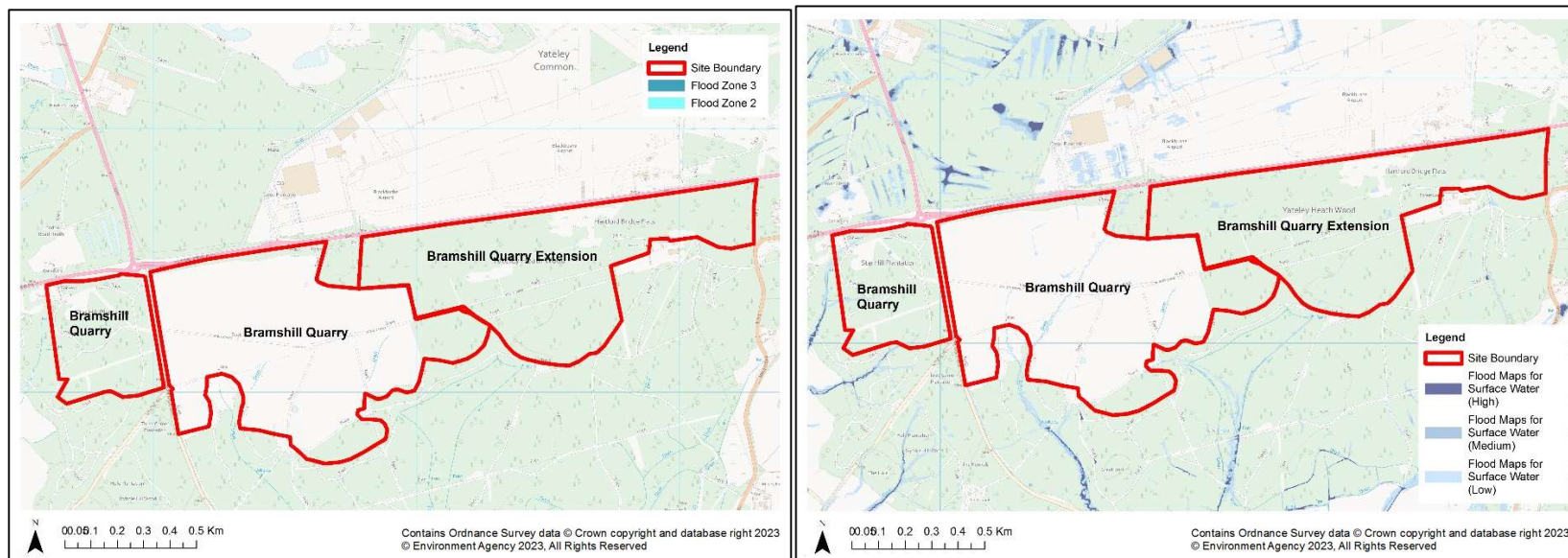
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Bramshill Quarry



Flood history	Fluvial flooding – Winter 1995	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99% Very Low; 1% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Bramshill Quarry – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

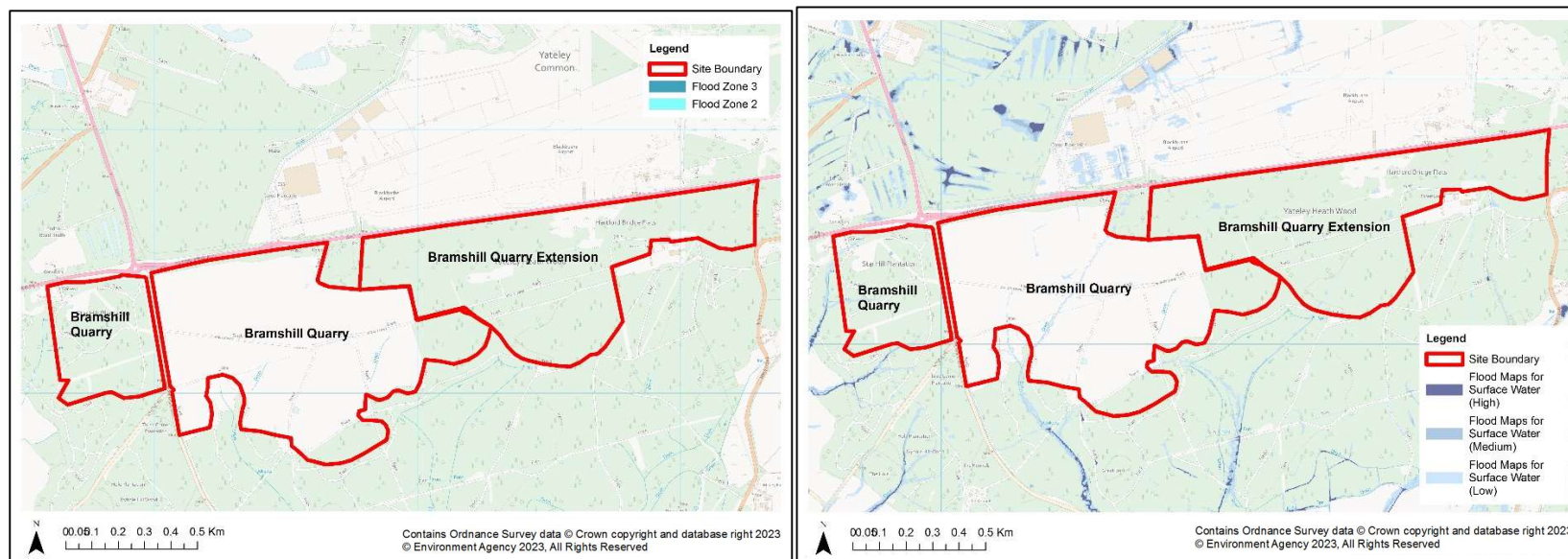
The majority of site is at low or very low surface water flood risk so providing suitable water management measures are provided, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

The proposed development of inert landfill is classified as less vulnerable development and is considered appropriate in this location.

Bramshill Quarry Extension



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.36% Very Low; 0.64% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Bramshill Quarry Extension – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

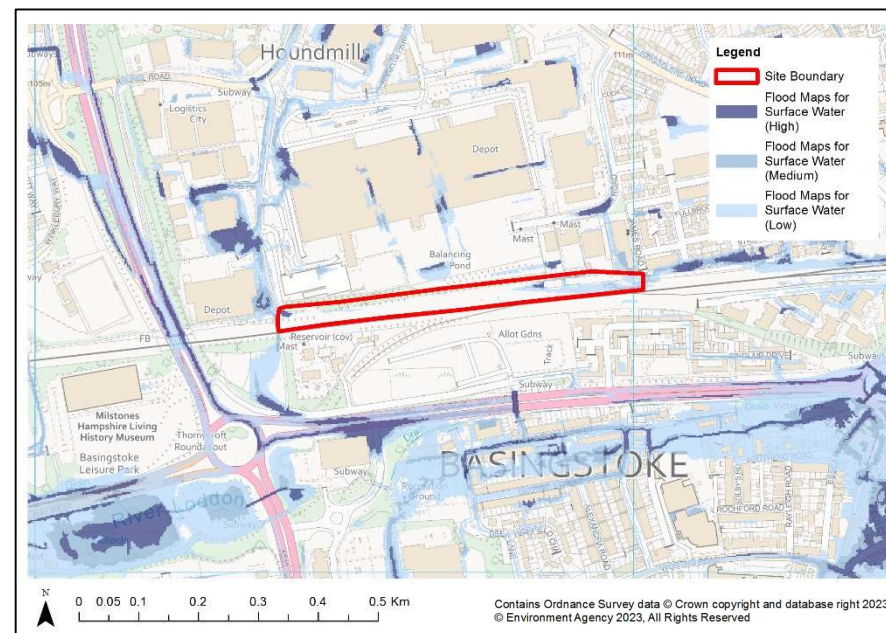
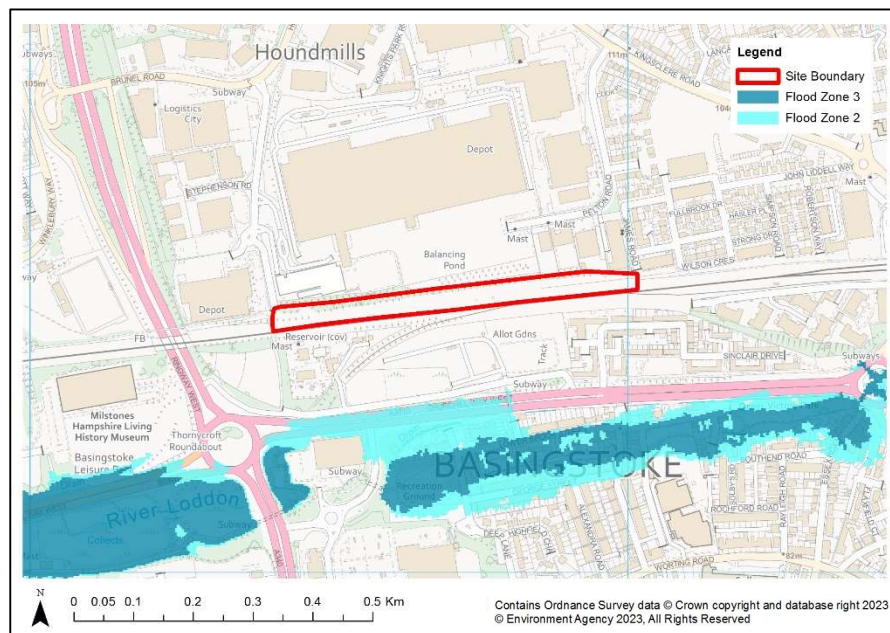
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Basingstoke Sidings



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	82% Very Low; 14% Low; 3% Medium; 1% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Basingstoke Sidings – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at very low or low surface water flood risk however there is a potential flow route identified at medium risk which will require assessment. The site layout should ensure this flow route is not adversely affected.

The site is in a chalk area, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows are considered and mitigated where needed. Part of this site is within Source Protection Zone 1 (SPZ1) where there is a presumption against development that involves activities posing an inherent hazard to groundwater. The Environment Agency should be consulted, and measures would be required to ensure no contamination of groundwater.

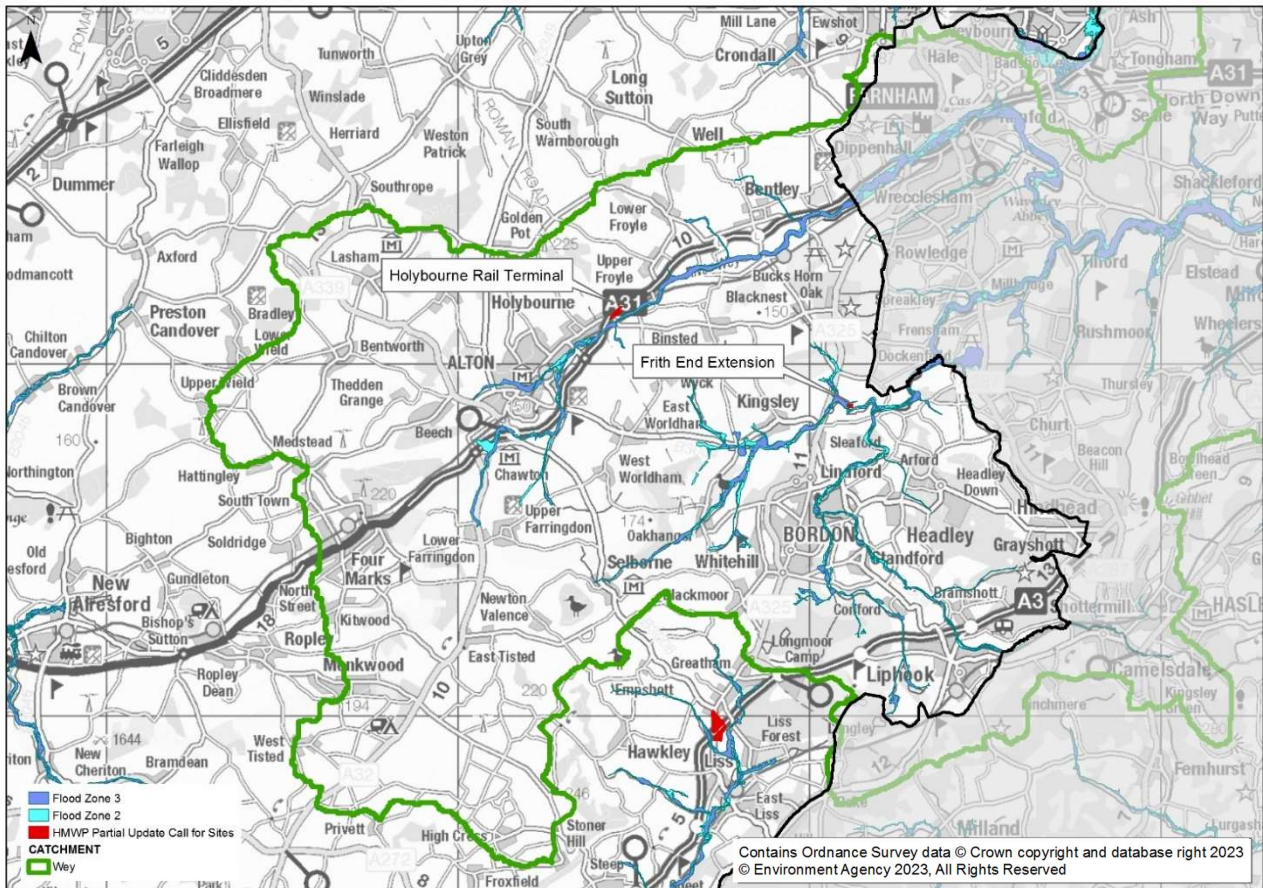
This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of an aggregate rail depot is classified as less vulnerable development and is considered appropriate in this location.

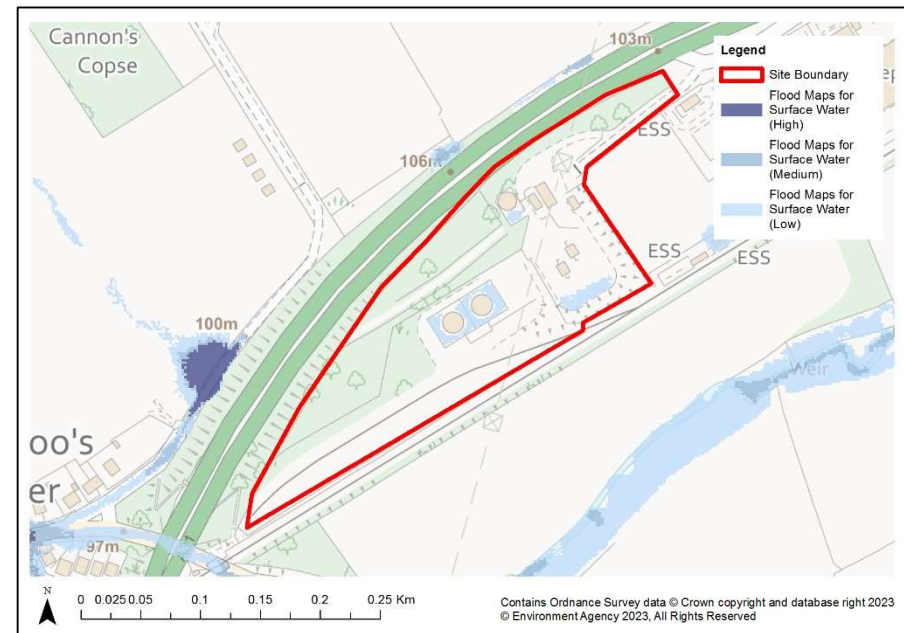
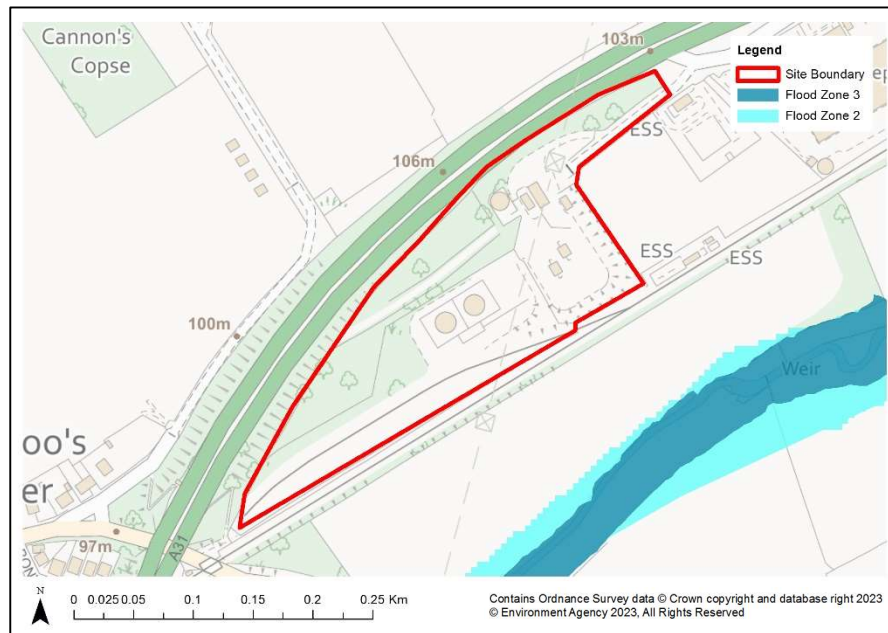
Wey Catchment

The River Wey catchment covers approximately 294 km² across east Hampshire and encompasses two of the assessed sites which are shown below in figure 2.

Figure 2: Catchment area of the River Wey within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites



Holybourne Rail Terminal



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	96.82% Very Low; 3.18% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Holybourne Rail Terminal – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

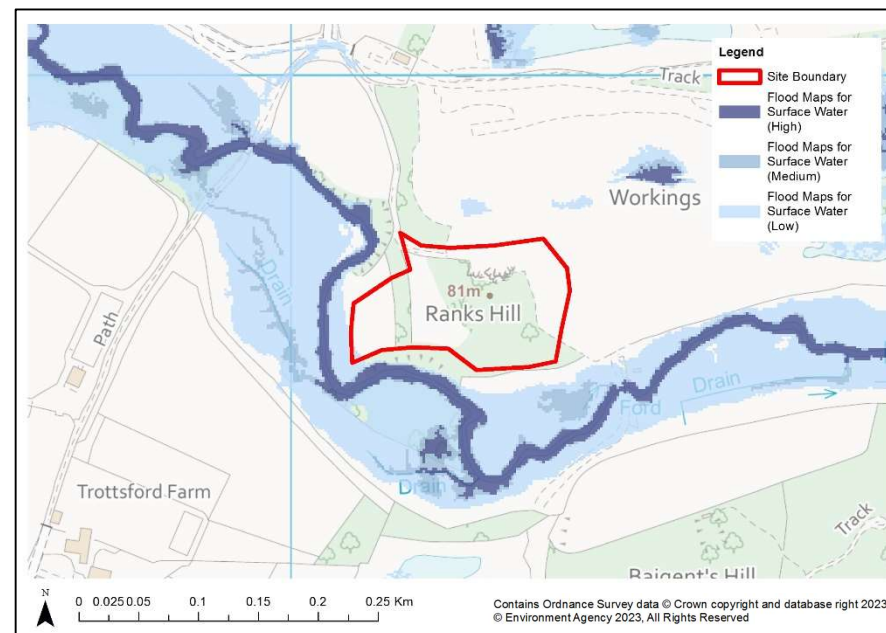
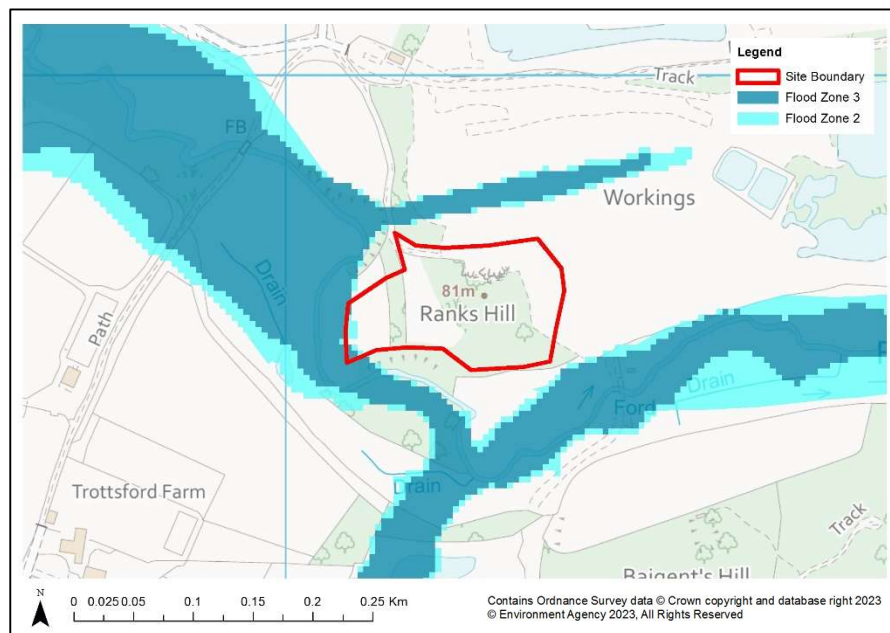
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place this is not considered to pose significant constraints.

The site has high groundwater vulnerability so measures may be required to ensure groundwater is suitably protected against contamination risks.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

The proposed development of an aggregate rail depot is classified as less vulnerable development and is considered appropriate in this location.

Frith End Extension



Flood history	Fluvial flooding – September 1968	■
Fluvial flood risk	98.03% FZ1; 1.32% FZ2; 0.66% FZ3	■
Surface water flood risk	99.34% Very Low; 0.66% Low	■
Groundwater flood risk	Not in a groundwater flood alert area	■
Reservoir flood risk	Not in an area at risk of reservoir flooding	■
Climate Change	Detailed modelling being sought but impacts likely to be minimal. Surface water can be managed within site boundary	■

Frith End Extension – Summary & Development Considerations

Fluvial flooding was recorded west and east of this site in 1968, the source of the flooding was recorded as channel capacity exceedance.

Part of this site is in Flood Zone 3 and is larger than one hectare, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding.

Although this is considered as water compatible development, operations in Flood Zone 3b should be avoided and a sequential approach taken to the site layout. Any elements of the site development located within the Flood Zone 3b area must be designed and constructed to:

- remain operational and safe for users in times of flood,
- result in no net loss of floodplain storage,
- not impede waterflows and not increase flood risk elsewhere.

If works are proposed within Flood Zone 3b, fluvial modelling will be required to provide a detailed assessment of fluvial flood risk and to ensure floodplain compensation is provided where required. Modelling should include the 5%, 1% and 1%+ climate change AEP*.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

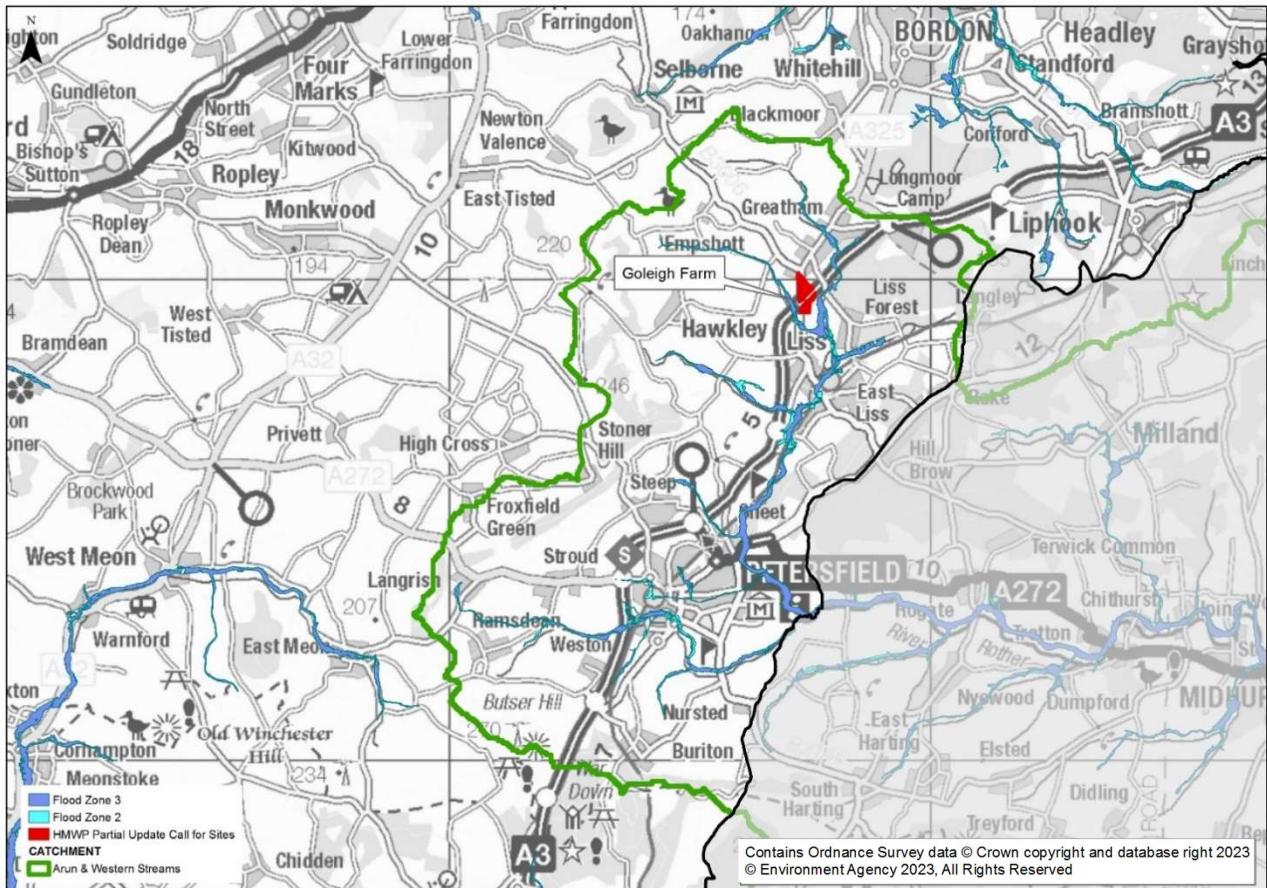
The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

*Detailed fluvial modelling is being sought to quantify the extent of Flood Zone 3a and b when climate change is considered however Flood Zone 2 has been used to provide an indication of the likely impacts.

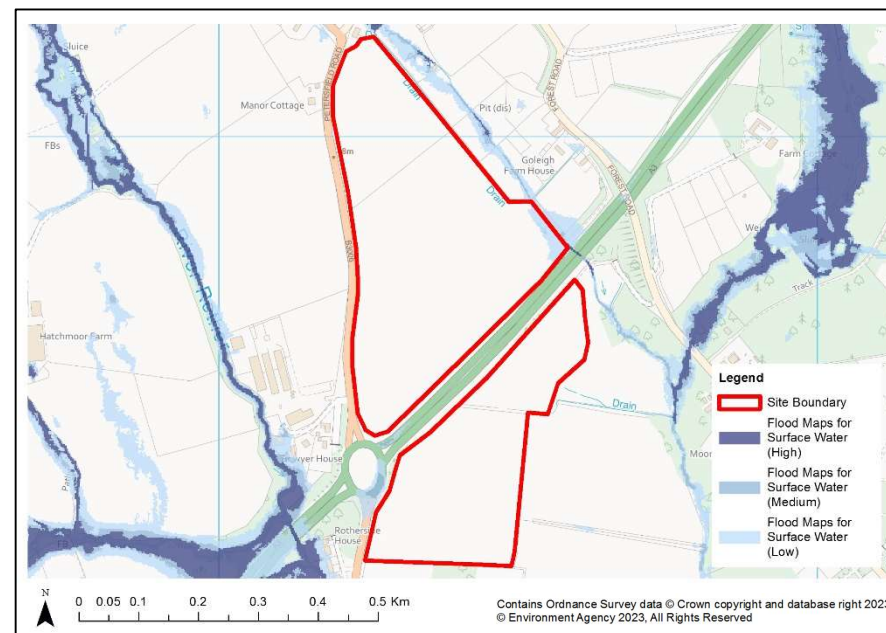
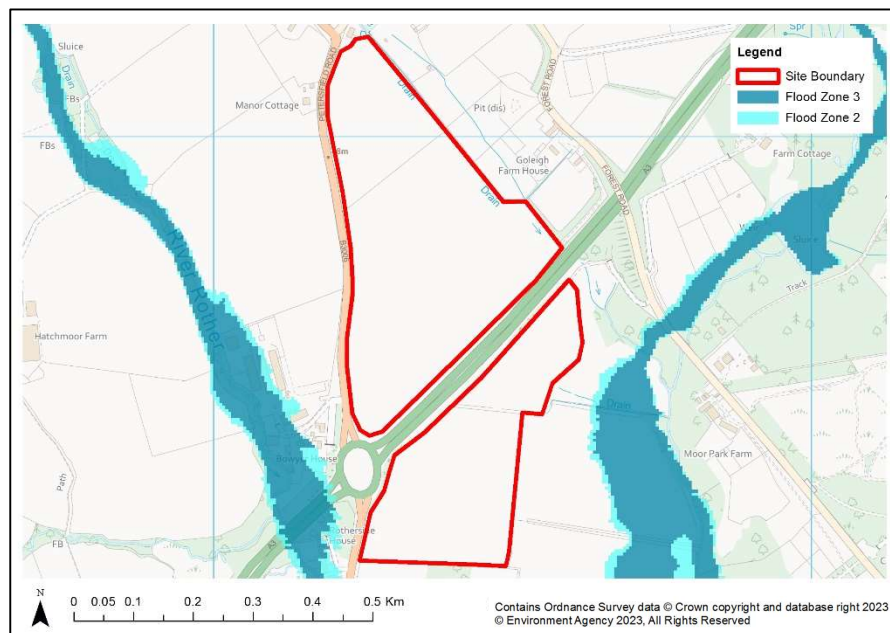
Arun & Western Streams Catchment

The River Arun catchment covers approximately 97 km² across east Hampshire and encompasses one of the assessed sites as shown below.

Figure 3: Catchment area of the Arun and Western Streams within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites.



Goleigh Farm



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.01% Very Low; 0.90% Low; 0.09% Medium	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Goleigh Farm – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk however development should take the sequential approach to site layout to ensure flow routes are not impeded.

The site is in a chalk area, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows are considered and mitigated where needed. Part of this site is within Source Protection Zone 1 (SPZ1) where there is a presumption against development that involves activities posing an inherent hazard to groundwater. The Environment Agency should be consulted, and measures would be required to ensure no contamination of groundwater.

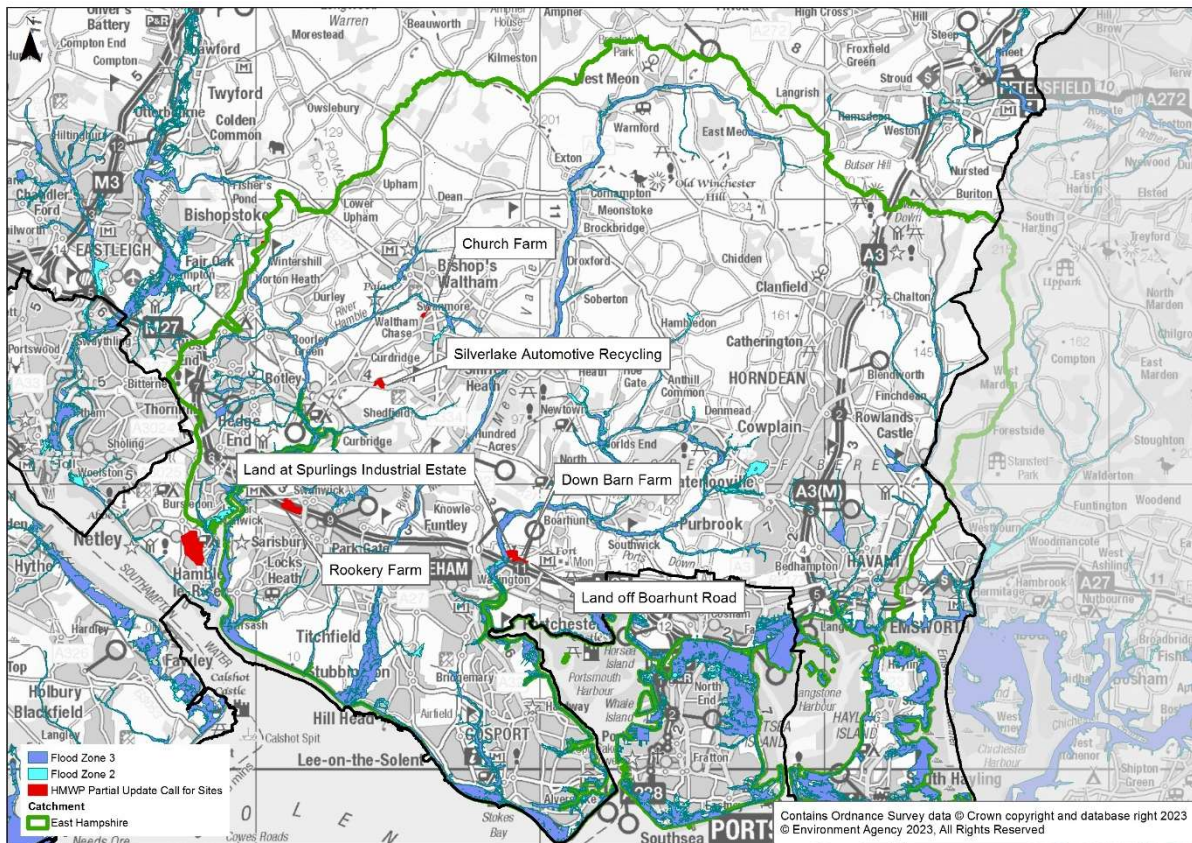
This site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

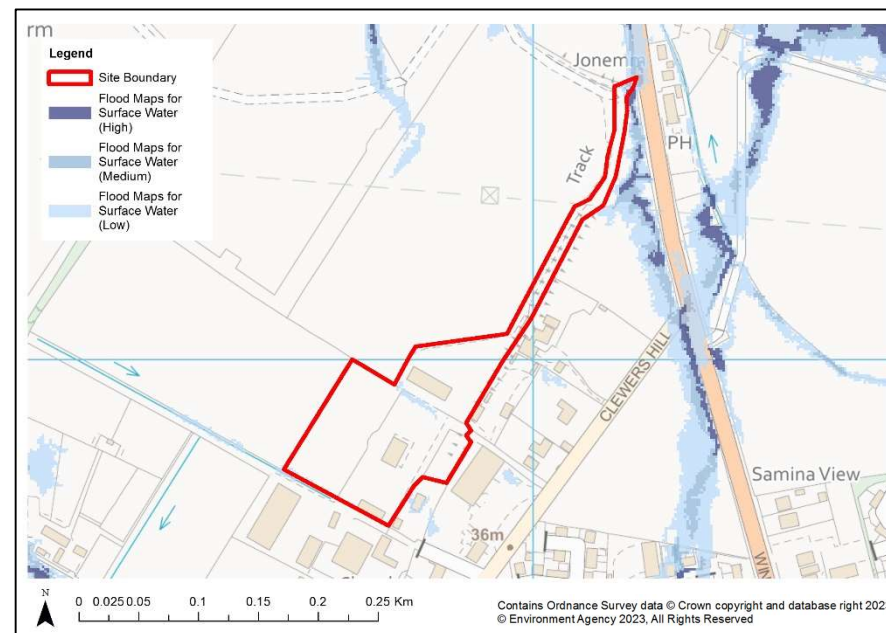
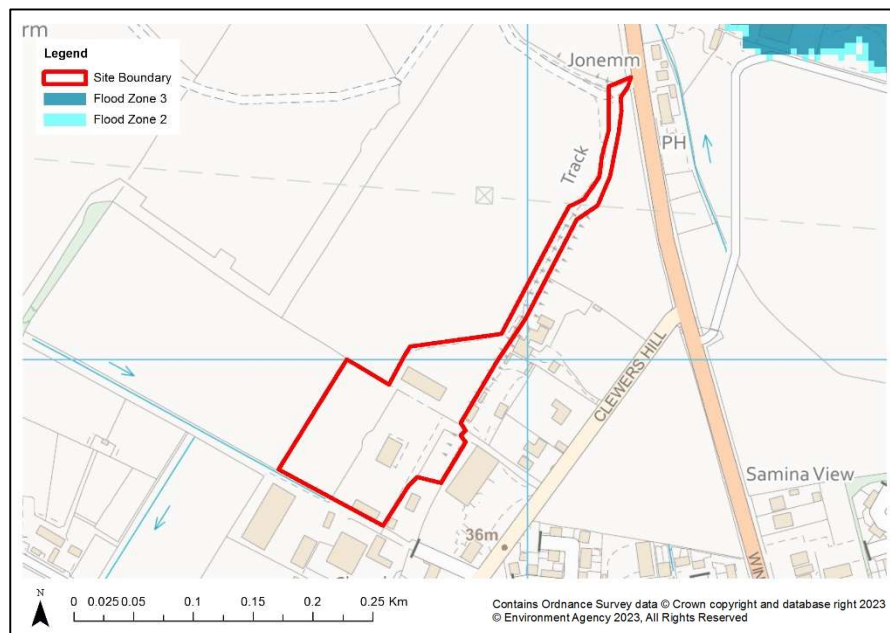
East Hampshire Catchment

The East Hampshire catchment covers approximately 523 km² across southeastern Hampshire and Portsmouth and encompasses five of the assessed sites as shown below in figure 4.

Figure 4: East Hampshire catchment area, showing Flood Zones 2 and 3 and Assessed Sites



Church Farm



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	>98.38% Very Low; 1.61% Low; <0.01% Medium; <0.01% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Church Farm – Summary & Development Considerations

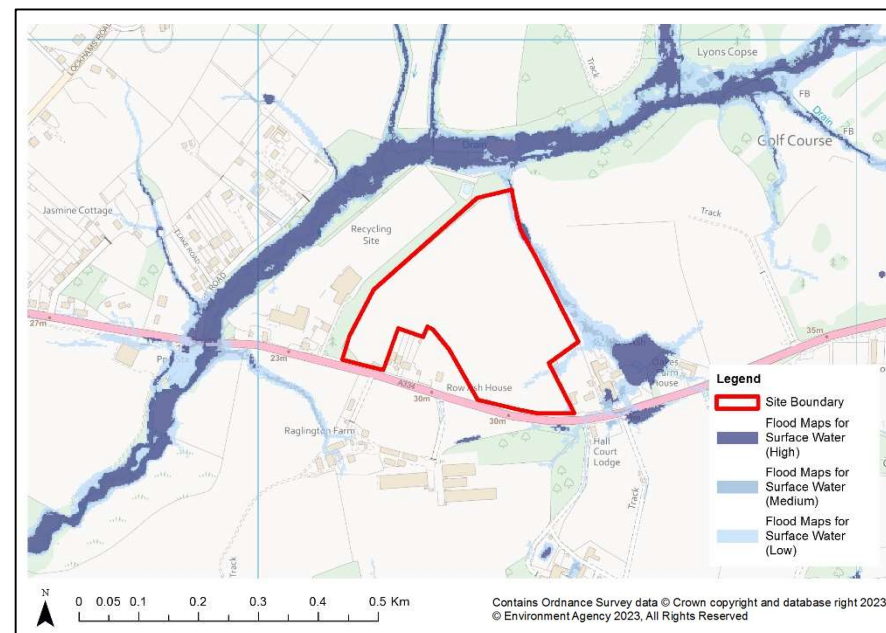
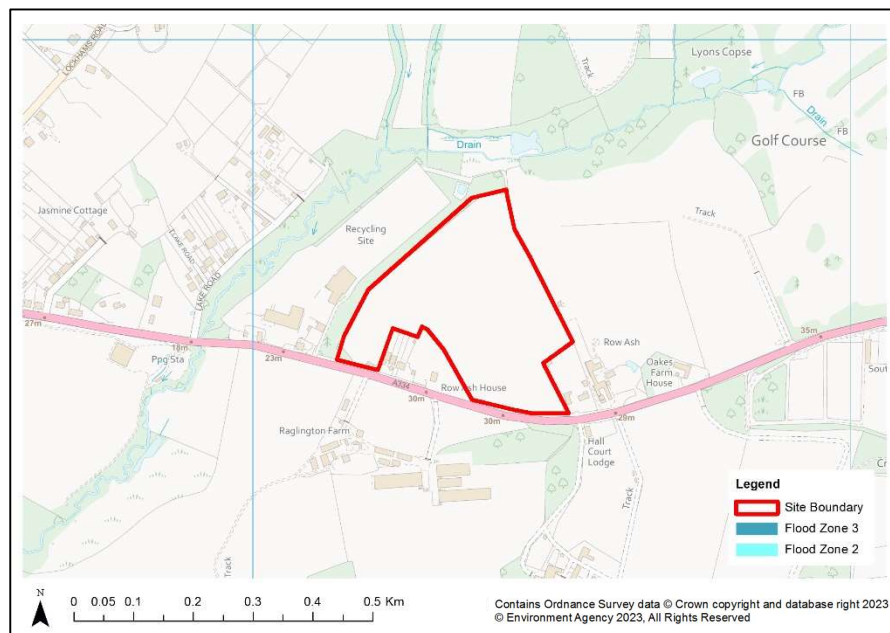
The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk so providing the existing flow paths are maintained and suitable water management measures are in place, this is not considered to pose significant constraints.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

Silverlake Automotive Recycling



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	98.32% Very Low; 1.30% Low; 0.13% Medium; 0.26% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Silverlake Automotive Recycling – Summary & Development Considerations

Hampshire County Council holds no records of historic flooding at this site.

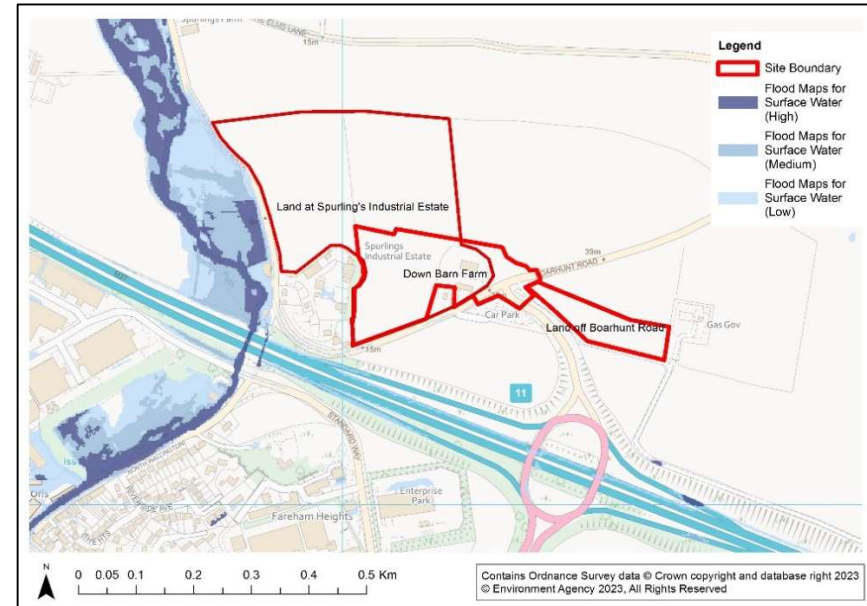
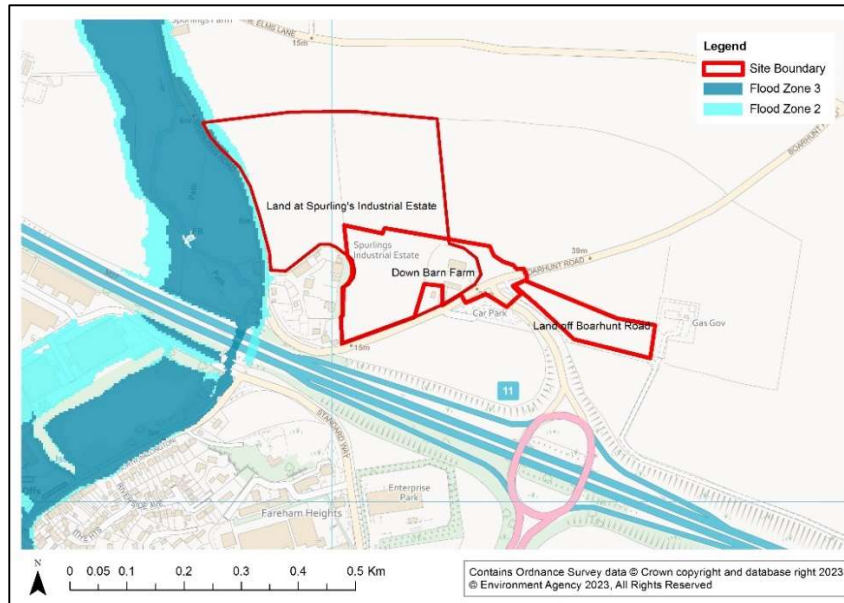
The site is larger than one hectare and in Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk so providing the existing flow paths are maintained and suitable water management measures are in place, this is not considered to pose significant constraints.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of end-of-life vehicle works is classified as more vulnerable development and is considered appropriate in this location.

Down Barn Farm



Flood history	Area of recorded highway flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Down Barn Farm – Summary & Development Considerations

Highway flooding was recorded to the southwest of this site on Spurlings Road in 2011/2012, the source of the flooding was recorded as blocked drainage due to the river blocking and silting the outfalls.

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

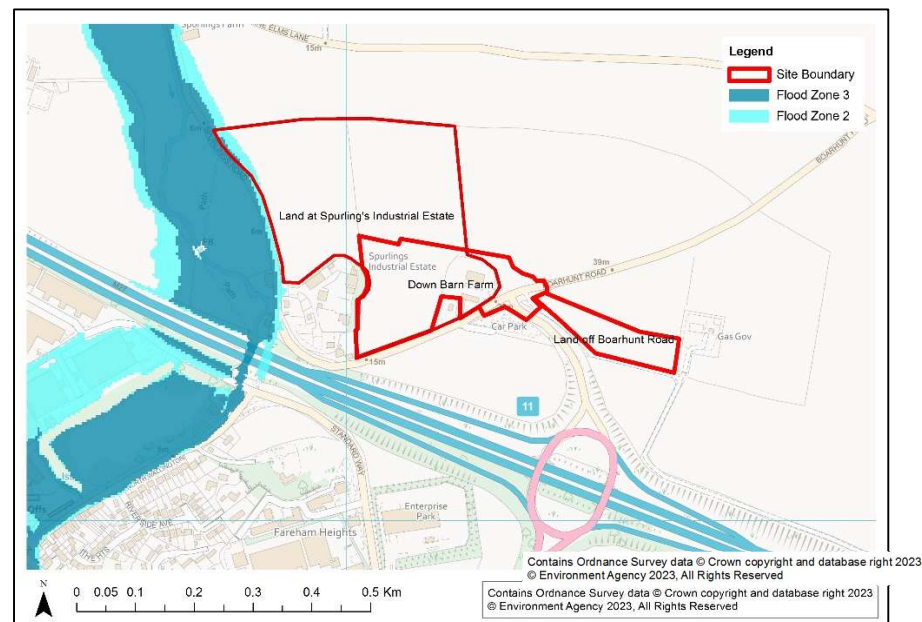
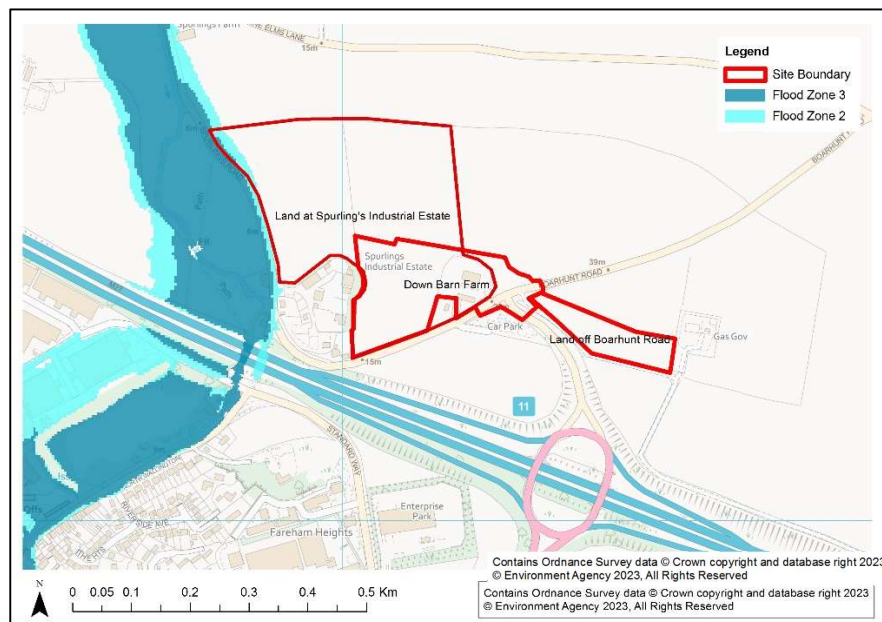
The site is at very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

This site is within Source Protection Zone 1 (SPZ1) where there is a presumption against development that involves activities posing an inherent hazard to groundwater. The Environment Agency should be consulted, and measures would be required to ensure no contamination of groundwater.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of waste recycling works is classified as less vulnerable development and is considered appropriate in this location.

Land off Boarhunt Road



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Land off Boarhunt Road – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

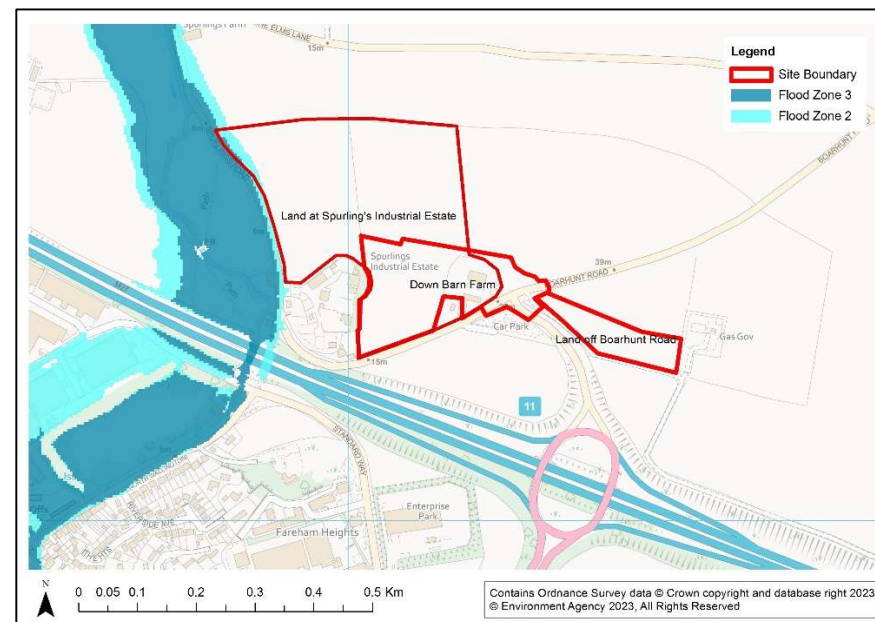
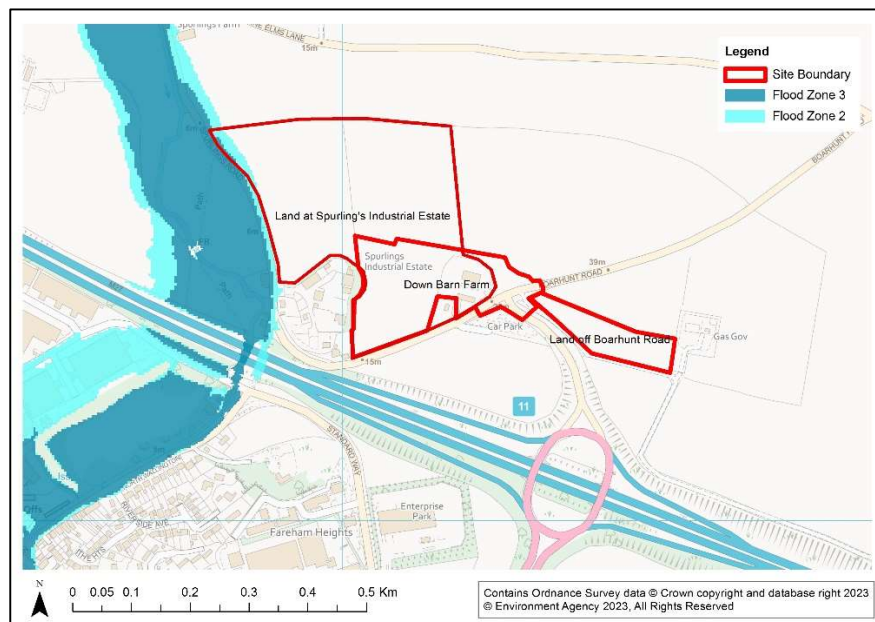
The whole site is at very low risk of surface water flooding so providing suitable water management measures are in place, this is not considered to pose significant constraints.

This site is within Source Protection Zone 1 (SPZ1) where there is a presumption against development that involves activities posing an inherent hazard to groundwater. The Environment Agency should be consulted, and measures would be required to ensure no contamination of groundwater.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

Land at Spurling's Industrial Estate



Flood history	Area of recorded highway flooding	
Fluvial flood risk	98.04% FZ1; 1.60% FZ2; 0.36% FZ3	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Partially within an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Land at Spurling's Industrial Estate – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

The whole site is at very low risk of surface water flooding so providing suitable water management measures are in place, this is not considered to pose significant constraints.

A small area of Flood Zone 2 and 3 is present on the western boundary but given its location it is considered that the site layout can be developed to avoid these areas.

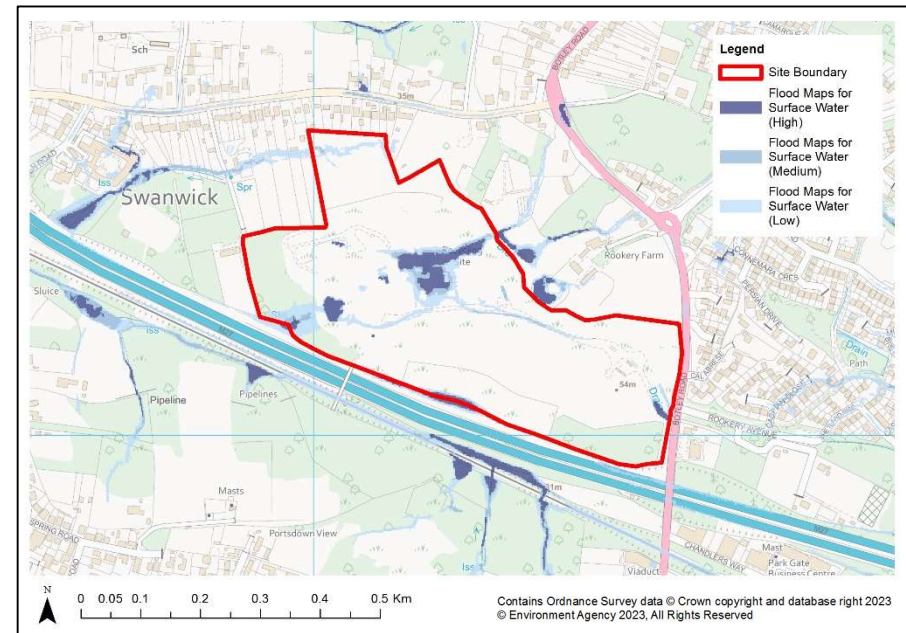
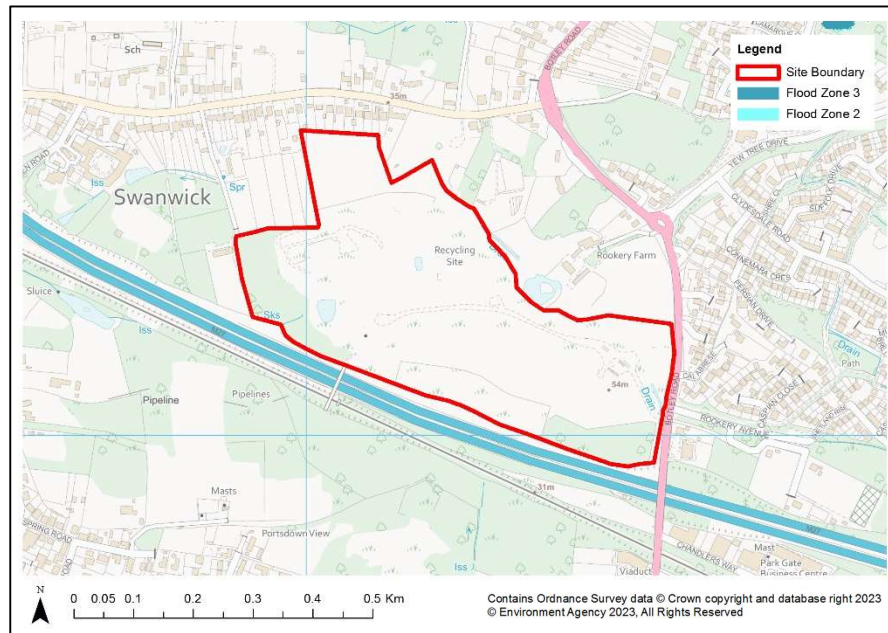
There is also a risk of reservoir flooding if an event occurred in conjunction with high river flows however this is limited to the western side and again, the site layout can be sequentially approached to avoid this area. The residual risk should be addressed as part of the site specific Flood Risk Assessment.

This site is within Source Protection Zone 1 (SPZ1) where there is a presumption against development that involves activities posing an inherent hazard to groundwater. The Environment Agency should be consulted, and measures would be required to ensure no contamination of groundwater.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of a Waste Transfer Station is classified as less vulnerable development and is considered appropriate in this location.

Rookery Farm



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	89.49% Very Low; 5.55% Low; 1.70% Medium; 3.25% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Rookery Farm – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

Some areas of the site are shown at high and medium surface water flood risk which form an overland flow path. The sequential approach to the site layout should be followed, or suitable measures put in place, to ensure flow paths are retained. Providing suitable water management measures are in place this is not considered to pose significant constraints.

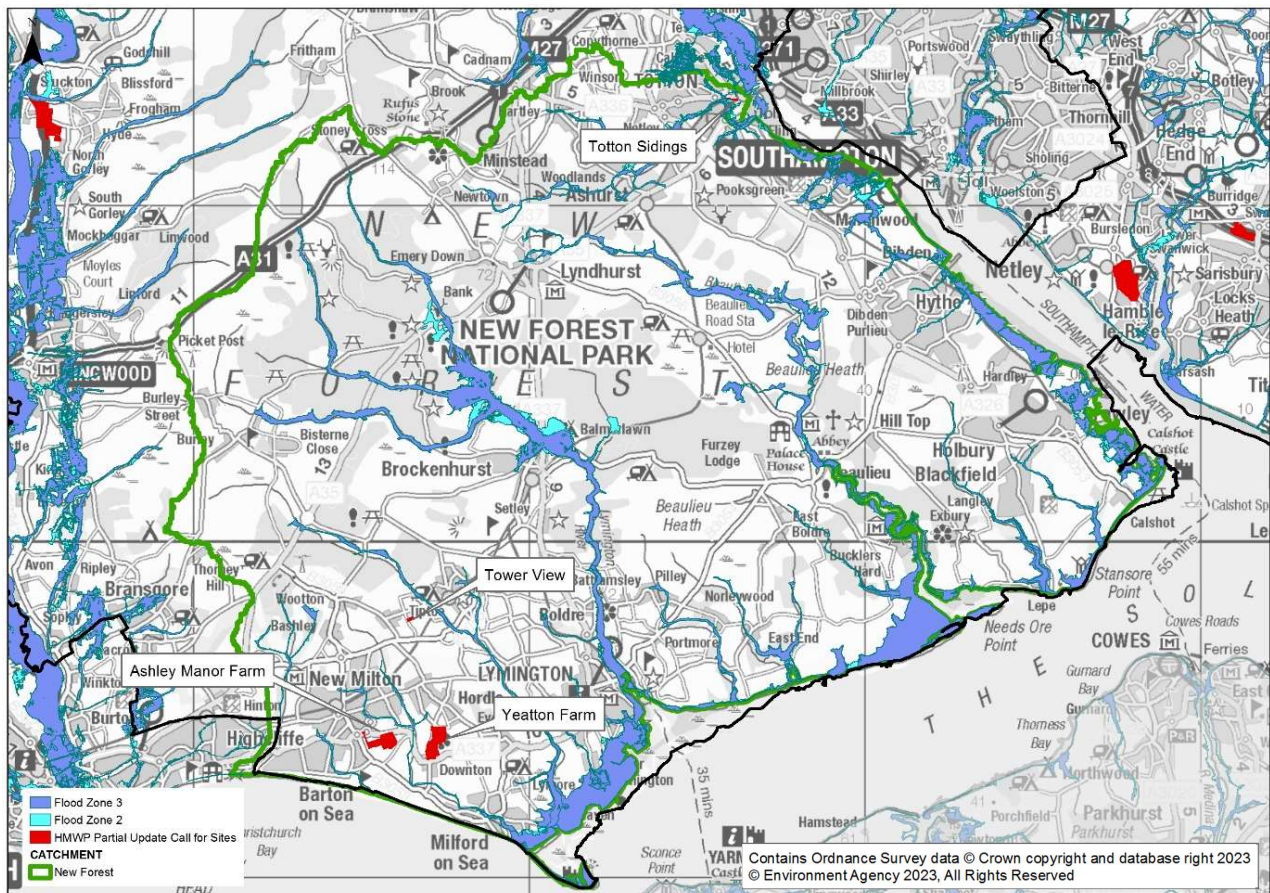
This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

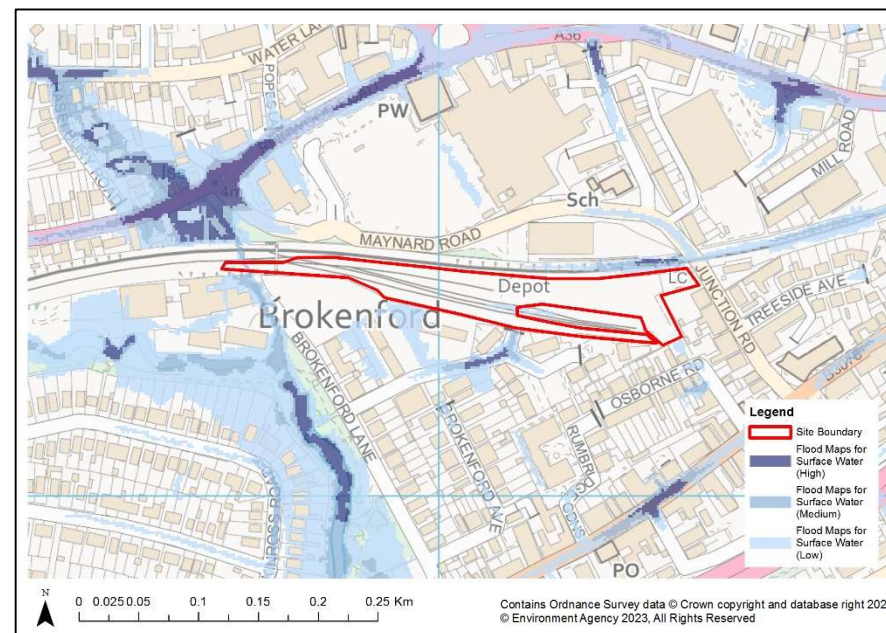
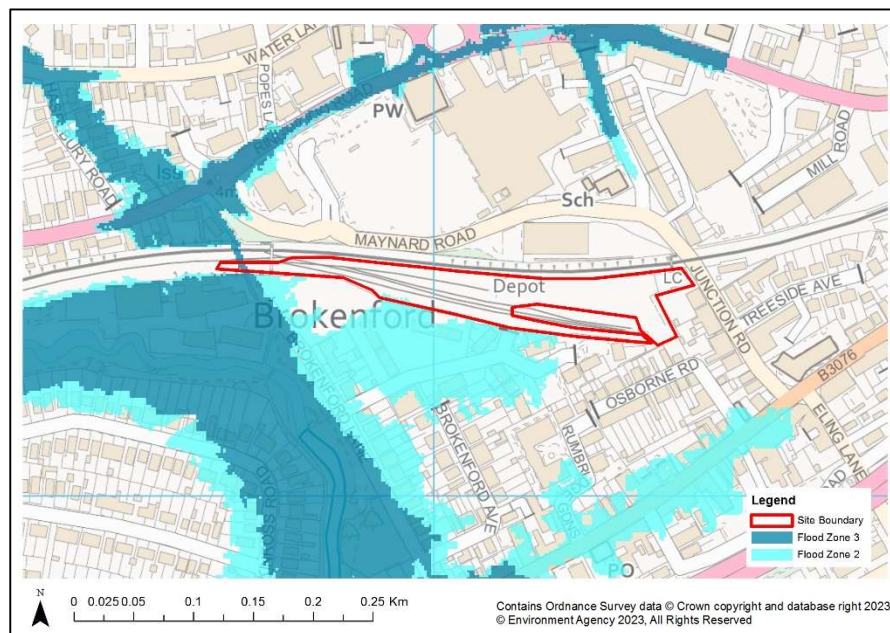
New Forest Catchment

The New Forest catchment covers approximately 432 km² across southwest Hampshire and encompasses four of the assessed sites which are located in close proximity to each other, as shown below in Figure 5.

Figure 5: New Forest Catchment area within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites



Totton Sidings



Flood history	No known records of flooding	Green
Fluvial flood risk	98.75% FZ1; 0.83% FZ2; 0.42% FZ3	Yellow
Surface water flood risk	98.75% Very Low; 0.99% Low; 0.26% Medium	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	Detailed modelling being sought but impacts likely to be minimal. Surface water can be managed within site boundary	Yellow

Totton Sidings – Summary & Development Considerations

Part of this site is in Flood Zone 3 and in excess of 1 hectare, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. A small part of the site is at high risk of fluvial flooding as well as other sources, so a sequential approach to the site layout should be used where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

No development should be undertaken in Flood Zone 3b (the functional floodplain) and modelling will be required to confirm its extent including climate change. Modelling should include the 5%, 1% and 1%+ climate change AEP*.

The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

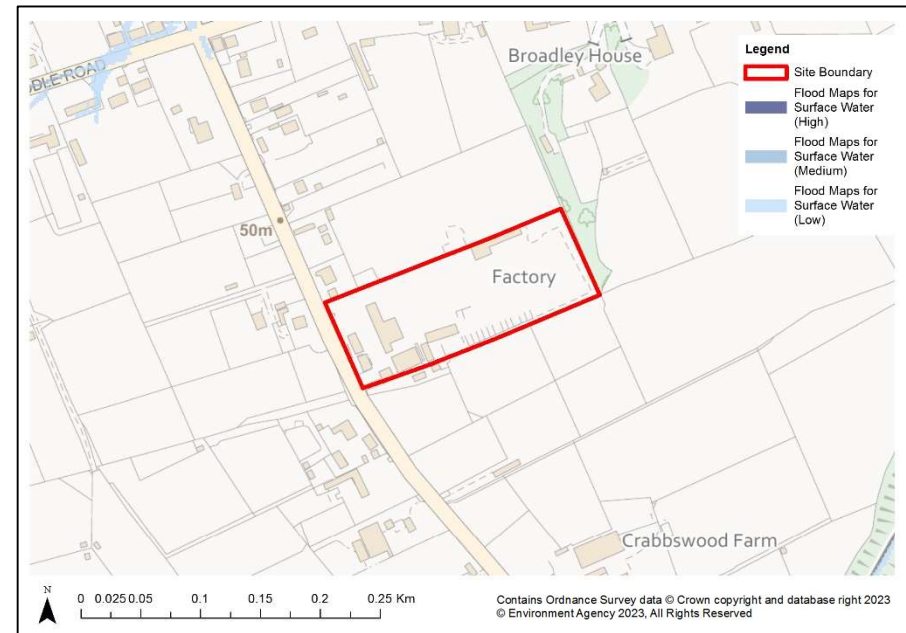
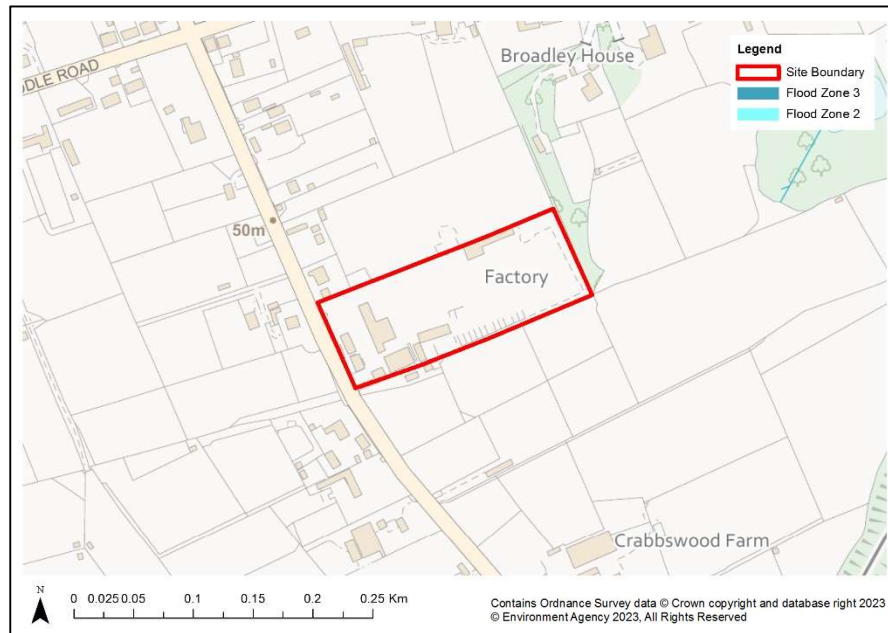
The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of an aggregate rail depot is classified as less vulnerable development and is considered appropriate in this location.

*Detailed fluvial modelling is being sought to quantify the extent of Flood Zone 3a and b when climate change is considered however Flood Zone 2 has been used to provide an indication of the likely impacts.

Tower View



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Tower View – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

The whole site is at very low risk of surface water flooding so providing suitable water management measures are in place, this is not considered to pose significant constraints.

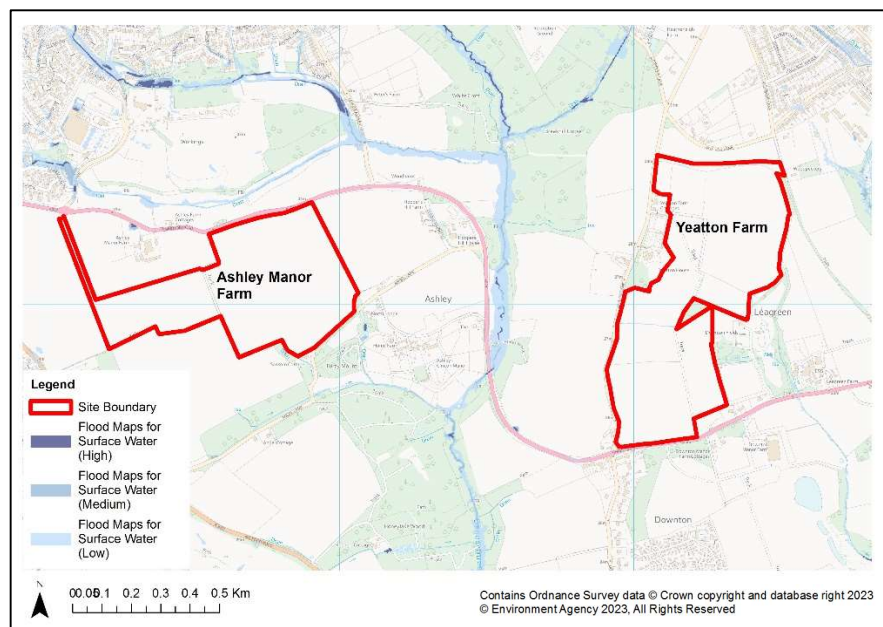
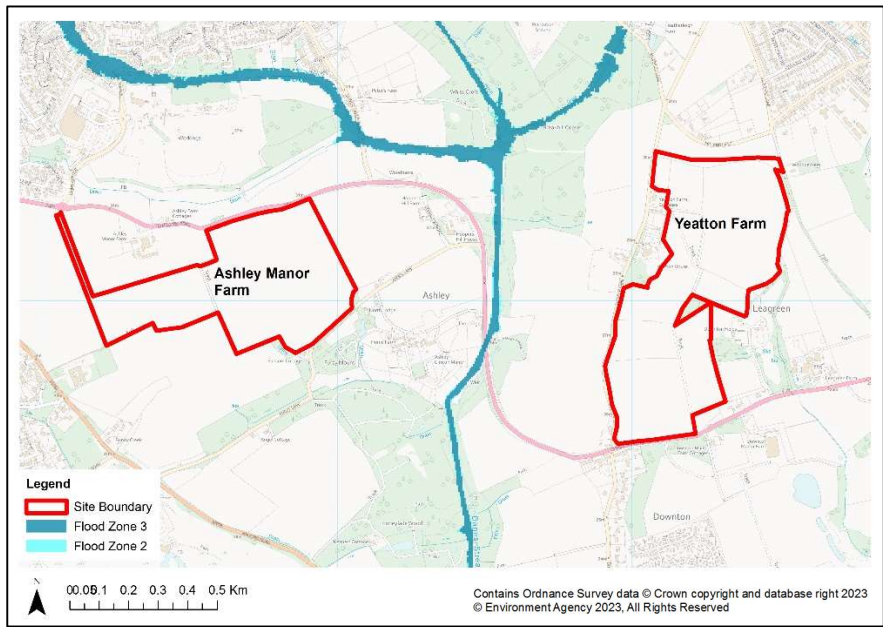
The site has high groundwater vulnerability so groundwater protection measures may be required.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

Ashley Manor Farm



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Ashley Manor Farm – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

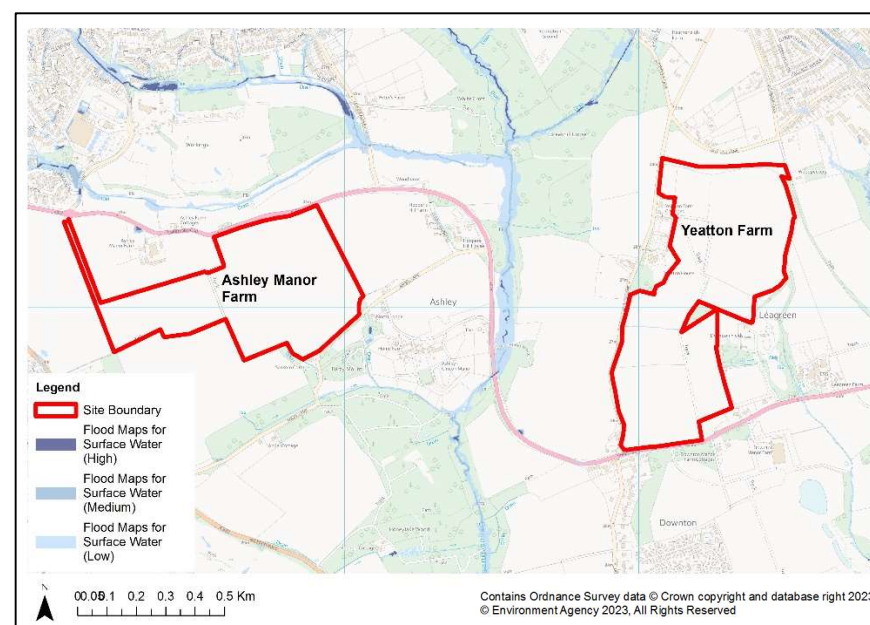
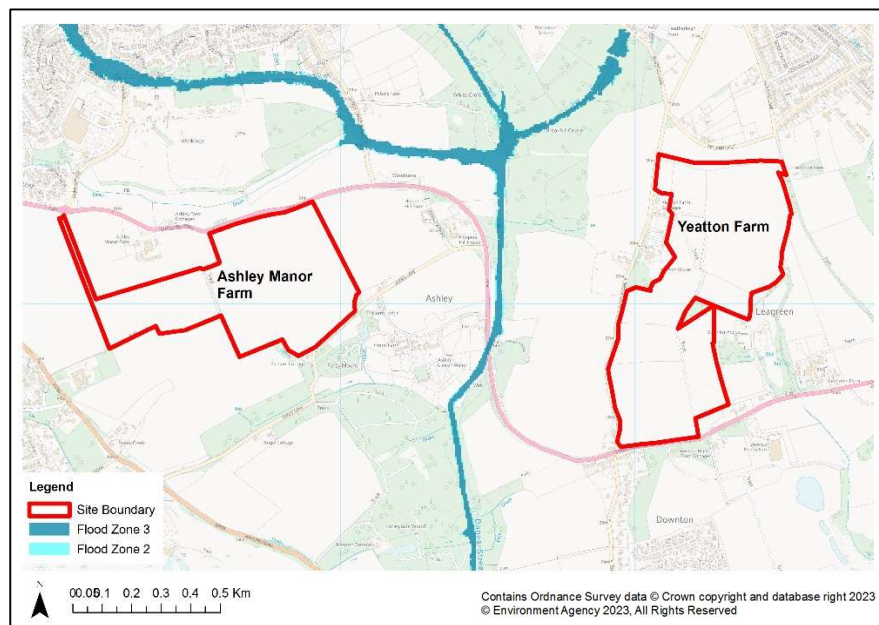
The whole site is at very low risk of surface water flooding so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has areas of high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Yeatton Farm



Flood history	Area of recorded flooding, 2018/19	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.89% Very Low; 0.11% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Yeatton Farm – Summary & Development Considerations

Highway and historic property flooding was recorded to the southwest of this site in 2018 and 2019, the source of the flooding was recorded as blocked ditches.

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

This site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

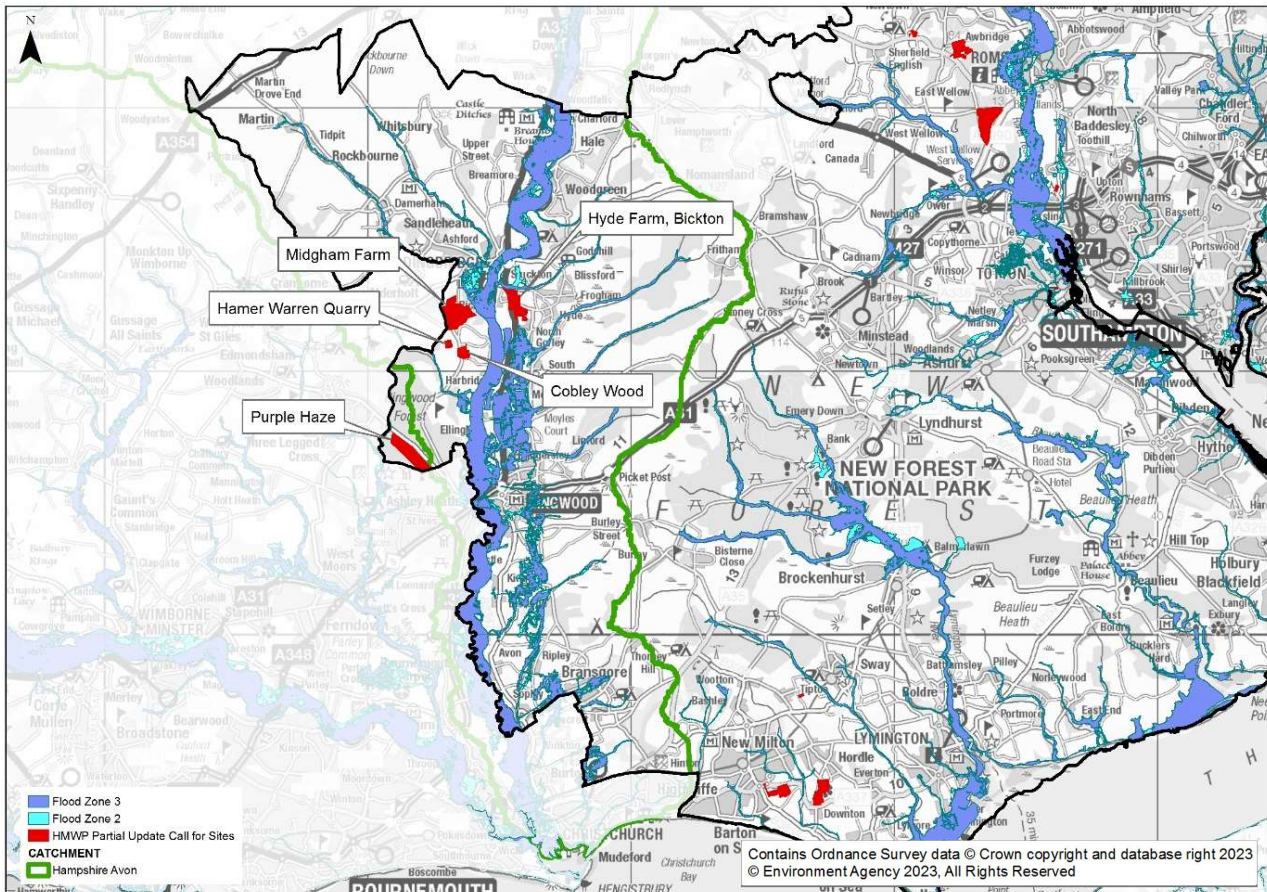
This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

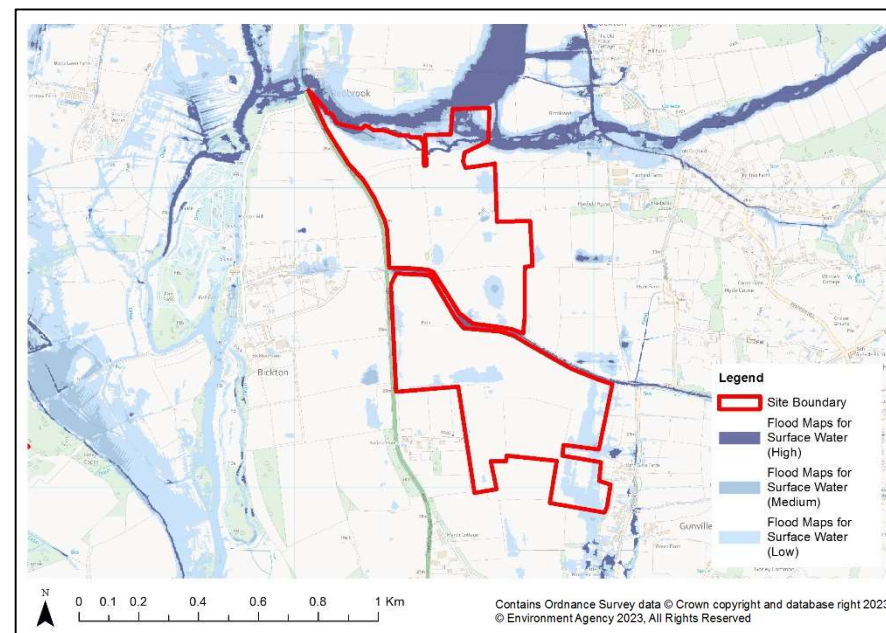
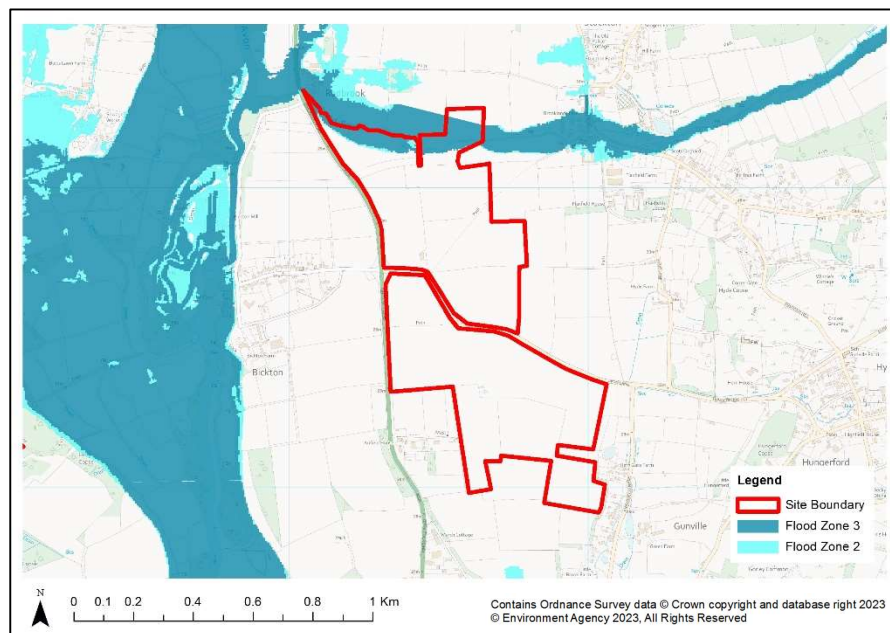
Avon Catchment

The Hampshire Avon catchment covers approximately 280 km² across west Hampshire and encompasses five of the assessed sites as shown below in figure 6.

Figure 6: Catchment area of the River Avon within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites



Hyde Farm, Bickton



Flood history	Fluvial/groundwater flooding west of the site, 1959/1982/2014	Green
Fluvial flood risk	93.73% FZ1; 0.40% FZ2; 5.86% FZ3	Yellow
Surface water flood risk	84.27% Very Low; 11.73% Low; 1.53% Medium; 2.47% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	Detailed modelling being sought but impacts likely to be minimal. Surface water can be managed within site boundary	Yellow

Hyde Farm, Bickton – Summary & Development Considerations

Fluvial flooding was recorded west of this site in 1959, 1982 and 2014, the source of the flooding was recorded as channel capacity exceedance. Highway and property flooding was recorded south of this site in 2014, the source of the flooding was recorded as blocked ditches and insufficient capacity in culverts.

Part of this site is in Flood Zone 3 and is larger than one hectare, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding.

Although this is considered as water compatible development, operations in Flood Zone 3b should be avoided and a sequential approach taken to the site layout. Any elements of the site development located within the Flood Zone 3b area must be designed and constructed to:

- remain operational and safe for users in times of flood,
- result in no net loss of floodplain storage,
- not impede waterflows and not increase flood risk elsewhere.

If works are proposed within Flood Zone 3b, fluvial modelling will be required to provide a detailed assessment of fluvial flood risk and to ensure floodplain compensation is provided where required. Modelling should include the 5%, 1% and 1%+ climate change AEP*.

The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints. However, areas of high surface water flood risk are present to the north of the site and the sequential approach should be taken to development and ensuring that flow paths are not obstructed.

The site has medium groundwater vulnerability and due to the nature of the proposals, a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

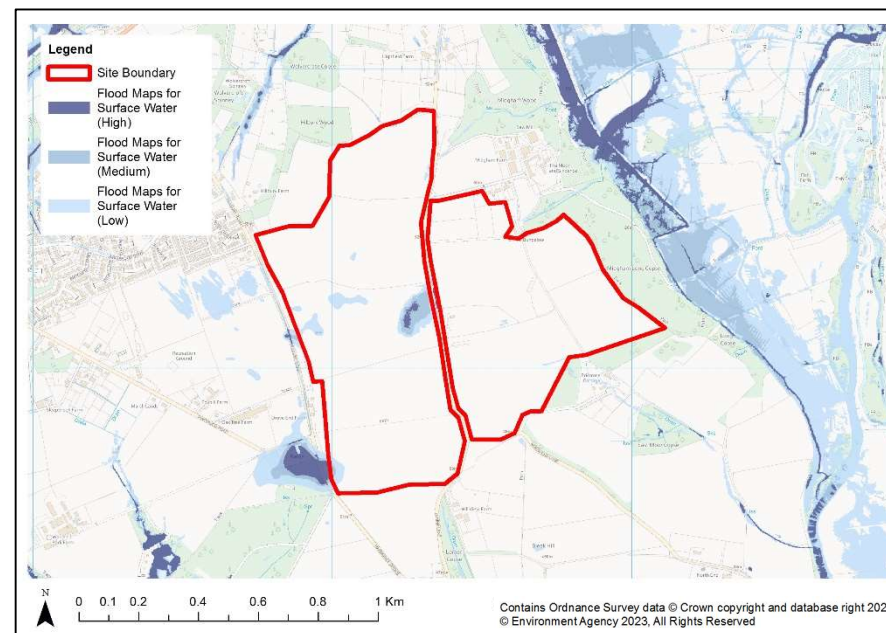
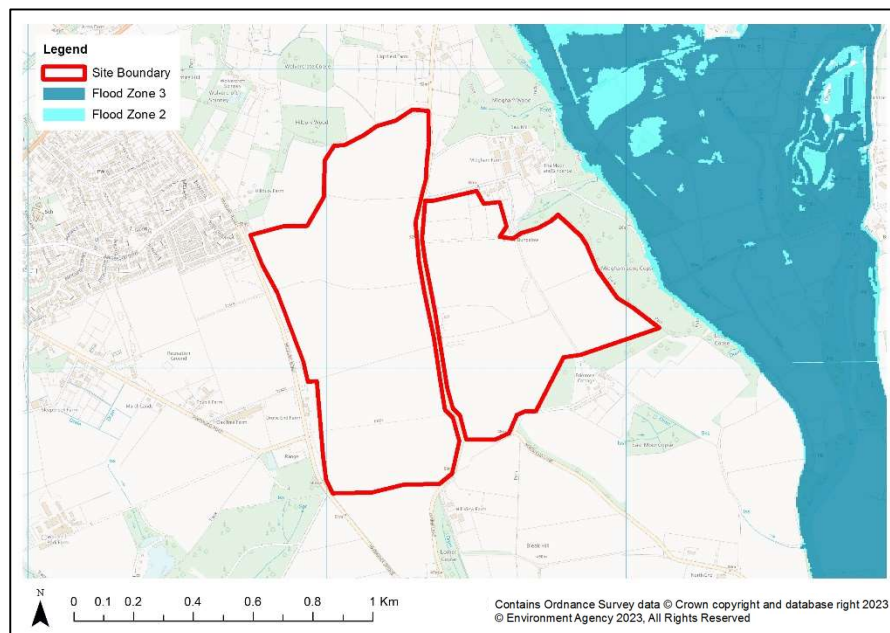
This site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are

proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

*Detailed fluvial modelling is being sought to quantify the extent of Flood Zone 3a and b when climate change is considered however Flood Zone 2 has been used to provide an indication of the likely impacts.

Midgham Farm



Flood history	Fluvial/groundwater flooding east of the site - 1959; 2014	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	96.99% Very Low; 1.94% Low; 0.85% Medium; 0.22% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Midgham Farm – Summary & Development Considerations

Fluvial flooding was recorded east of this site in 1959 and 2014, the source of the flooding was recorded as channel capacity exceedance.

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

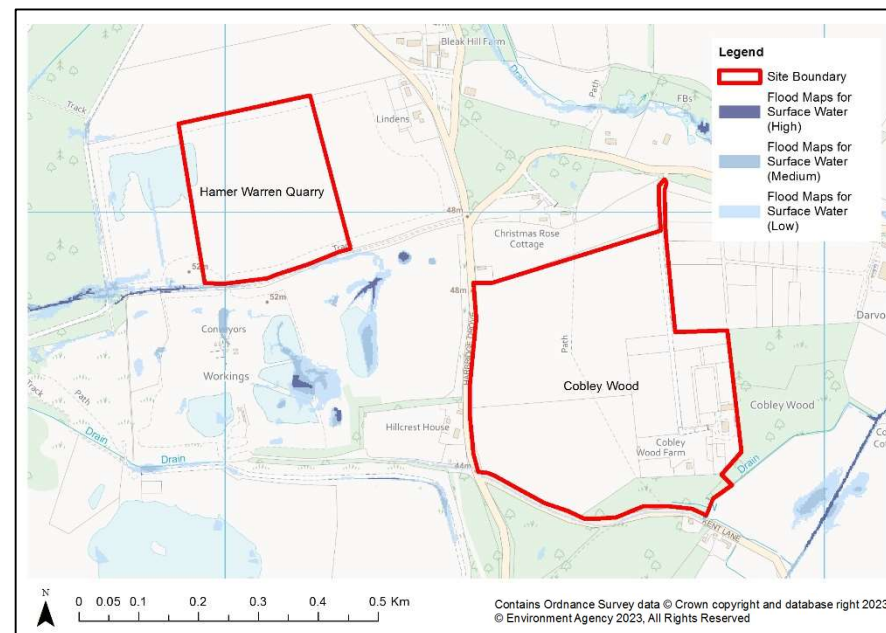
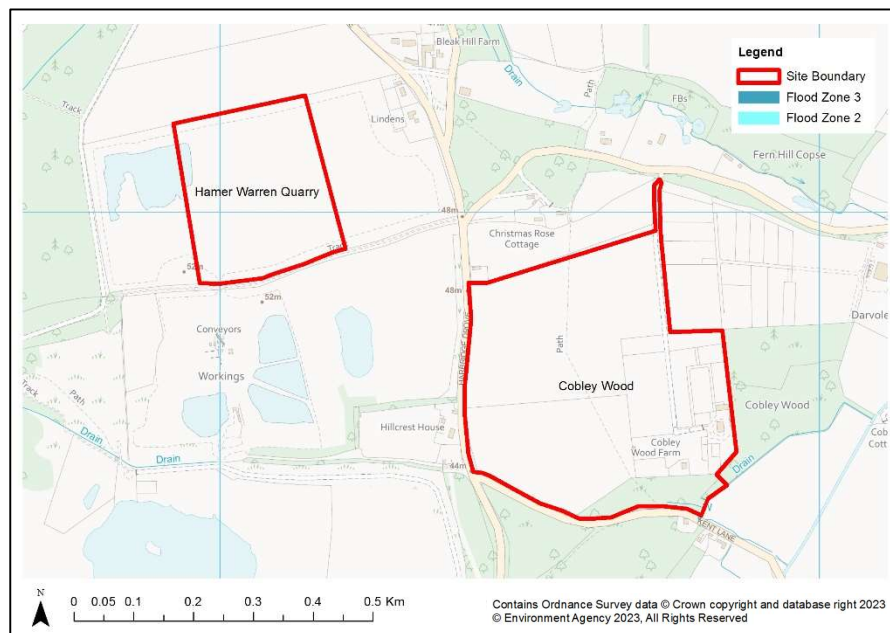
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Hamer Warren Quarry



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	>99.9% Very Low; <0.01% Low; <0.01% Medium	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Hamer Warren Quarry – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

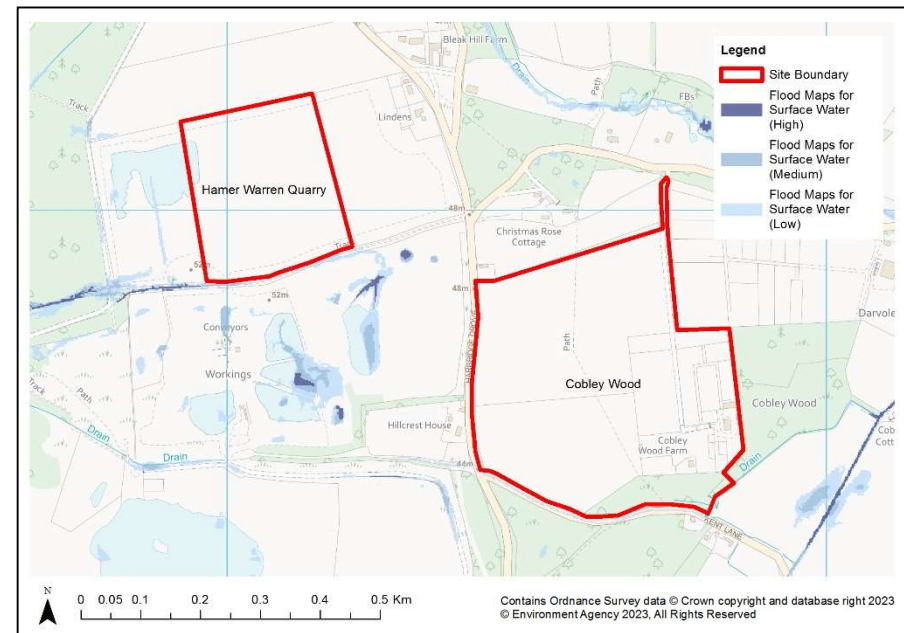
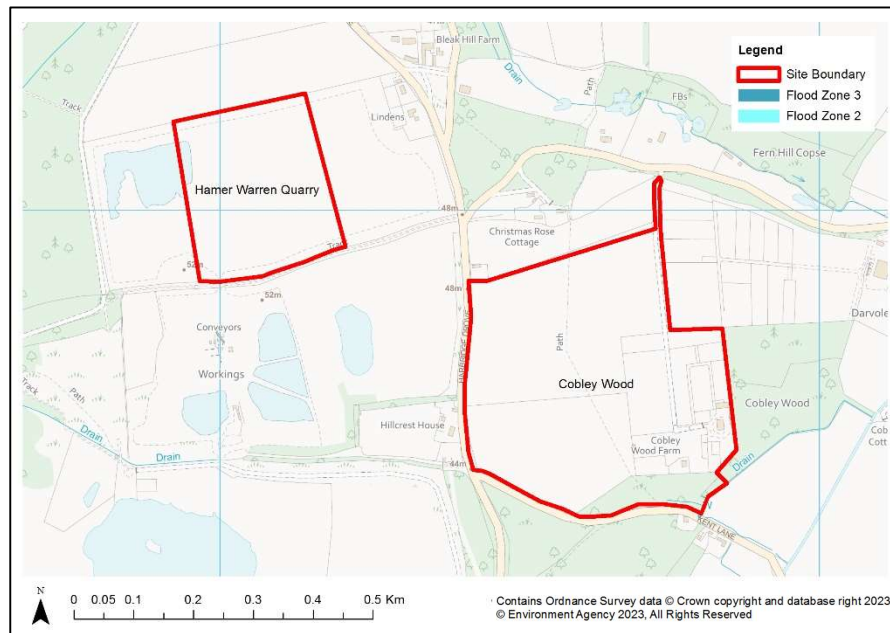
The majority of the site is at very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of hazardous landfill is classified as more vulnerable development and is considered appropriate in this location.

Cobley Wood



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Cobley Wood – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. As the risk of flooding to the site from other sources is low the primary focus of the FRA should be to prevent the increase in offsite risk. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

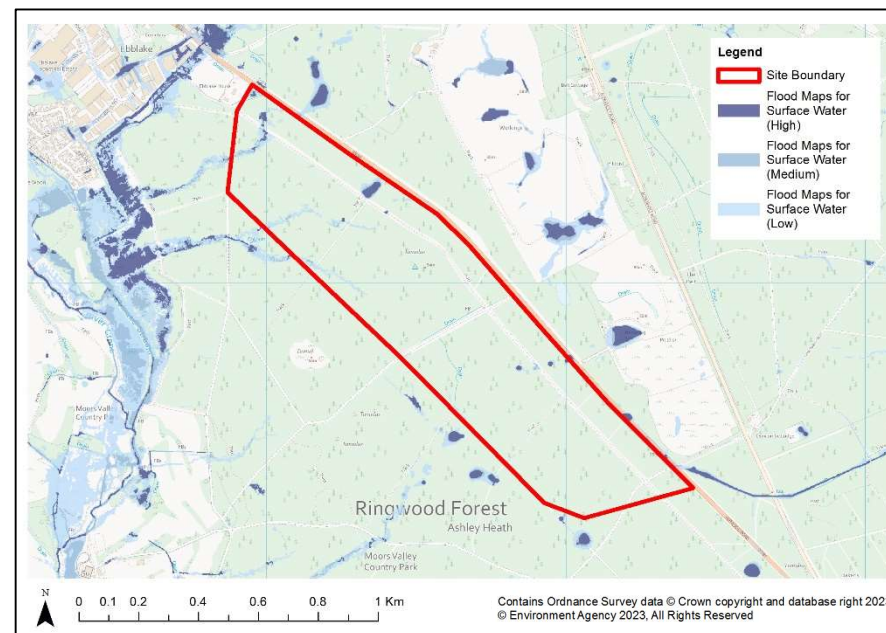
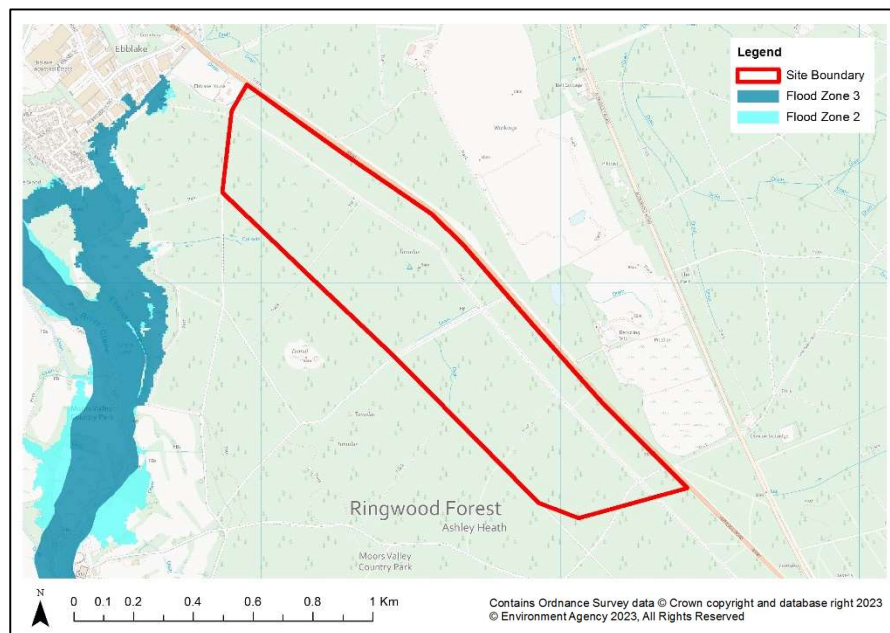
The whole site is at very low risk of surface water flooding so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate, or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Purple Haze



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	97.17% Very Low; 1.90% Low; 0.42% Medium; 0.51% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Purple Haze – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk although there are flow paths identified at medium and high surface water risk. These flow paths must be retained or appropriately managed, so flood risk is not increased. Providing that suitable water management measures are in place; this is not considered to pose significant constraints.

Part of the site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

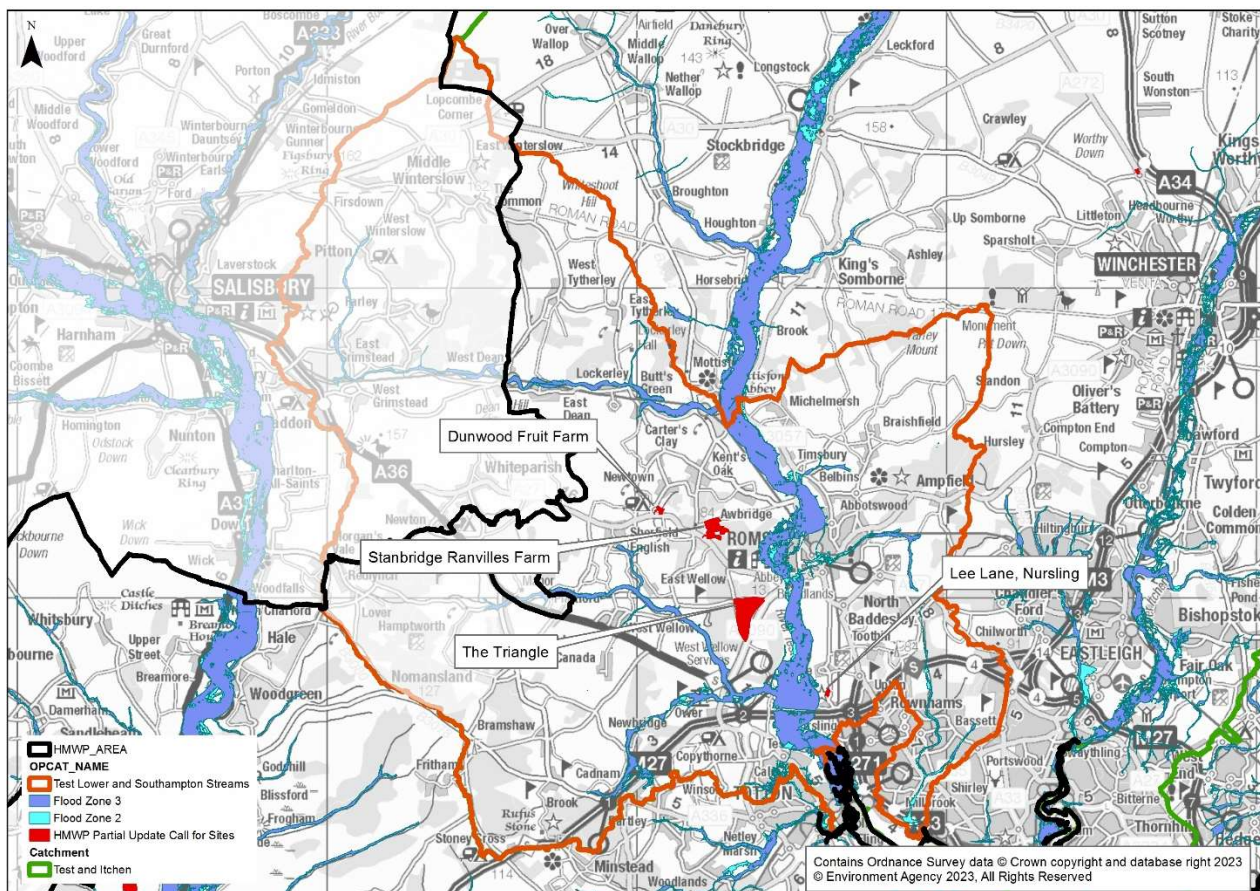
The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Test & Itchen Catchment – Test Lower Operational Catchment

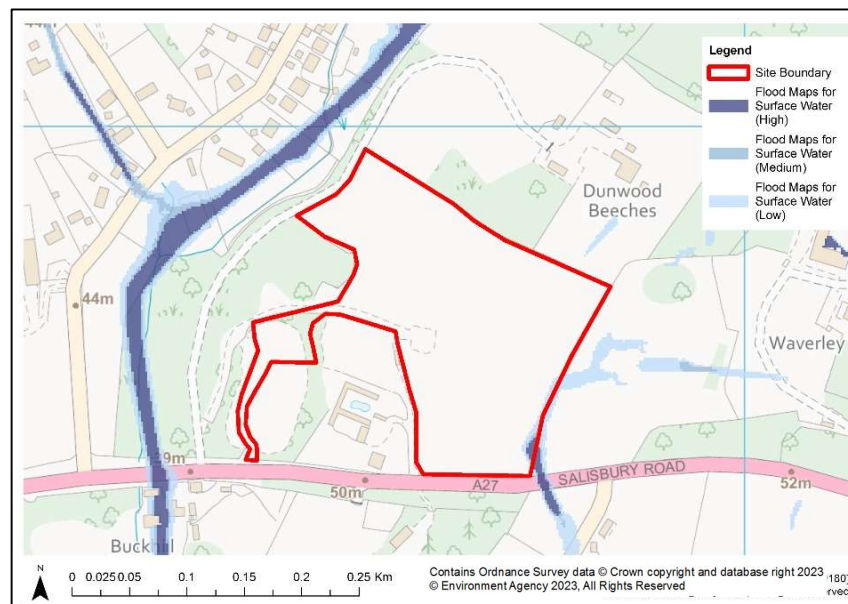
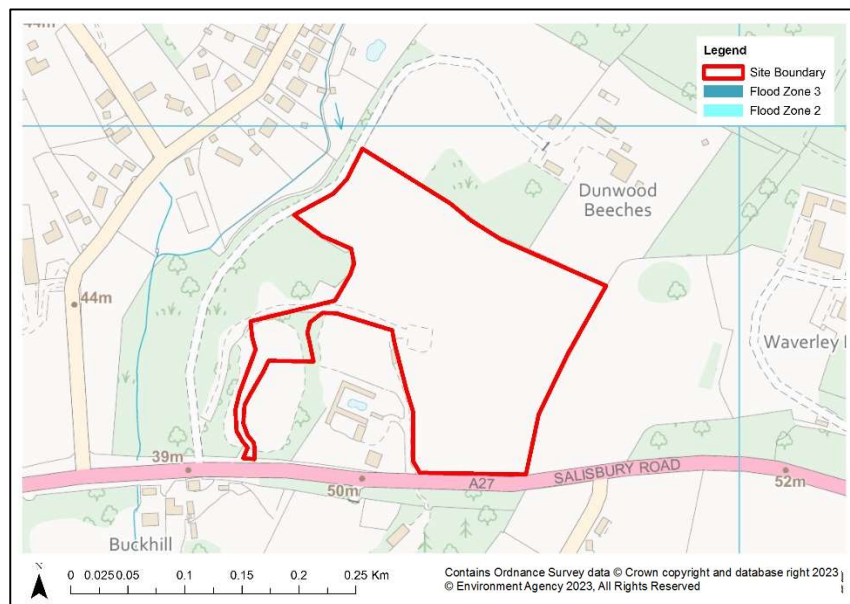
Due to the size of the Test and Itchen Catchment, for clarity this has been split further into its operational catchments of Test Lower, Test Middle & Upper and Itchen.

The Test Lower and Southampton Streams catchment covers approximately 233 km² across central / south Hampshire and Southampton and encompasses 3 of the assessed sites which are located in close proximity to each other, as shown below in figure 7.

Figure 7: Catchment area of the lower River Test within Hampshire and Southampton, showing Flood Zones 2 and 3 and Assessed Sites.



Dunwood Fruit Farm



Flood history	Fluvial/groundwater flooding northwest of the site - 1995	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	98.79% Very Low; 0.72% Low; 0.24% Medium; 0.24% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Dunwood Fruit Farm – Summary & Development Considerations

Fluvial flooding was recorded northwest of this site in 1995, the source of the flooding was recorded as groundwater/high water table.

The site is larger than one hectare and within Flood Zone 1, so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

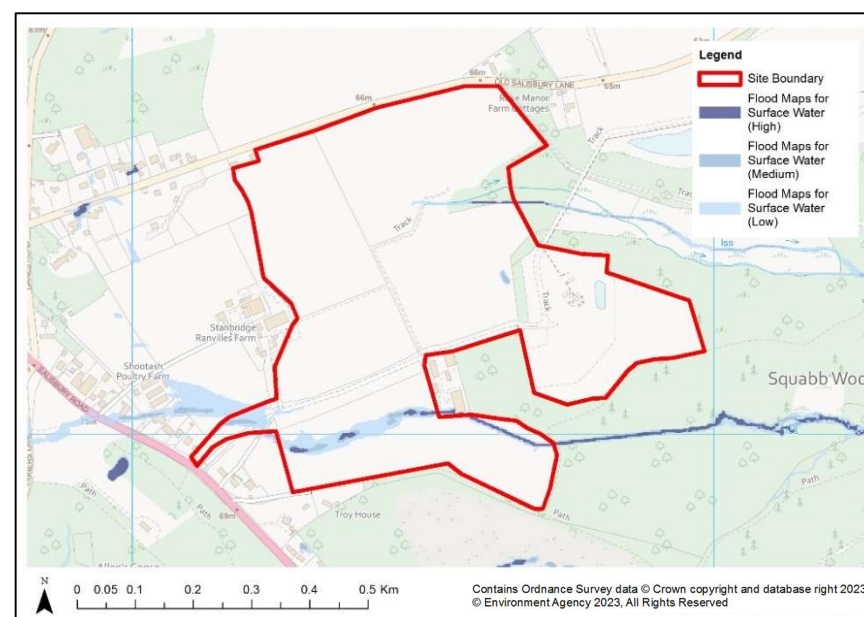
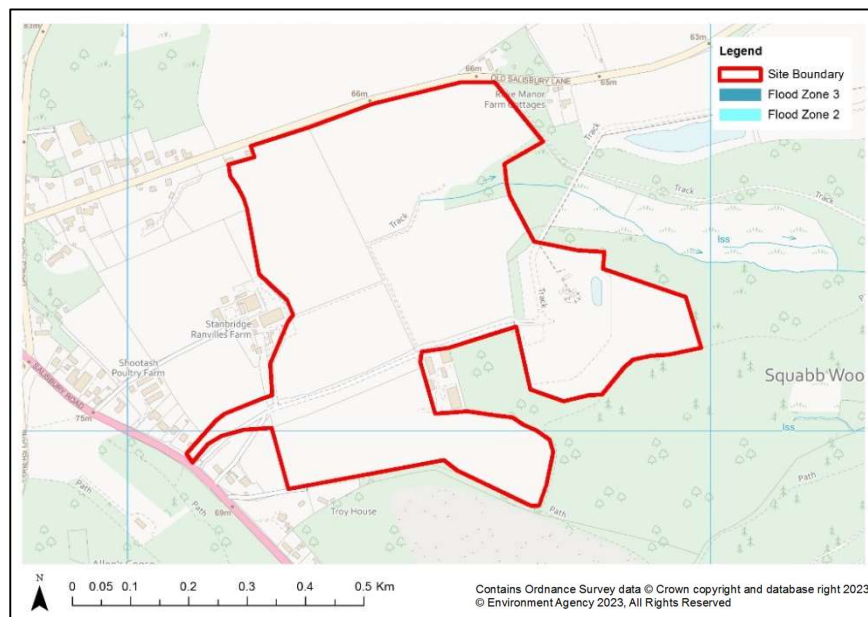
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability, so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Stanbridge Ranvilles Farm



Flood history	Groundwater / fluvial flooding – 1995, possible ephemeral watercourse	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	96.29% Very Low; 2.57% Low; 0.58% Medium; 0.55% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Stanbridge Ranvilles Farm – Summary & Development Considerations

Groundwater flooding was recorded near to this site in 1995, the source of the flooding was recorded as ephemeral watercourses.

The site is larger than one hectare and in Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

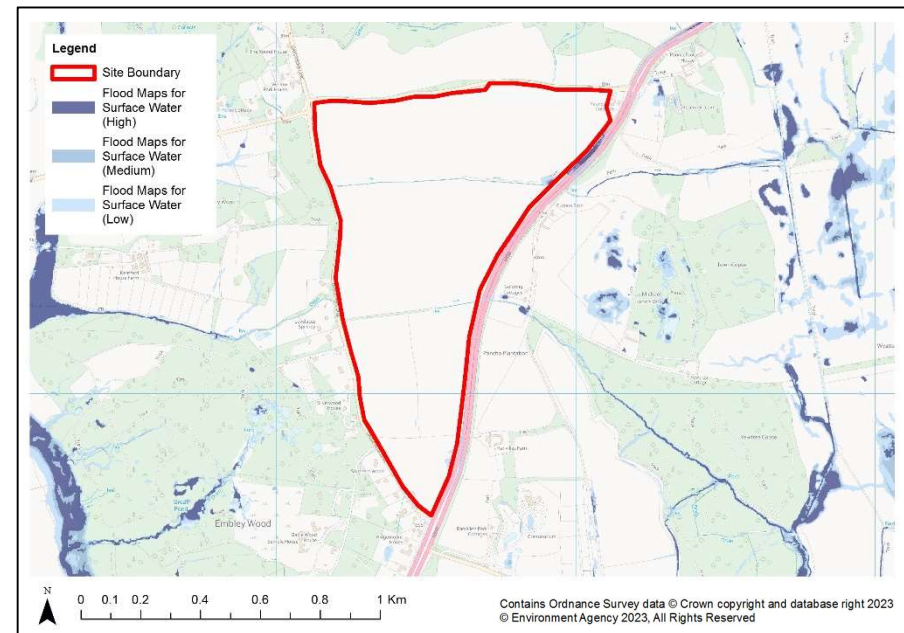
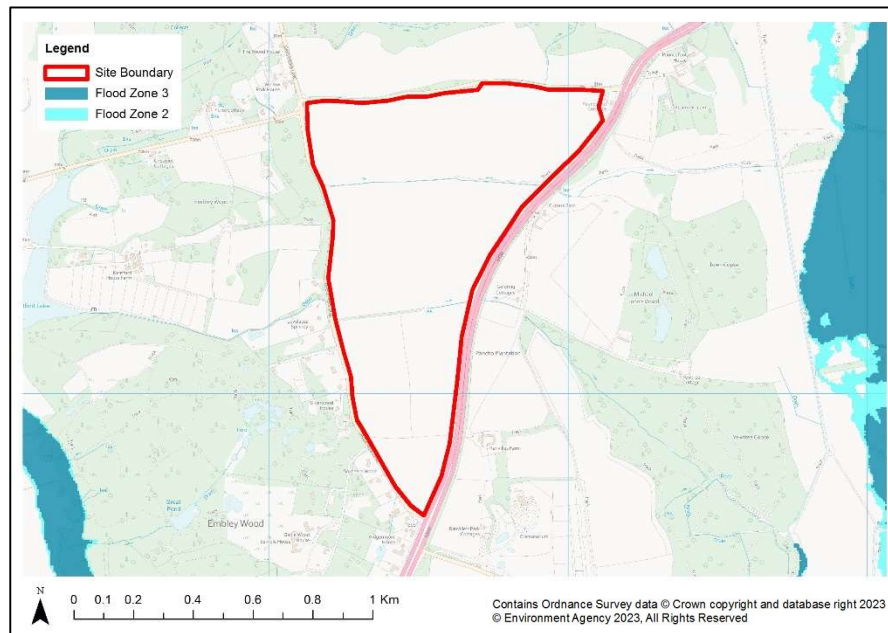
The majority of the site is at low or very low flood risk but there is a defined flow path running through the southern part of the site. This will need to be retained or managed such that flood risk on or off site is not increased. Providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

The Triangle



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.52% Very Low; 0.35% Low; 0.07% Medium; 0.06% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

The Triangle – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. Where possible areas at risk of flooding should be avoided completely and left undeveloped. If this is not possible, mitigation to prevent the displacement of floodwater may be required along with surface water modelling may be required to identify the level of mitigation needed. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints. The presence of watercourses through the site will need further consideration on how they can be retained or modified within the site layout and this is expected to require ordinary watercourse consent from the Lead Local Flood Authority.

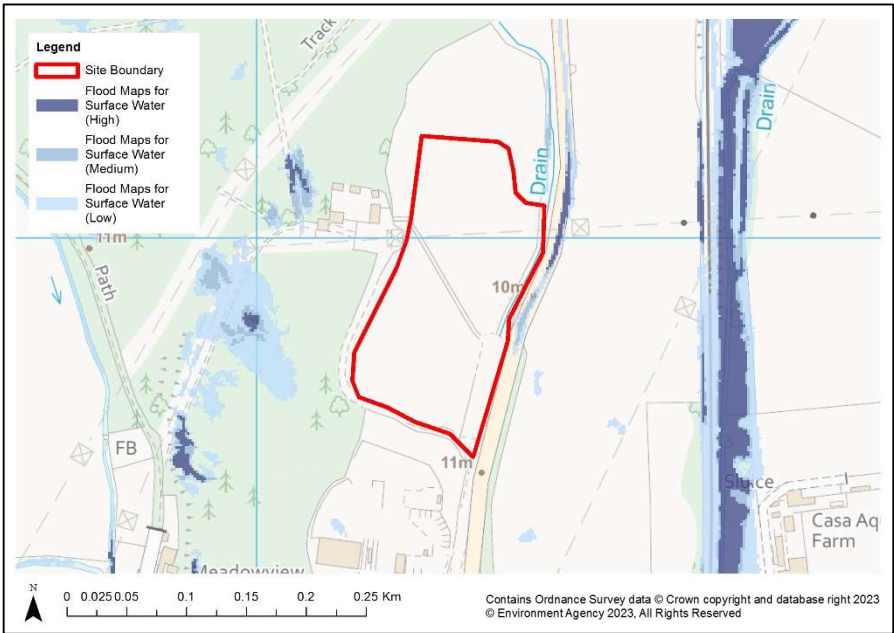
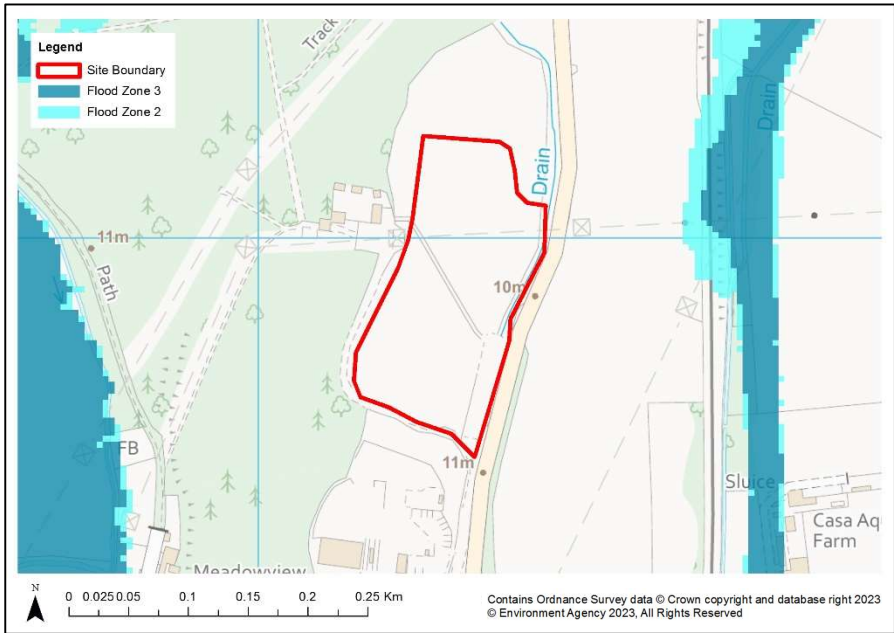
The site has high groundwater vulnerability so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 2 area. This is an area of low to moderate risk where current flood risk management actions may be reduced. Flood risk management actions would be reviewed so that they are proportionate to the level of risk, as continuing with current levels of maintenance of existing defences may no longer offer value for money.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Lee Lane, Nursling



Flood history	Area of recorded highway flooding, 2011/12	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.61% Very Low; 0.39% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Lee Lane, Nursling – Summary & Development Considerations

Highway flooding was recorded to the east of this site in 2011/12, the source of the flooding was recorded as blocked ditches.

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high and medium groundwater vulnerability so groundwater protection measures may be necessary.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

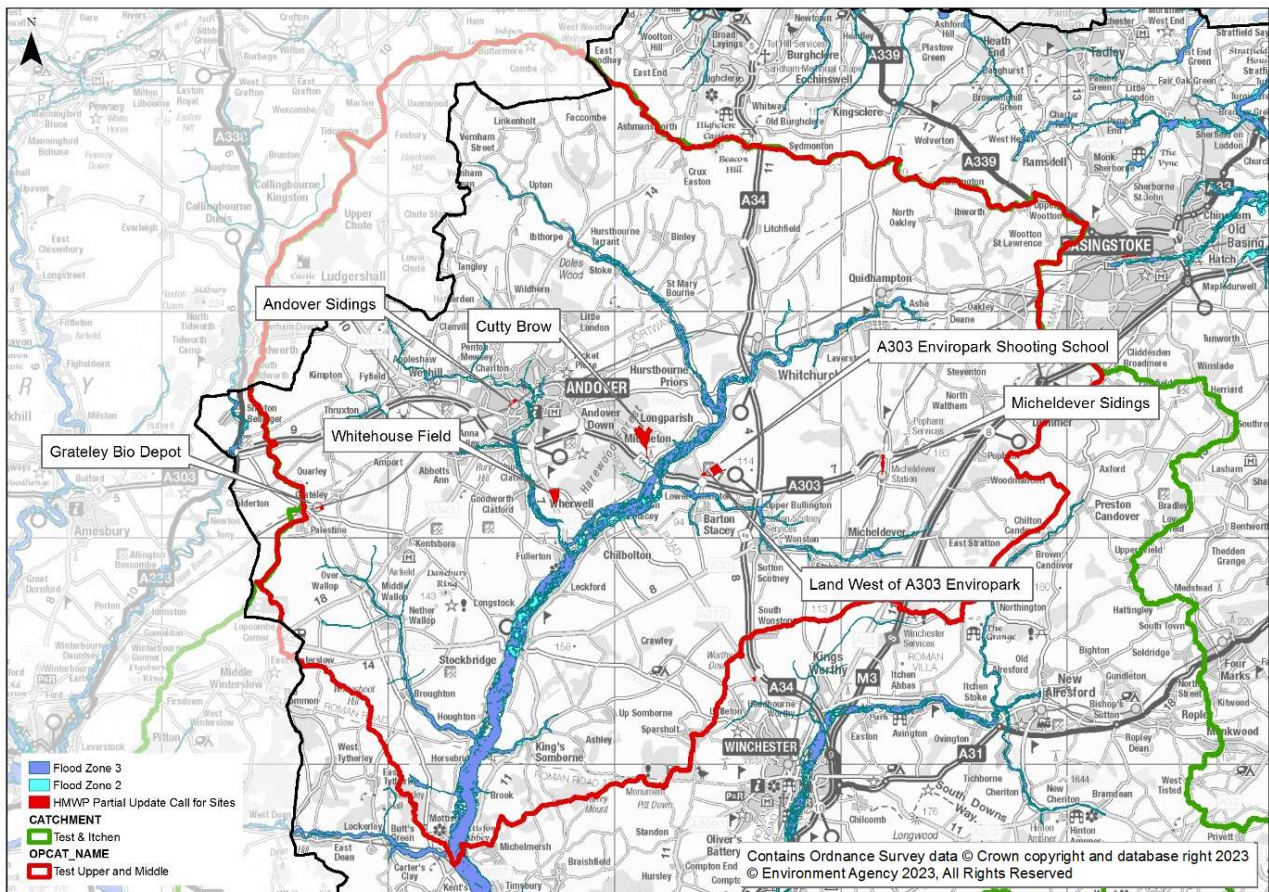
The proposed development of waste recycling and RMC works is classified as less vulnerable development and is considered appropriate in this location.

Test & Itchen Catchment – Test Upper Operational Catchment

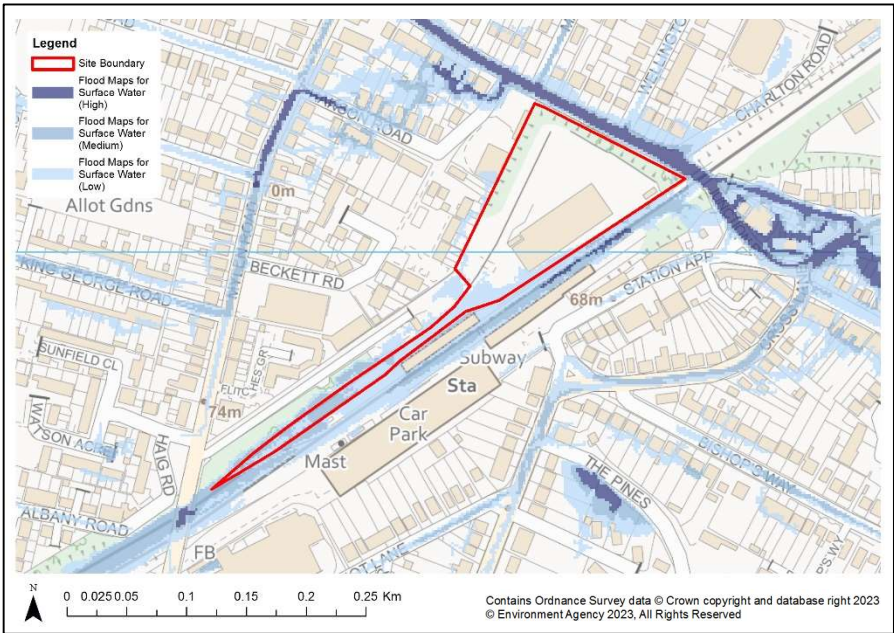
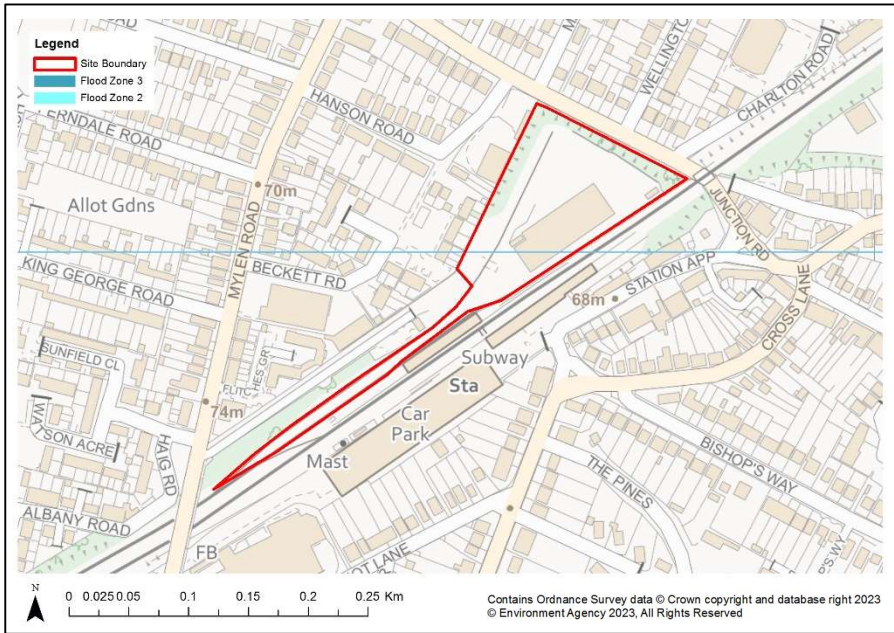
Due to the size of the Test and Itchen Catchment, for clarity this has been split further into its operational catchments of Test Lower, Test Middle & Upper and Itchen.

The Test Middle and Upper catchment covers approximately 783 km² across central Hampshire and encompasses seven of the assessed sites as shown below in figure 8.

Figure 8: Operational catchment area of the Upper and Central River Test within Hampshire, showing Flood Zones 2 and 3 and Assessed Sites.



Andover Sidings



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	79.82% Very Low; 14.93% Low; 5.24% Medium	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Andover Sidings – Summary & Development Considerations

The site is larger than one hectare and in Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

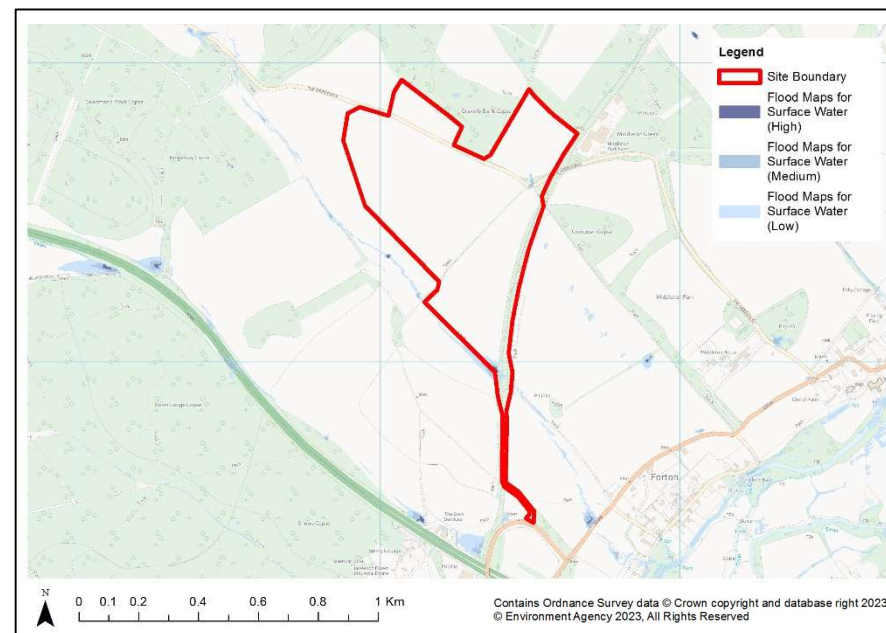
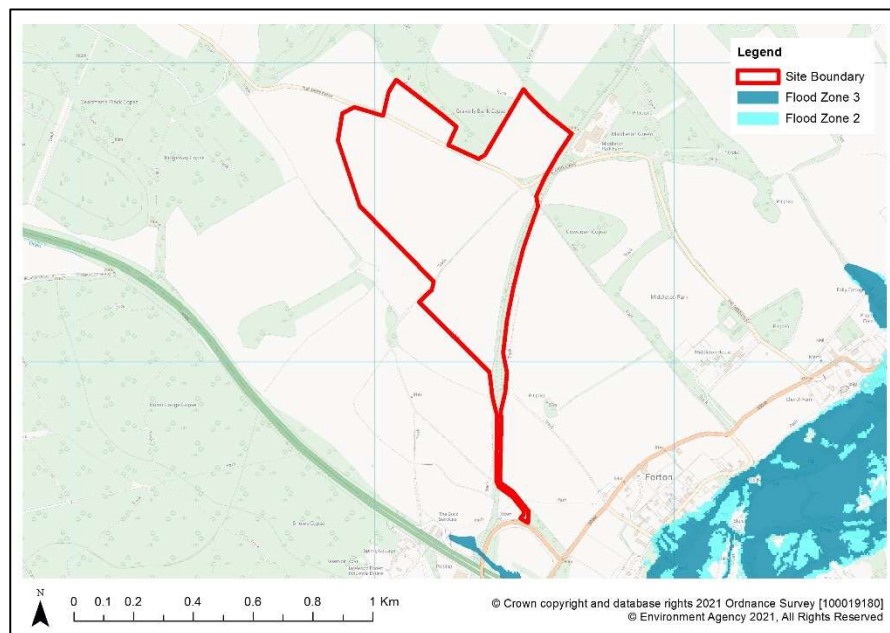
The majority of the site is at very low surface water flood risk however the higher risk areas require consideration to ensure flood risk is not increased on or off site. Providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of an aggregate rail depot is classified as less vulnerable development and is considered appropriate in this location.

Cutty Brow



Flood history	Area of EA recorded groundwater flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	98.95% Very Low; 0.75% Low; 0.26% Medium; 0.05% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Cutty Brow – Summary & Development Considerations

Groundwater flooding was recorded at this site in 1995, the source of the flooding was recorded as ephemeral watercourses.

The site is larger than one hectare and in Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. Other sources are a potential risk to the site, so a sequential approach to the site layout should be used; where elements of the site most vulnerable to flooding, are positioned in the areas of lowest risk. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

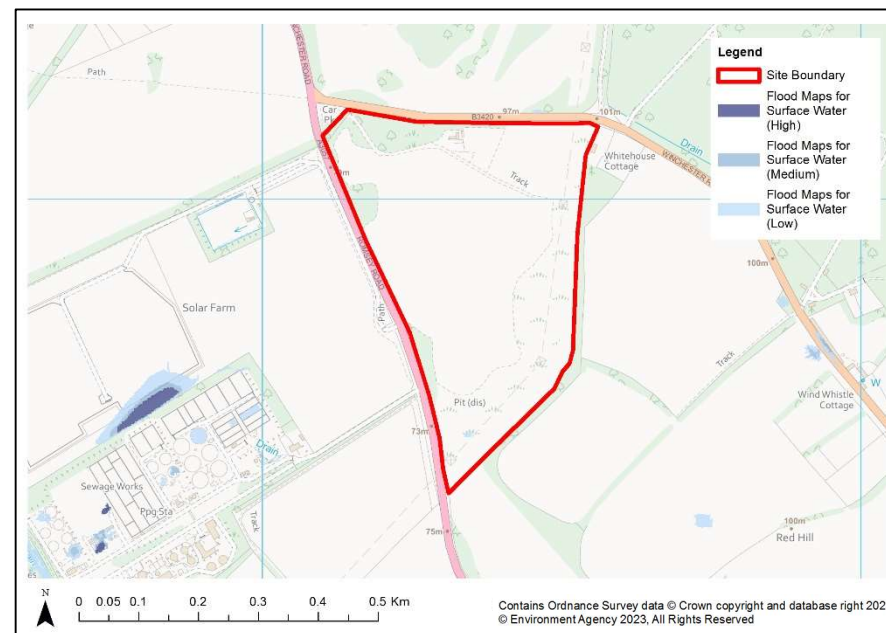
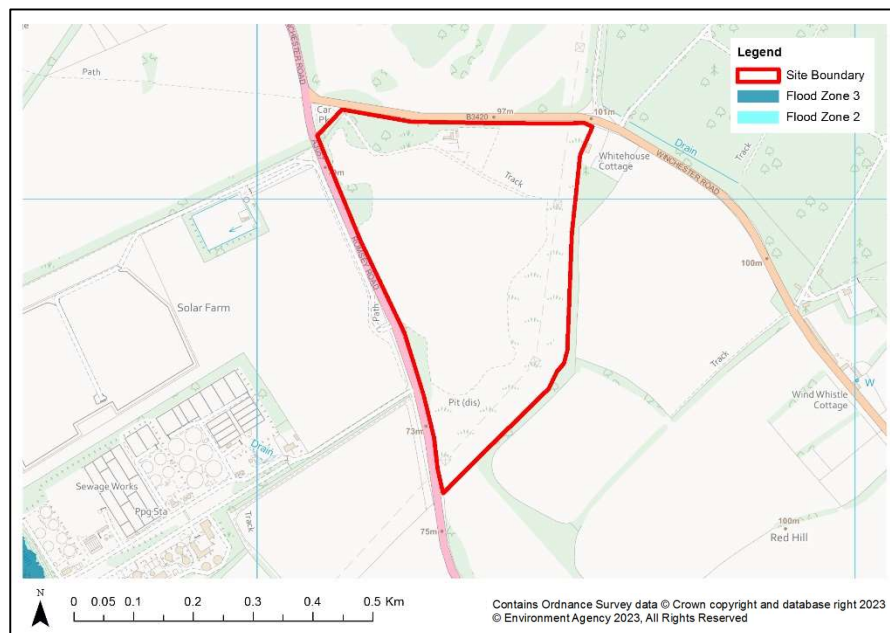
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so a hydrogeological assessment is required to ensure any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

Whitehouse Field



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.94% Very Low; 0.06% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Whitehouse Field – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

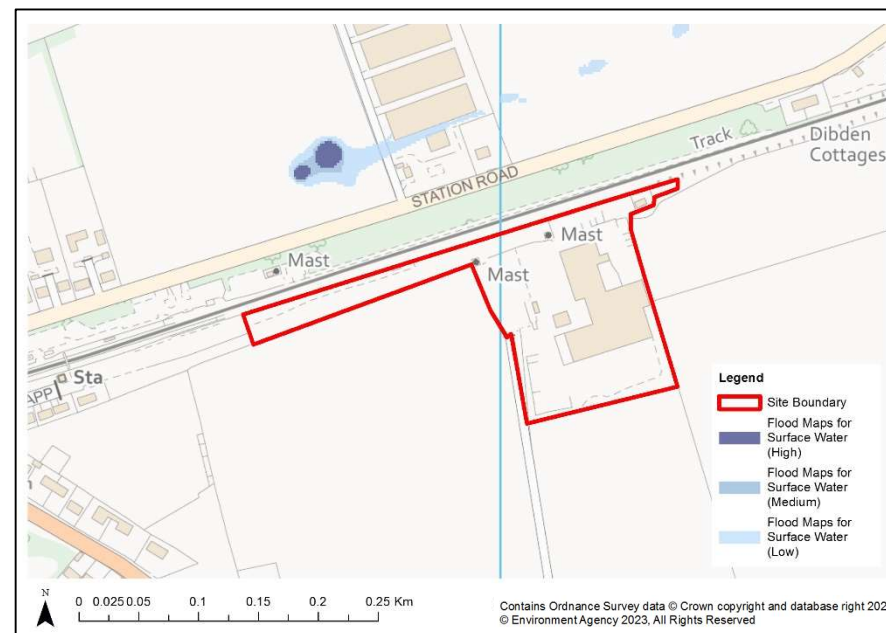
The site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of recycling and inert landfill is classified as less vulnerable development and is considered appropriate in this location.

Grateley Bio Depot



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Grateley Bio Depot – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA's drainage strategy must ensure that surface water from the site will not be increased by the development including allowance for climate change.

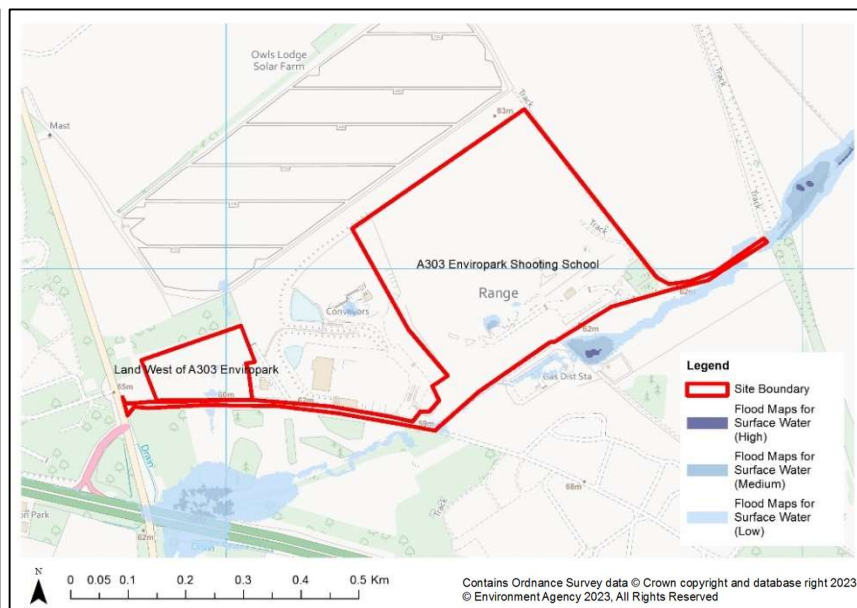
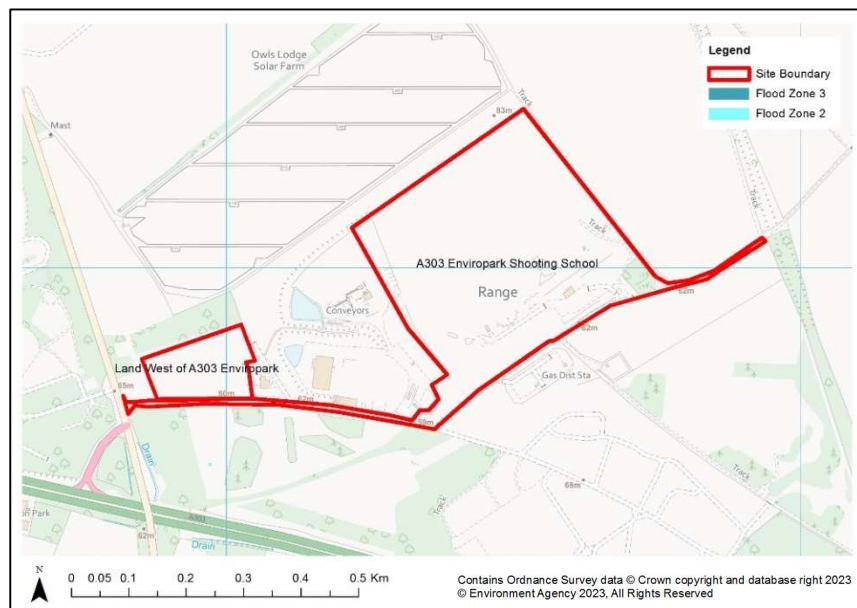
The site is at very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

A303 Enviropark Shooting School



Flood history	Groundwater flooding – Winter 1995	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	98.81% Very Low; 1.06% Low; 0.13% Medium	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

A303 Enviropark Shooting School – Summary & Development Considerations

Groundwater flooding was recorded at this site in 1995, the source of the flooding was recorded as ephemeral watercourses.

The site is in Flood Zone 1 and is larger than one hectare so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

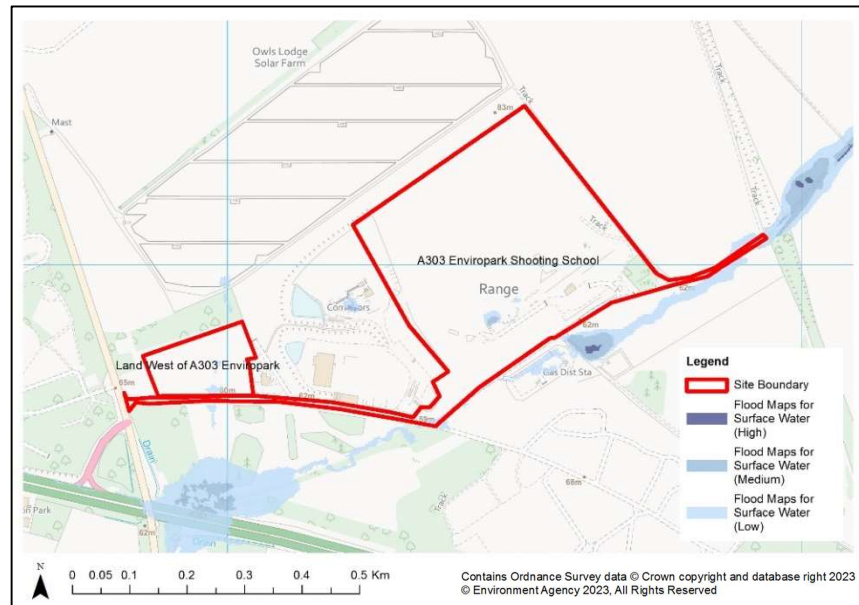
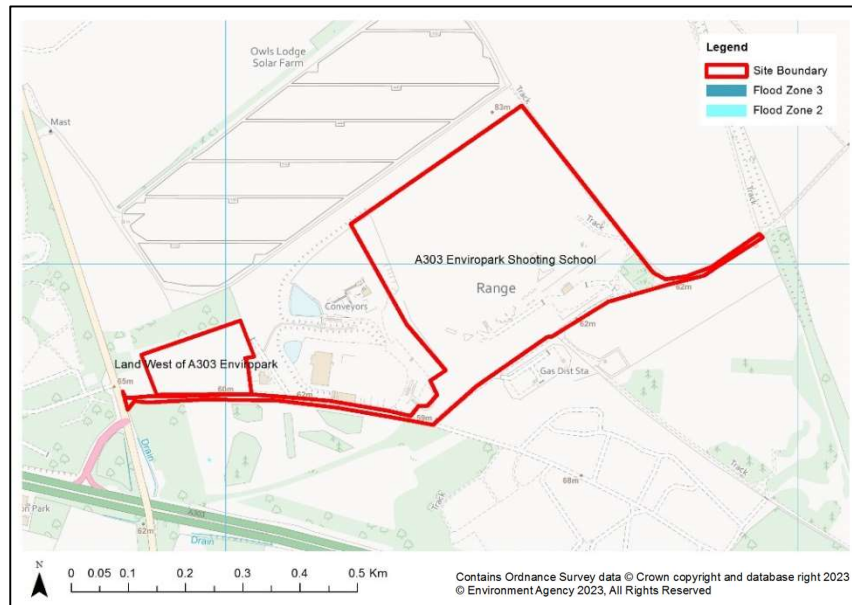
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed mixed-use development is classified as less vulnerable development and is considered appropriate in this location.

Land West of A303 Enviropark



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	97.78% Very Low; 2.22% Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Land West of A303 Enviropark – Summary & Development Considerations

The site is in Flood Zone 1 and is larger than one hectare so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

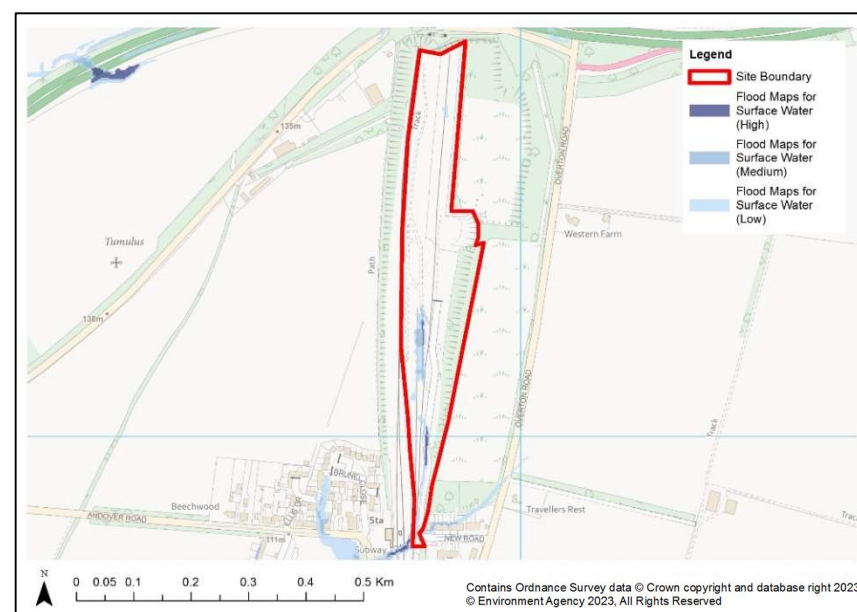
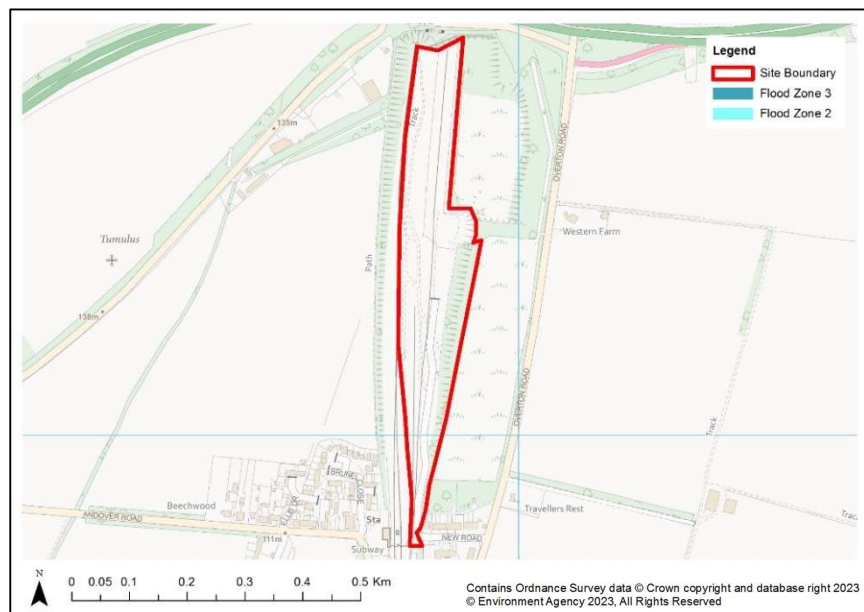
The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed development of incinerator bottom ash works is classified as less vulnerable development and is considered appropriate in this location.

Micheldever Sidings



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	94.78% Very Low; 3.57% Low; 1.10% Medium; 0.55% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Micheldever Sidings – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk. Areas of higher risk appear localised so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability and is in source protection zone 3 so groundwater protection measures may be required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

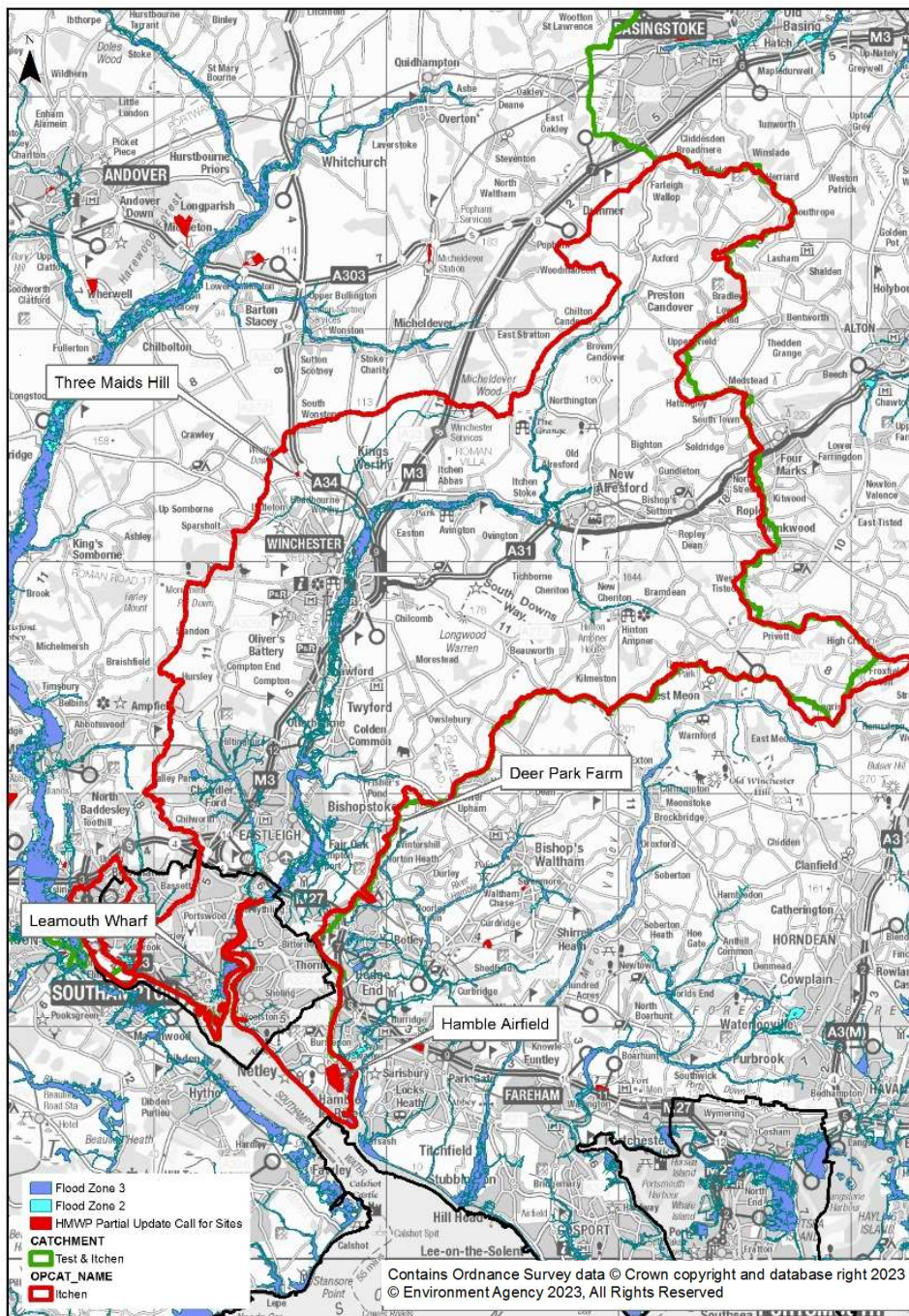
The proposed development of an aggregate rail depot is classified as less vulnerable development and is considered appropriate in this location.

Test & Itchen Catchment – Itchen Operational Catchment

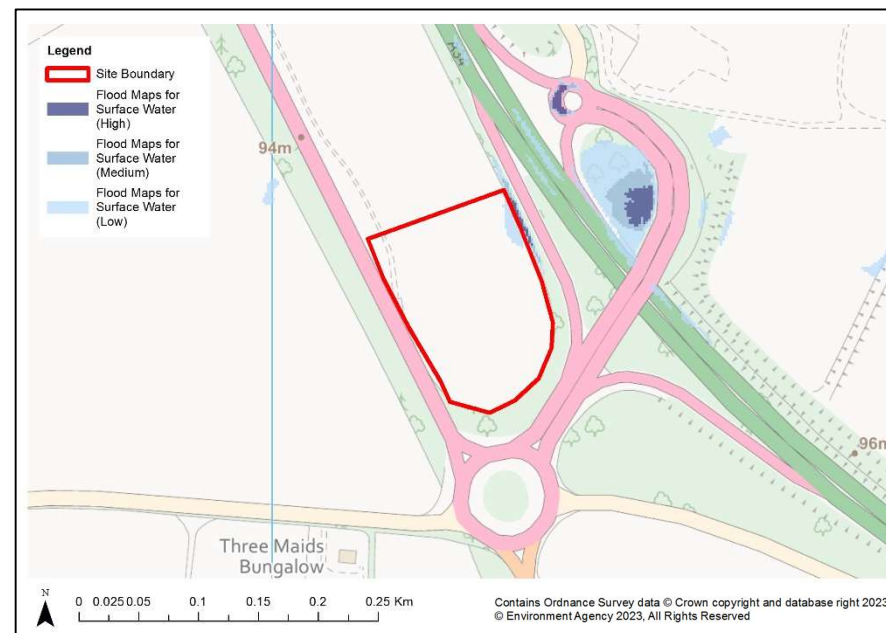
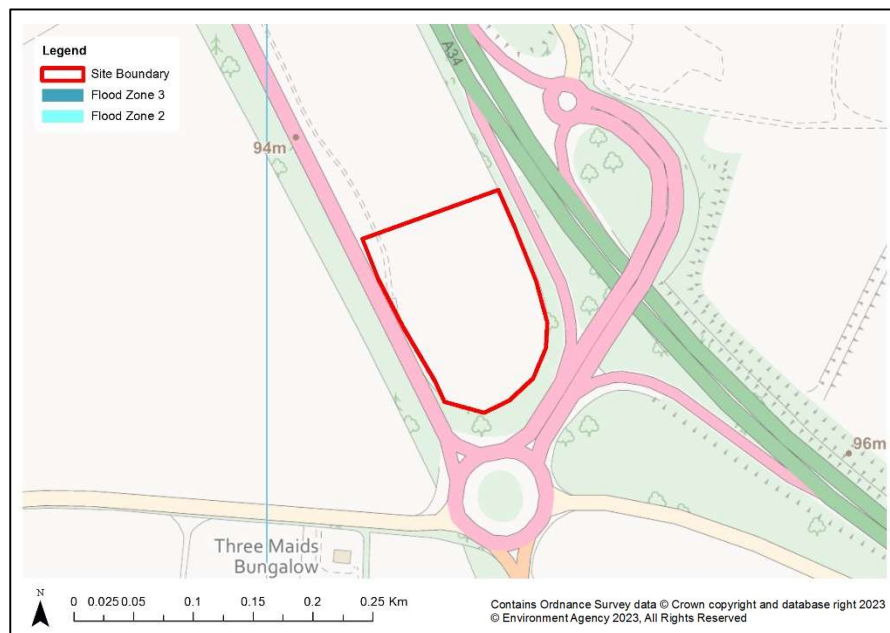
Due to the size of the Test and Itchen Catchment, for clarity this has been split further into its operational catchments of Test Lower, Test Middle & Upper and Itchen.

The River Itchen catchment covers approximately 515 km² across south central Hampshire and Southampton and encompasses four of the assessed sites which are as shown below in figure 9.

Figure 9: Catchment area of the River Itchen within Hampshire and Southampton, showing Flood Zones 2 and 3 and Assessed Sites



Three Maids Hill



Flood history	No known records of flooding	Green
Fluvial flood risk	100% Flood Zone 1	Green
Surface water flood risk	>97.80% Very Low; 2.20% Low; <0.01% Medium; <0.01% High	Yellow
Groundwater flood risk	Not in a groundwater flood alert area	Green
Reservoir flood risk	Not in an area at risk of reservoir flooding	Green
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	Green

Three Maids Hill – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

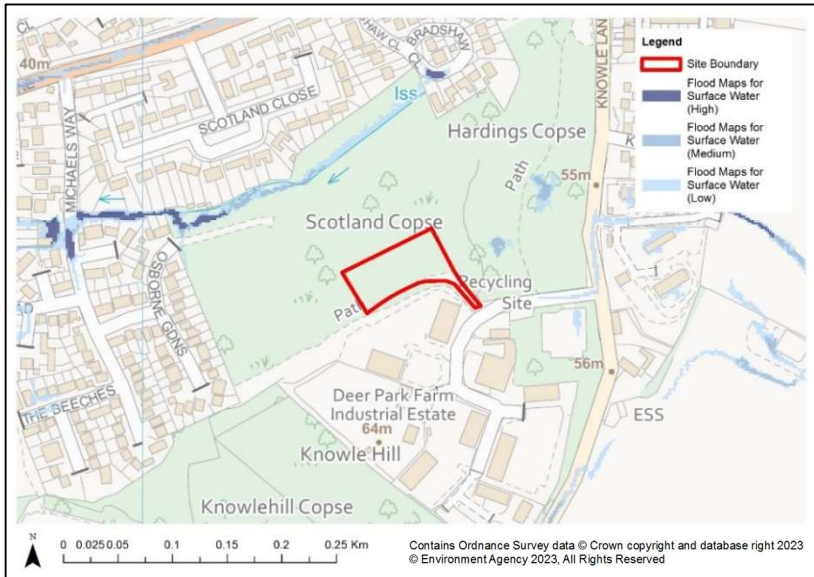
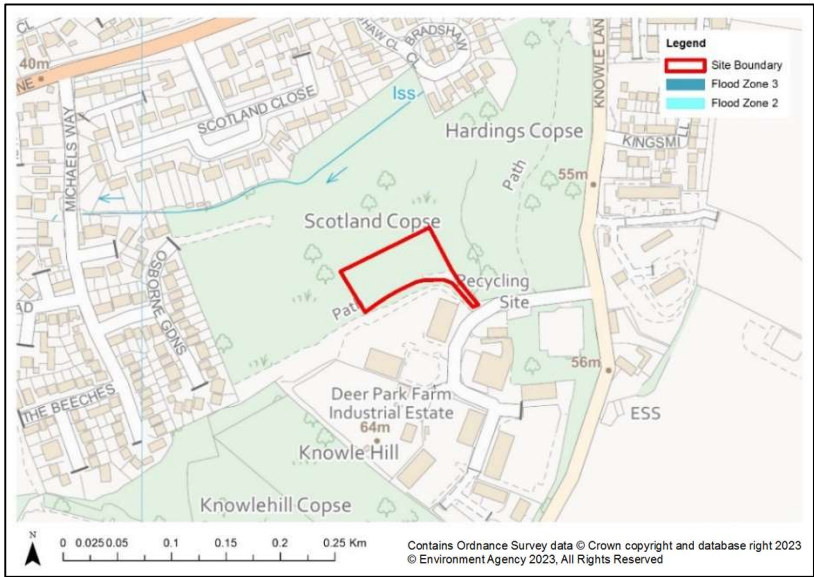
The majority of the site is at low and very low surface water flood risk with higher risk areas being very localised. Providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 3 area. This is an area of low to moderate risk where current flood risk management actions remain appropriate. The risk of flooding is not expected to increase significantly in the future, however flood risk management actions will remain under review to ensure efficient management and that the best approach to managing long-term flood risk is taken.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

Deer Park Farm



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	100% Very Low	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Deer Park Farm – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

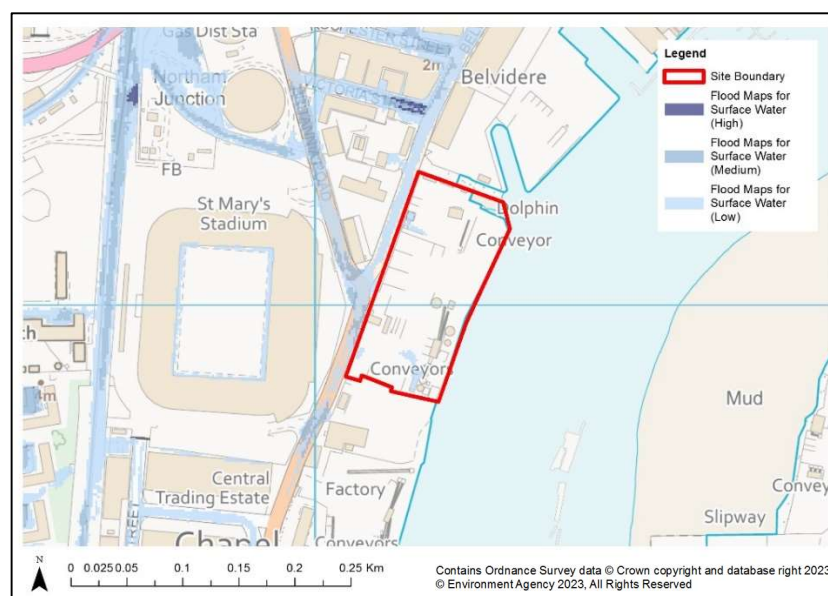
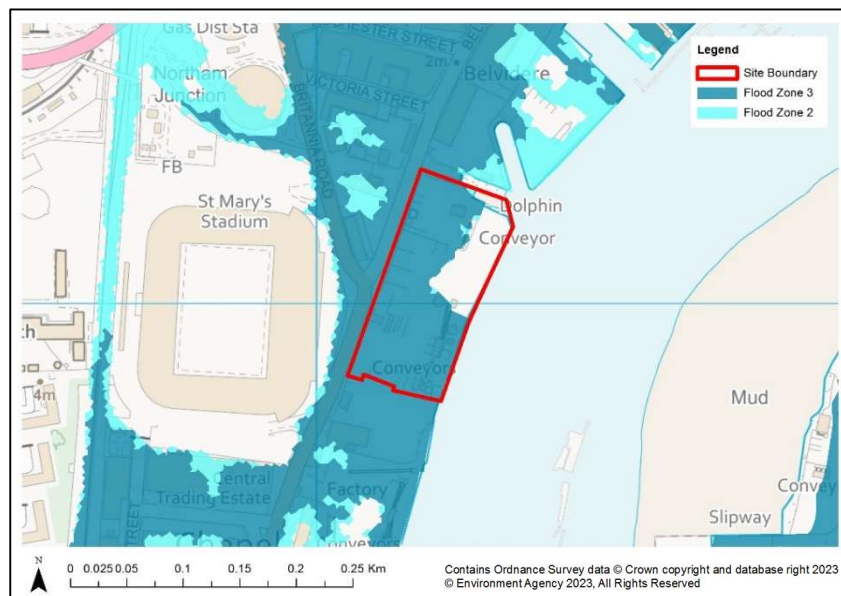
The majority of the site is at low and very low surface water flood risk with higher risk areas being very localised. Providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so groundwater protection measures may be required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed.

This site falls within a Catchment Flood Management Plan (CFMP) Policy 4 area. This is an area of low, moderate or high flood risk where the flood risk is being managed effectively, but further actions may need to be taken to account for climate change. The risk of flooding is expected to increase significantly in the future, which would require further action to be reduced. Further appraisal would be required to assess suitable options for further action.

The proposed development of inert recycling works is classified as less vulnerable development and is considered appropriate in this location.

Leamouth Wharf



Flood history	No known records of flooding	
Fluvial/tidal flood risk	22.89% FZ1; 0.60% FZ2; 76.51% FZ3	
Surface water flood risk	>96.98% Very Low; 3.01% Low; <0.01% Medium	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	Detailed modelling being sought but impacts likely to be manageable. Surface water can be managed within site boundary	

Leamouth Wharf – Summary & Development Considerations

This site is largely within Flood Zone 2 and 3 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

Although this is considered as water compatible development, operations in Flood Zone 3b should be avoided and a sequential approach taken to the site layout. Any elements of the site development located within the Flood Zone 3b area must be designed and constructed to:

- remain operational and safe for users in times of flood,
- result in no net loss of floodplain storage,
- not impede waterflows and not increase flood risk elsewhere.

If works are proposed within Flood Zone 3b, fluvial modelling will be required to provide a detailed assessment of fluvial flood risk and to ensure floodplain compensation is provided where required. Modelling should include the 5%, 1% and 1%+ climate change AEP*. Given that this is an existing wharf to be upgraded, it is considered that appropriate mitigation can be provided.

The majority of the site is at low or very low risk of surface water flooding however given the extent of Flood Zone 3, surface water management will require careful consideration to ensure it can be managed during times of fluvial flooding.

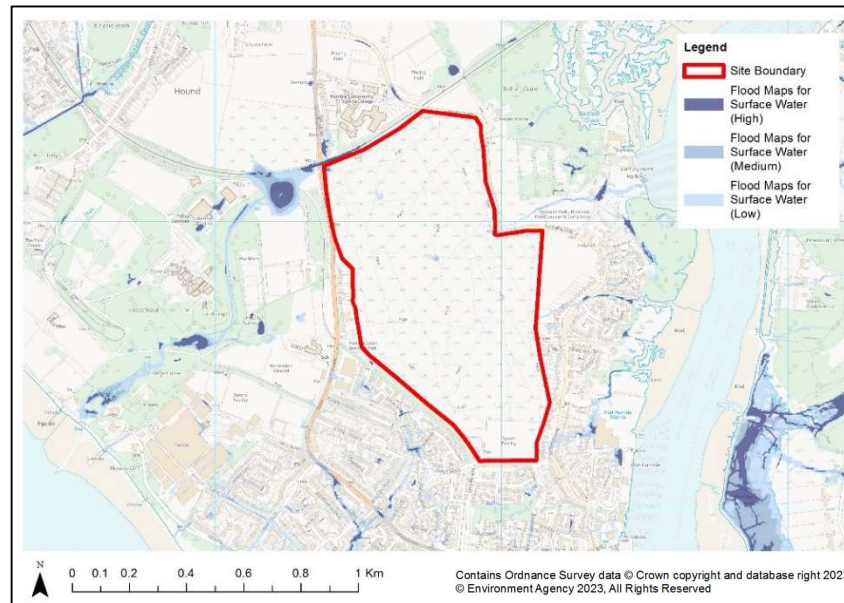
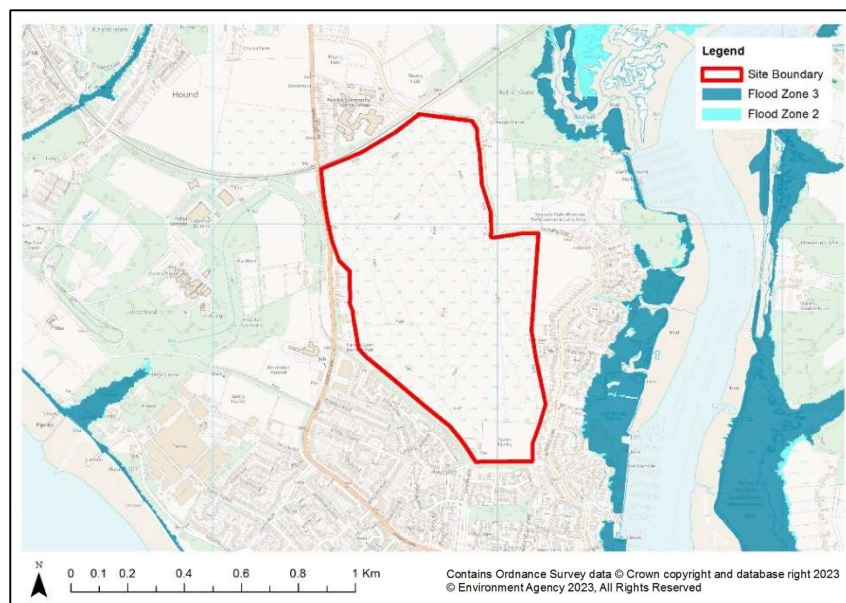
This site falls within a Catchment Flood Management Plan (CFMP) Policy 5 area. This is an area of moderate to high flood risk where further action could be taken to reduce flood risk. There may be many people at high risk, or changes in the environment may have already increased the risk. Further appraisal would be required to assess suitable options for further action.

Parts of this site may be affected by coastal flooding. [North Solent SMP - Shoreline Management Plan](#) policies should be reviewed and taken account of for the site design and layout.

The proposed development of a mineral wharf is classified as water compatible development and is considered appropriate in this location providing appropriate assessment is undertaken and approved by the Environment Agency.

*Detailed fluvial modelling is being sought to quantify the extent of Flood Zone 3a and b when climate change is considered however Flood Zone 2 has been used to provide an indication of the likely impacts.

Hamble Airfield



Flood history	No known records of flooding	
Fluvial flood risk	100% Flood Zone 1	
Surface water flood risk	99.55% Very Low; 0.39% Low; 0.03% Medium; 0.03% High	
Groundwater flood risk	Not in a groundwater flood alert area	
Reservoir flood risk	Not in an area at risk of reservoir flooding	
Climate Change	No change to fluvial category expected. Surface water can be managed within site boundary	

Hamble Airfield – Summary & Development Considerations

The site is larger than one hectare and within Flood Zone 1 so a Flood Risk Assessment (FRA) is required. The FRA will need to ensure that the development will be safe, not increase off site flood risk and consider all sources of flooding. The FRA must include a drainage strategy ensuring that surface water from the site will not be increased by the development, including allowance for climate change.

The majority of the site is at low or very low surface water flood risk so providing suitable water management measures are in place, this is not considered to pose significant constraints.

The site has high groundwater vulnerability so a hydrogeological assessment is required to ensure that any impacts on groundwater flows and water quality are considered and mitigated where needed. It has also been identified through the current planning submission that there is potential for high groundwater levels so this will require particular consideration.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 5 area. This is an area of moderate to high flood risk where further action could be taken to reduce flood risk. There may be many people at high risk, or changes in the environment may have already increased the risk. Further appraisal would be required to assess suitable options for further action.

Part of this site falls within a Catchment Flood Management Plan (CFMP) Policy 6 area. This is an area of low to moderate flood risk where action will be taken to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits. Specific locations within this area will have the potential to store water or reduce run-off – more detailed appraisal and consultation would be required to determine these locations.

The proposed development of sand and gravel works is classified as water compatible development and is considered appropriate in this location.

6. Conclusions

- 6.1 High quality and appropriate design are key considerations for minerals and waste developments located in areas at flood risk.
- 6.2 The conclusions in each site assessment are specific to the type of general development such as mineral extraction etc. proposed in the HMWP Partial Update. The sites may not be suitable for any use other than that stipulated in the HMWP.
- 6.3 37 sites have been assessed: 36 in Hampshire and 1 in Southampton.
- 6.4 Of the 37 sites assessed, 28 are not within Environment Agency Flood Zones 2 or 3 or Groundwater Source Protection Zones 1 or 2. These sites are as follows:

Cobley Wood	Bramshill Quarry
Grateley Bio Depot	Church Farm
Ashley Manor Farm	Silverlake Automotive Recycling
Deer Park Farm	Three Maids Hill
Tower View	Land West of A303 Enviropark
Hamer Warren Quarry	Purple Haze
Whitehouse Field	Midgham Farm
Yeatton Farm	Holybourne Rail Terminal
Lee Lane, Nursling	Warren Heath
Hamble Airfield	Stanbridge Ranvilles Farm
The Triangle	Micheldever Sidings
Bramshill Quarry Extension	Rookery Farm
Cutty Brow	Andover Sidings
A303 Enviropark Shooting School	Dunwood Fruit Farm

- 6.5 9 sites are all either wholly or partially within Environment Agency Flood Zones 2 and /or 3 and /or groundwater Source Protection Zone 1. These sites are:

Land off Boarhunt Road	Totton Sidings
Down Barn Farm	Frith End Extension
Goleigh Farm	Hyde Farm, Bickton
Basingstoke Sidings	Leamouth Wharf
Land at Spurling's Industrial Estate	

- 6.6 All of the assessed sites are considered acceptable use in terms of the sequential test providing suitable measures are undertaken in terms of the sequential layout of the site and / or suitable mitigation in relation to flood risk or contamination. In addition, given the majority of sites relate to minerals and waste extraction, there are benefits that can be sought during the restoration phase with potential for both flood risk and environmental benefits through pond creation and other measures.
- 6.7 Overall, the conclusions in the site assessments are based on the principle that flood risk in itself is not necessarily an impediment to the use of land for mineral extraction and processing or waste developments, provided that the impact of the site does not exacerbate flood risk on the site, or the surrounding area and that development should seek to minimise the overall level of flood risk through layout, form and the use of Sustainable Drainage Systems (SuDS) where possible.
- 6.8 Based on these strategic assessments of sites submitted for the HWMP partial update, it is considered that all of the sites are viable providing suitable measures and mitigation are provided.

Appendix 1: Sequential Test of Sites

												Sequential Test Process			Site/location specific development requirements
Site Name	Total Site Area (ha)	Flood Zone			Surface Water Flood Risk †				Groundwater Flood Risk †	Recorded Flood History*	Reservoir Flood Risk	Proposed Development	Flood Risk Vulnerability Classification	Outcome of Sequential Test	On site surface water drainage systems should always be considered and provision for flow path conveyance for all sites.
		1	2	3a/b	Very Low	Low	Med.	High							
Cobley Wood	16.54	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Grateley Bio Depot	2.58	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required if infiltration is proposed.
Ashley Manor Farm	26.19	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Low/Medium/High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Deer Park Farm	1.86	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment.

Tower View	1.68	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required if infiltration is proposed.
Land off Boarhunt Road	1.23	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area In Source Protection Zone 1 (west)/2 (east) Combined groundwater vulnerability – High	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required.
Down Barn Farm	3.78	100%	0%	0%	100%	0%	0%	0%	Not in a groundwater flood alert area In Source Protection Zone 1 Combined groundwater vulnerability – High	Area of recorded highway flooding	No	Waste recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required.
Hamer Warren Quarry	6.56	100%	0%	0%	>99.9%	<0.01%	<0.01%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Hazardous landfill	More vulnerable	Acceptable Use. Exception test not required	Site Specific Flood Risk Assessment. Use sequential approach for site layout. Protection for groundwater likely to be required.
Whitehouse Field	17.07	100%	0%	0%	99.94%	0.06%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel; inert recycling; inert landfill	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Yeatton Farm	35.24	100%	0%	0%	99.89%	0.11%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium/High	Area of recorded flooding (Hampshire Flood Enquiries) Also ref.s 21467101; 21349182	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.

Lee Lane, Nursling	2.56	100%	0%	0%	99.61%	0.39%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium/High	Area of recorded highway flooding Pluvial/ditch flooding – 2011/12	No	Waste recycling and RMC	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required if infiltration is proposed.
Hamble Airfield	62.27	100%	0%	0%	99.55%	0.39%	0.03%	0.03%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Groundwater protection measures may be required if infiltration is proposed.
Land at The Triangle	71.09	100%	0%	0%	99.52%	0.35%	0.07%	0.06%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium/High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Watercourses present on site and works likely to require consent from the LLFA. Use sequential approach for site layout.
Bramshill Quarry Extension	51.49	100%	0%	0%	99.36%	0.64%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Goleigh Farm	21.18	100%	0%	0%	99.01%	0.90%	0.09%	0%	Not in a groundwater flood alert area In Source Protection Zone 3 (west)/2 (east)/1 (very small area to east) Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Use sequential approach for site layout.

															Check with the EA about Source Protection Zone permitting requirements.
Cutty Brow	38.91	100%	0%	0%	98.95%	0.75%	0.26%	0.05%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	Area of EA recorded groundwater flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
A303 Enviropark Shooting School	15.12	100%	0%	0%	98.81%	1.06%	0.13%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	Fluvial flooding – Winter 1995	No	Mixed use	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment.
Dunwood Fruit Farm	4.14	100%	0%	0%	98.79%	0.72%	0.24%	0.24%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Bramshill Quarry	79.95	100%	0%	0%	98.71%	1.26%	0.03%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Low/Medium/High	No known records of flooding	No	Inert landfill	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment required.
Church Farm	1.86	100%	0%	0%	>98.38%	1.61%	<0.01%	<0.01%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Unproductive/Medium	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment.
Silverlake Automotive Recycling	7.72	100%	0%	0%	98.32%	1.30%	0.13%	0.26%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium	No known records of flooding	No	ELV	More Vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment Use sequential approach for site layout.

Three Maids Hill	1.82	100%	0%	0%	>97.80%	2.20%	<0.01%	<0.01%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Inert recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment.
Land West of A303 Enviropark	1.80	100%	0%	0%	97.78%	2.22%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Incinerator bottom ash	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures likely to be required.
Purple Haze	70.94	100%	0%	0%	97.17%	1.90%	0.42%	0.51%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Unproductive/High	No known records of flooding	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Use sequential approach for site layout.
Midgham Farm	88.17	100%	0%	0%	96.99%	1.94%	0.85%	0.22%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	Fluvial/ground water flooding to east of site – 1959; 2013/14	No	Sand and gravel; new wharf	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Small areas of high surface water flood risk. Use sequential approach for site layout.
Holybourne Rail Terminal	4.40	100%	0%	0%	96.82%	3.18%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Aggregate rail depot	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required.
Warren Heath	33.76	100%	0%	0%	96.56%	2.52%	0.50%	0.41%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater	No known records of flooding	No	Sand and gravel and backfill	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.

									vulnerability – Medium/High						
Stanbridge Ranvilles Farm	32.65	100%	0%	0%	96.29%	2.57%	0.58%	0.55%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	Fluvial flooding – 1995 Possible ephemeral watercourse	No	Sand and gravel	Water compatible	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment.
Micheldever Sidings	7.28	100%	0%	0%	94.78%	3.57%	1.10%	0.55%	Not in a groundwater flood alert area In Source Protection Zone 3 Combined groundwater vulnerability – High	No known records of flooding	No	Rail depot	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Groundwater protection measures may be required.
Rookery Farm	19.99	100%	0%	0%	89.49%	5.55%	1.70%	3.25%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Unproductive	No known records of flooding	No	Aggregate recycling	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Small areas of high surface water flood risk - use sequential approach for site layout.
Basingstoke Sidings	2.25	100%	0%	0%	81.78%	13.78%	3.11%	1.33%	Not in a groundwater flood alert area In Source Protection Zone 2 (small area to east)/1 (rest of site) Combined groundwater vulnerability – High	No known records of flooding	No	Rail depot	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment required. Small areas of high surface water flood risk - use sequential approach for site layout. Groundwater protection measures may be required.
Andover Sidings	1.75	100%	0%	0%	79.82%	14.93%	5.24%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Rail depot	Less vulnerable	Acceptable Use. Exception test not required.	Site Specific Flood Risk Assessment. Small areas of medium surface water flood risk - use sequential approach for site layout. Groundwater

															protection measures may be required.
Totton Sidings	1.11	98.75%	0.83%	0.42%	98.75%	0.99%	0.26%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	No known records of flooding	No	Rail depot	Less vulnerable	Acceptable use providing no development in Flood Zone 3b. FZ2 currently used to assess risk of FZ3.	Site Specific Flood Risk Assessment. Use sequential approach for site layout. Detailed modelling will be required to confirm extent of FZ3b and impacts of climate change.
Land at Spurling's Industrial Estate	11.22	98.04%	1.60%	0.36%	100%	0%	0%	0%	Not in a groundwater flood alert area In Source Protection Zone 1 Combined groundwater vulnerability – High	Area of recorded highway flooding Pluvial / blocked ditches 2011-12	Partially when there is also flooding from rivers	Waste Transfer Station	Less Vulnerable	Acceptable use providing no development in Flood Zone 2 & 3 FZ2 currently used to assess risk of FZ3.	Site Specific Flood Risk Assessment. Use sequential approach for site layout. Detailed modelling may be required to confirm extent of FZ3b and impacts of climate change. Groundwater protection measures may be required.
Frith End Extension	1.52	98.03%	1.32%	0.66%	99.34%	0.66%	0%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – High	Fluvial flooding – September 1968	No	Sand and gravel	Water compatible	Acceptable Use providing site can be designed and constructed in accordance with *.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Detailed modelling will be required to confirm extent of FZ3b and impacts of climate change.
Hyde Farm, Bickton	54.74	93.73%	0.40%	5.86%	84.27%	11.73%	1.53%	2.47%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium	Fluvial/groundwater issues west of the site (River Avon) - ref.s 21416684; 7073; 21509050	No	Sand and gravel	Water compatible	Acceptable Use providing site can be designed and constructed in accordance with *.	Site Specific Flood Risk Assessment and Hydrogeological Assessment. Small areas of high surface water flood risk - use sequential approach for site layout.

															Must be designed and constructed to: remain operational and safe for users in times of flood, result in no net loss of floodplain storage, not impede waterflows and not increase flood risk elsewhere. Detailed modelling will be required to confirm extent of FZ3b and impacts of climate change.
Leamouth Wharf	1.66	22.89%	0.60%	76.51%	>96.98%	3.01%	<0.01%	0%	Not in a groundwater flood alert area Not in a Source Protection Zone Combined groundwater vulnerability – Medium/High	No known records of flooding	No	Mineral wharf	Water compatible	Acceptable Use providing site can be designed and constructed in accordance with *. Further assessment required to confirm FZ3b extent. FZ2 currently used to assess risk of FZ3.	Site Specific Flood Risk Assessment Use sequential approach for site layout. Must be designed and constructed to: remain operational and safe for users in times of flood, result in no net loss of floodplain storage, not impede waterflows and not increase flood risk elsewhere. Detailed modelling will be required to confirm extent of FZ3b and impacts of climate change. Shoreline Management Plan Policies need to be reviewed.

*Note: For areas within Flood Zone 3b, water compatible uses should be designed and constructed to:

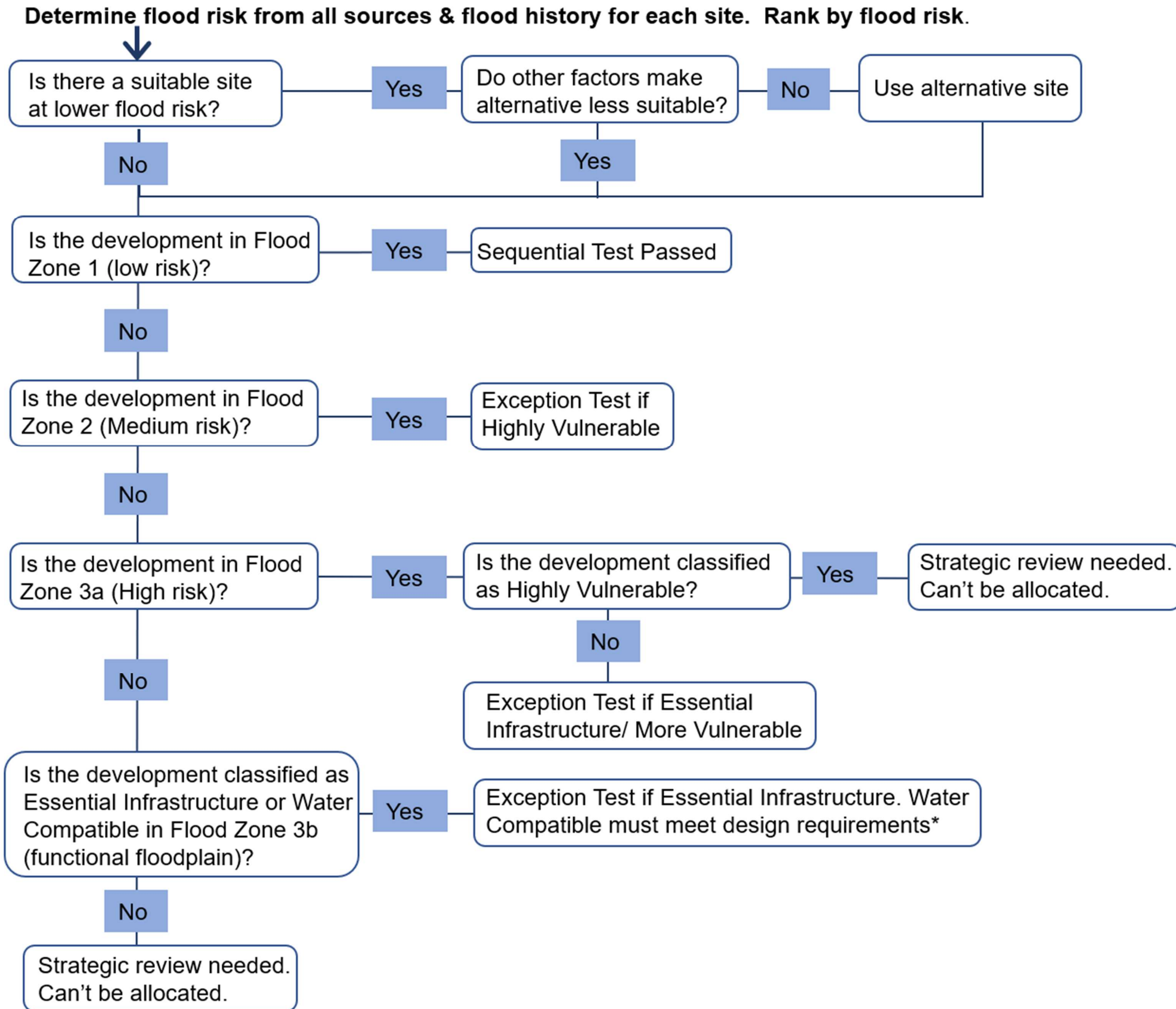
- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage;
- Not impede water flows and not increase flood risk elsewhere.

* Note: this only includes those events reported to the relevant authorities, consequently, the data may not be comprehensive.

† Utilising data from the Environment Agency mapping for surface water flood-warning-information.service.gov.uk/long-term-flood-risk/map and groundwater magic.defra.gov.uk/.

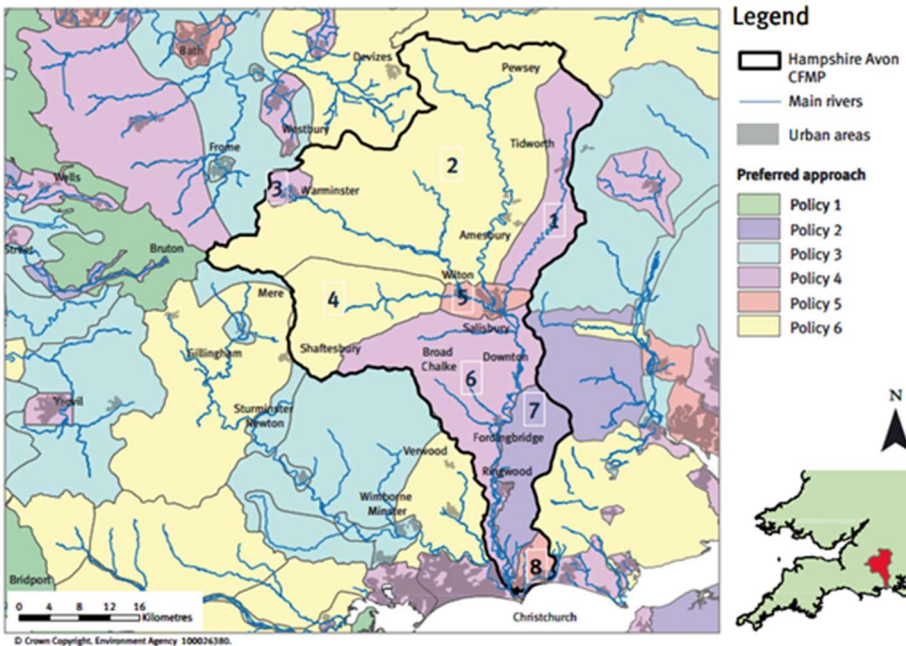
Appropriate climate change calculations regarding rainfall intensity and/or peak river flow for each site should be considered in line with the NPPF and the latest Environment Agency guidance.

Appendix 2: Sequential Test Methodology



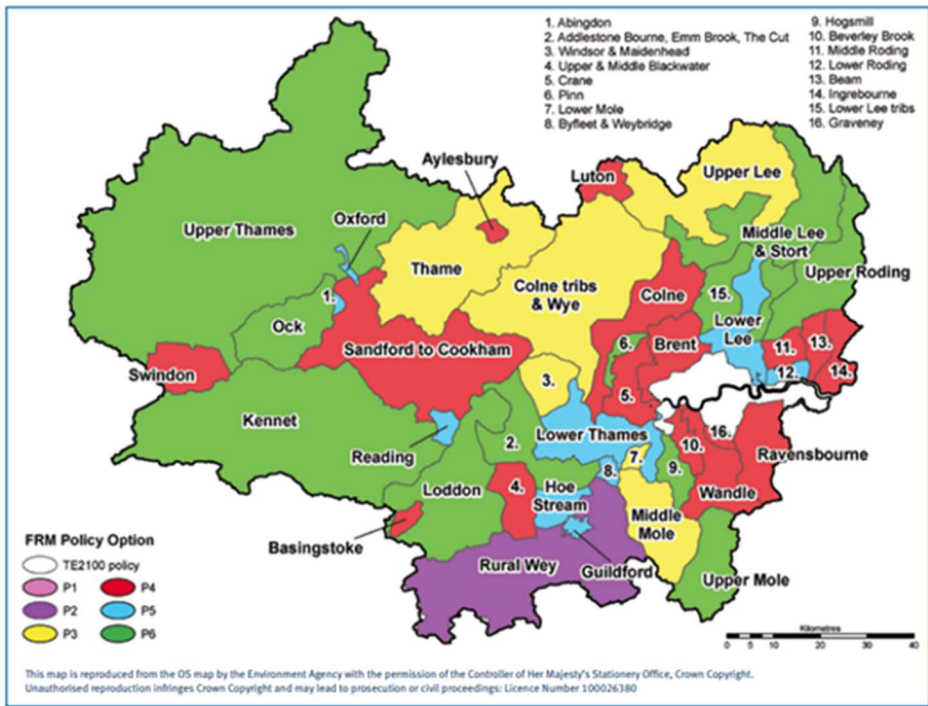
Appendix 3: Catchment Flood Management Plan maps

Map of the policies in the Hampshire Avon catchment



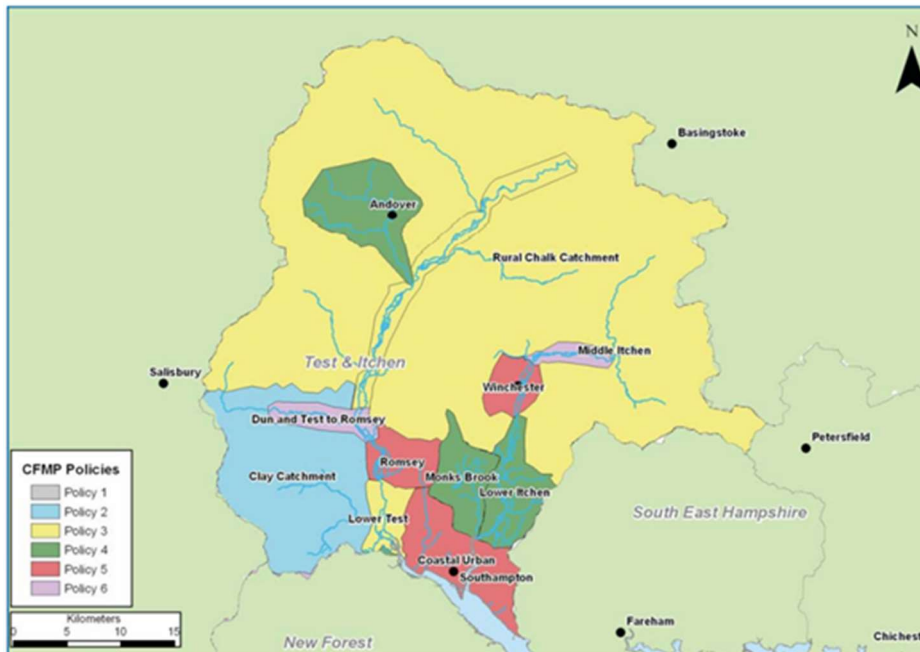
Source: [Hampshire Avon Catchment Flood Management Plan](#)

Map 4. CFMP policy for each sub-area within the Thames CFMP



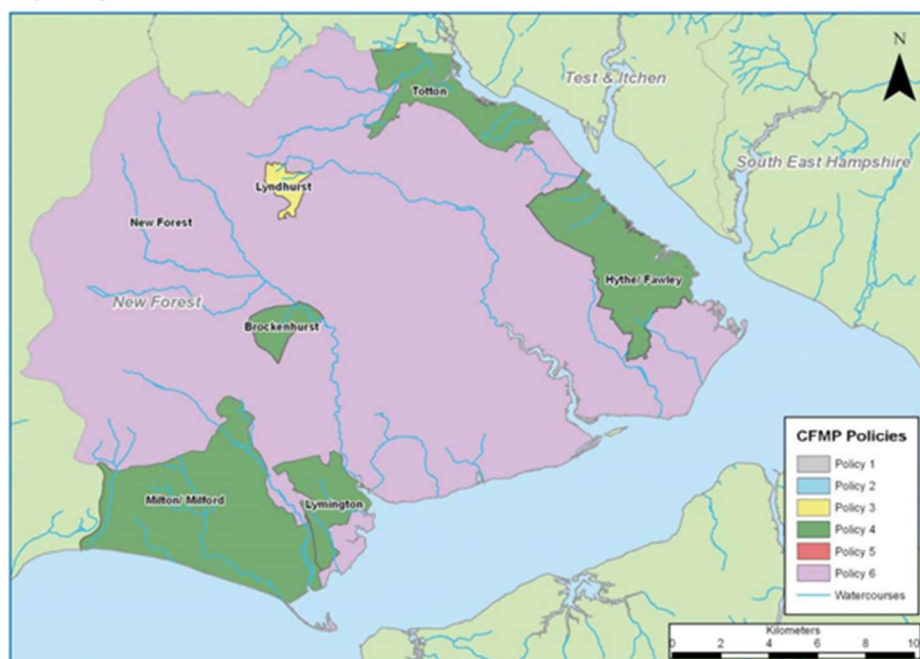
Source: [Thames Catchment Flood Management Plan](#)

Map of the policies in the Test and Itchen catchment.



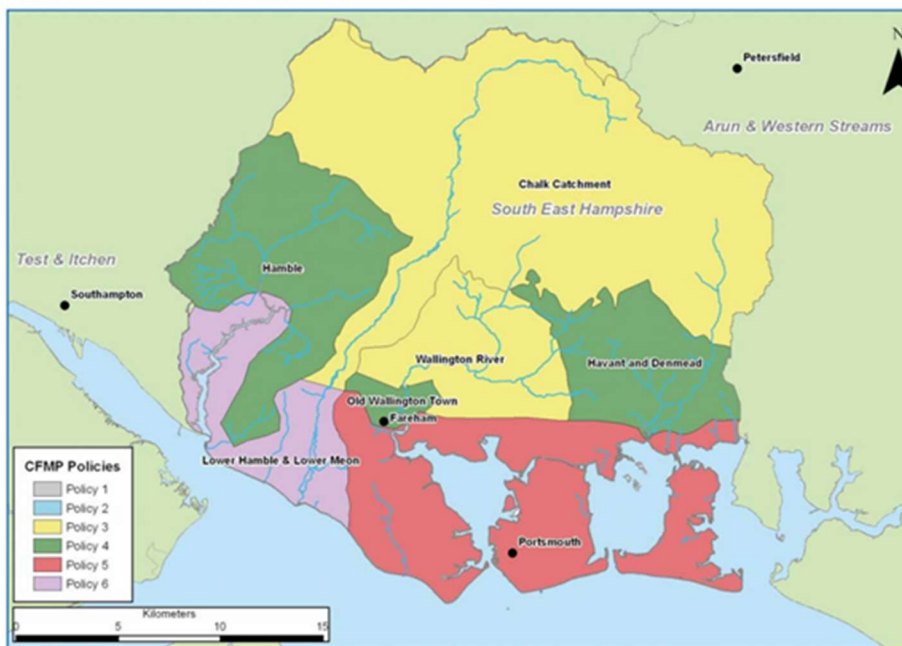
Source: [Test and Itchen Catchment Flood Management Plan](#)

Map of the policies in the New Forest catchment.



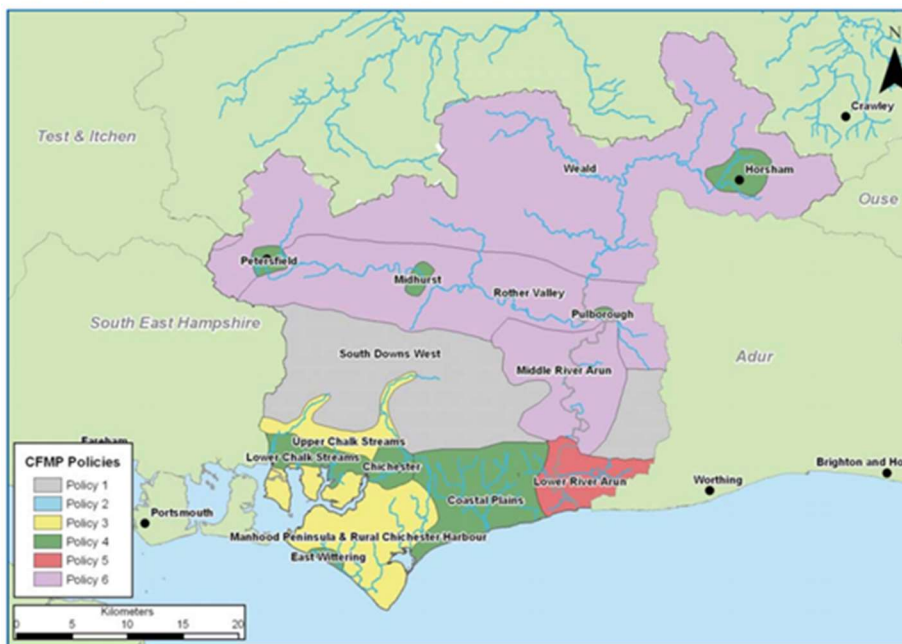
Source: [New Forest Catchment Flood Management Plan](#)

Map of the policies in the South East Hampshire catchment.



Source: [South East Hampshire Catchment Flood Management Plan](#)

Map of the policies in the Arun and Western Streams catchment.



Source: [Arun and Western Streams Catchment Flood Management Plan](#)

Appendix 4: North Solent Shoreline Management Plan

[Layout 1 \(northsolentsmp.co.uk\)](http://northsolentsmp.co.uk)

Final Policies					
Policy Unit Reference	Start of Unit	End of Unit	Epoch 1 (0-20 years)	Epoch 2 (20-50 years)	Epoch 3 (50-100 years)
4D27A	Hillfield Road, Selsey	West Street, Selsey	HTL	HTL	HTL
SA01	Selsey West Beach	Bracklesham (Medmerry)	MR (localised HTL at Medmerry Cliffs)	HTL	HTL
SA02	Bracklesham	East Wittering	HTL	HTL	HTL
SA03	East Wittering	Cakeham	HTL	HTL (potential for minor MR at Cakeham)	HTL (potential for minor MR at Cakeham)
SA04	Cakeham (incl. East Head)	Ella Nore Lane	AM	AM	AM
SA05	Ella Nore Lane	Fishbourne	HTL (NPFA)	HTL (NPFA)	HTL (NPFA) (localised MR Horse Pond)
SA06	Fishbourne		HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
SA07	Fishbourne	west of Cobnor Point	HTL (NPFA) (localised MR East Chidham)	HTL (NPFA)	HTL (NPFA)
SA08	west of Cobnor Point	Chidham Point	MR	HTL (NPFA)	HTL (NPFA)
SA09	Chidham Point	Nutbourne	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
SA10	Nutbourne		HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
SA11	Nutbourne	Prinsted	HTL	HTL	HTL
SA12	Prinsted	Stanbury Point	HTL	HTL	HTL
SA13	Stanbury Point	Marker Point	HTL	HTL	HTL
SA14	Marker Point	Wickor Point	HTL	HTL	HTL
SA15	Wickor Point	Emsworth Yacht Haven	HTL	HTL	HTL
SA16	Emsworth Yacht Haven	Maisemore Gardens	HTL	HTL	HTL
SA17	Maisemore Gardens	Wade Lane	HTL	HTL*	HTL*
			* further detailed studies are required which consider whether MR may occur at Conigar and Warblington		
SA18	Wade Lane	Southmoor Lane	HTL	HTL*	HTL*
			* further detailed studies are required which consider whether MR may occur at Southmoor		
SA19	Southmoor Lane	Farlington Marshes (east)	HTL	HTL	HTL
			HTL	HTL*	HTL*
SA20	Farlington Marshes		* In addition to a study looking across the context of the wider strategic network of sites, a study is required to confirm the future management of the site. This is likely to be a range of options from HTL to MR. This is likely to result in doing something different, to recognise coastal change. The study will address the economic, environmental and social implications and flood management issues of the site. To be reflected in the implementation plan of strategy and Action plan of the SMP. SMP, Strategy and Sustainability study are to have clear engagement plans. The SMP and Strategy will be advising the Regional Habitat Creation Plan of the likelihood of the need to provide compensatory habitat for the features and amenities of Farlington Marshes, and given the uncertain timescales this needs to be taken account of now.		
SA21	Farlington Marshes	Cador Drive	HTL	HTL	HTL

5A22	Cador Drive	A27	HTL	HTL*	HTL*
			* Requirement for more detailed study (for management of site to be determined following contaminated land investigations)		
5A23	A27	Fleetlands (MOD boundary)	HTL	HTL	HTL
5A24	Fleetlands	Quay Lane	HTL	HTL	HTL
5A25	Quay Lane (MOD boundary)	Portsmouth Harbour entrance (west)	HTL	HTL	HTL
5B01	Portsmouth Harbour entrance	Gillkicker Point	HTL	HTL	HTL
5B02	Gillkicker Point	Meon Road, Titchfield Haven	HTL	HTL	HTL
5B03	Meon Road, Titchfield Haven	Hook Park	NAI (HTL for cross-Solent infra - structure)	NAI (HTL for cross-Solent infra - structure)	NAI (HTL for cross-Solent infra - structure)
5C01	Hook Park	Warsash North	NAI	MR	HTL
5C02	Warsash North	Swanwick Shore Road	NAI	NAI	NAI
5C03	Swanwick Shore Road	Bursledon Bridge	HTL	HTL	NAI
5C04	Bursledon Bridge to Curbridge to Botley to Satchell Marshes		NAI	NAI	NAI
5C05	Satchell Marshes	Hamble Common Point	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)
			*Requirement for more detailed study (on potential impact of shoreline evolution of Hamble Point to determine longer-term management of this frontage and River Hamble)		
5C06	Hamble Common Point	Hamble Oil Terminal	NAI	NAI	NAI
5C07	Hamble Oil Terminal	Ensign Industrial Park	HTL	HTL	NAI

Final Policies - continued					
Policy Unit Reference	Start of Unit	End of Unit	Epoch 1 (0-20 years)	Epoch 2 (20-50 years)	Epoch 3 (50-100 years)
SC08	Ensign Industrial Park	Cliff House	NAI	NAI	NAI
SC09	Cliff House	Netley Castle	HTL	HTL*	NAI (HTL for Netley Village)
			*further detailed studies required for management of site		
SC10	Netley Castle	Weston Point	HTL	HTL	HTL
			HTL	HTL	NAI*
SC11	Weston Point	Woodmill Lane	*Requirement for more detailed study (for management of site that recognises coastal change and investigates property level defence options)		
SC12	Woodmill Lane	Redbridge	HTL	HTL	HTL
SC13	Lower Test Valley		NAI	NAI	NAI
SC14	Redbridge	Calshot Spit	HTL	HTL	HTL
SC15	Calshot Spit		HTL	HTL	NAI
SC16	Calshot Spit	Inchmery	NAI	NAI	NAI
SC17	Inchmery	Salternshill	NAI	NAI	NAI
SC18	Salternshill	Park Shore	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
			HTL	HTL	HTL*
SC19	Park Shore	Sowley	* further detailed studies required for management of defences		
SC20	Sowley	Elmer's Court	NAI	NAI	NAI
SC21	Elmer's Court	Lymington Yacht Haven	HTL (Regulated Tidal Exchange Lymington Reedbeds)	HTL	HTL
SC22	Lymington Yacht Haven	Saltgrass Lane	HTL	HTL	HTL
SF01	Hurst Spit		HTL	HTL	HTL
SAPI01	Langstone Harbour entrance (west) (harbour)	Portsmouth Harbour entrance (east)	HTL	HTL	HTL
SAPI02	Langstone Harbour entrance (west) (open coast)	Portsmouth Harbour entrance (east)	HTL	HTL	HTL
SAHI01	Langstone Bridge	Northney Farm	HTL	HTL	HTL
			HTL (NPFA)	HTL (NPFA)	HTL (NPFA)*
SAHI02	Northney Farm		(*Further detailed studies are required which consider whether MR may occur at Northney Farm)		
SAHI03	Northney Farm	Mengham	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
SAHI04	Mengham	Chichester Harbour entrance (west)	HTL	HTL	HTL
SAHI05	Chichester Harbour entrance (west)	Langstone Harbour entrance (east)	HTL	HTL	HTL
SAHI06	Langstone Harbour entrance (east)	North Shore Road, New Town	HTL	HTL	HTL
SAHI07	North Shore Road, New Town	West Lane (Stoke)	NAI (HTL Newtown)	NAI (HTL Newtown)	NAI (HTL Newtown)
			HTL*	HTL*	HTL*
SAHI08	West Lane (Stoke)	Langstone Bridge	* further detailed studies are required which may consider regulated tidal exchange at Stoke and MR at West Northney		

A summary of this document can be made available in large print, in Braille or audio cassette. Copies in other languages may also be obtained.

Please contact the Minerals and Waste Policy Team at Hampshire County Council by email HMWP.consult@hants.gov.uk or by visiting hants.gov.uk.