Project: Castle Point Borough Council SFRA

AECOM Project Number: 60725540
Deliverable: Site Assessment Database

Background

The National Planning Policy Framework states that *"All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property".*

The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

This database provides an assessment of potential development sites against the latest flood risk information available, to enable Castle Point Borough Council to apply a sequential, risk-based approach to the location of development.

Revision Schedule

Date	Version	Description	Prepared by	Checked by	Verified by
12/18/2024	1	1st Draft Version	BW	JS	SL
2/20/2025	2	Final Version - with 17 additional sites, addition of column BH (DG5: Number of Sewer Flooding Records per postcode area) and addition of column BX (Breach Location)	BW	JS	SL

Datasets and Ranking

Field	Description
AECOMID	Unique ID assigned by AECOM team.
Site Name	As provided by Castle Point Borough Council.
Neighbourhood	As provided by Castle Point Borough Council.
Site Type	As provided by Castle Point Borough Council.
Site Size	As provided by Castle Point Borough Council.
Suitable Area	As provided by Castle Point Borough Council.
ID	As provided by Castle Point Borough Council.
Current Use	As provided by Castle Point Borough Council.
Development	As provided by Castle Point Borough Council.
Area (Ha)	As provided by Castle Point Borough Council.

Risk of Flooding from Rivers and the Sea

Proportion of Site within Flood Zone 1	Calculated from Flood Map for Planning dataset, obtained from Defra Data Services platform.	
Proportion of Site within Flood Zone 2	Calculated from Flood Map for Planning dataset, obtained from Defra Data Services platform.	Best estimate of the areas of land at risk of flooding, when the presence of flood defences are ignored and covers land between Zone 3 and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.
Proportion of Site within Flood Zone 3a	Calculated from Flood Map for Planning dataset, obtained from Defra Data Services platform.	Best estimate of the areas of land at risk of flooding, when the presence of flood defences are ignored and covers land with a 1 in 100 (1%) or greater chance of flooding each year from Rivers; or with a 1 in 200 (0.5%) or greater chance of flooding each year from the Sea.
Proportion of Site within Flood Zone 3b	Calculated from 3.3% AEP flood extents from the Prittle Brook and Benfleet Hall Brook Hydraulic Modelling Study, 2024, AECOM..	This provides an indication of the functional floodplain.
Proportion of Site within 3.3% AEP for Prittle Brook	Outputs provided from Prittle Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 3.3% AEP flood event.	This flood extent forms part of the Flood Zone 3b definition for Castle Point Borough Council. Table 1 in Planning Practice Guidance: Flood Risk and Coastal Change states that: Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).
Proportion of Site within 3.3% AEP for Benfleet Hall Brook	Outputs provided from Benfleet Hall Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 3.3% AEP flood event.	This flood extent forms part of the Flood Zone 3b definition for Castle Point Borough Council. Table 1 in Planning Practice Guidance: Flood Risk and Coastal Change states that: Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).
Proportion of Site within 1% Prittle Brook 25% Climate Change	Outputs provided from Prittle Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 1% + 25% CC AEP flood event.	This provides an indication of the future flood risk from the Prittle Brook.
Proportion of Site within 1% Prittle Brook 38% Climate Change	Outputs provided from Prittle Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 1% + 38% CC AEP flood event.	This provides an indication of the future flood risk from the Prittle Brook.
Proportion of Site within 1% Benfleet Hall 25% Climate Change	Outputs provided from Benfleet Hall Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 1% + 25% CC AEP flood event.	This provides an indication of the future flood risk from the Benfleet Hall Brook.
Proportion of Site within 1% Benfleet Hall 38% Climate Change	Outputs provided from Benfleet Hall Brook Hydraulic Modelling Study, 2024, AECOM. Flood extent for the 1% + 25% CC AEP flood event.	This provides an indication of the future flood risk from the Benfleet Hall Brook.

Flood Warning Areas	Calculated from Environment Agency 'Flood Warning Areas' dataset obtained from Defra Data Services platform.	Geographical areas where the Environment Agency expect flooding to occur and where they provide a Flood Warning Service. They generally contain properties that are expected to flood from rivers or the sea and in some areas, from groundwater.
Proportion of Site overlapping "Reduction in Risk of Flooding from Rivers and the Sea Due to Defences'.	Calculated from Flood Map for Planning dataset, obtained from Defra Data Services platform.	An assessment of where there is a reduction in flood risk for England due to defences. It shows the area where there is a reduction in risk of flooding from rivers and the sea due to flood defences taking account of the condition they are in and describes the suitable uses of the data.
Name of Recorded Flood Outlines intersecting the site	Calculated from Environment Agency 'Recorded Flood Outlines' dataset obtained from Defra Data Services platform.	A GIS layer which shows all our records of historic flooding from rivers, the sea, groundwater and surface water. Each individual Recorded Flood Outline contains a consistent list of information about the recorded flood. Records began in 1946 when predecessor bodies to the Environment Agency started collecting detailed information about flooding incidents, although they may hold limited details about flooding incidents prior to this date. The absence of coverage by Recorded Flood Outlines for an area does not mean that the area has never flooded, only that they do not currently have records of flooding in this area. It is also possible that the pattern of flooding in this area has changed and that this area would now flood or not flood under different circumstances. The Recorded Flood Outlines take into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It includes flood extents that may have been affected by overtopping, breaches or blockages. Any flood extents shown do not necessarily indicate that properties were flooded internally.
Flood Storage Area	Calculated from Environment Agency 'Flood Storage Area' dataset obtained from Defra Data Services platform.	It shows those areas that act as a balancing reservoir, storage basin or balancing pond.
Proximity to Main River	Calculated from Statutory Main River dataset, obtained from Defra Data Services platform.	This provides the distance to the nearest main river.
Proximity to Watercourse	Calculated from OS Water Network dataset provided by Castle Point Borough Council.	This provides the distance to the nearest waterbody.
Number of flooding incidents within 250m of the Site	Calculated from Flood Incident dataset provided by Castle Point.	This provides an indication of historic flooding in the area.
Number of flooding incidents within 500m of the Site	Calculated from Flood Incident dataset provided by Castle Point.	This provides an indication of historic flooding in the area.
Proportion of Site within flood extent for Tidal Overtopping 200yr (0.5% AEP) 2125	Outputs provided from tidal modelling completed as part of the SFRA. Assuming the defences remain at their current level, this shows the extent of flooding during a 200YR (0.5% AEP) flood event for the year 2125 as a result of overtopping.	This provides an indication of future tidal flood risk during 0.5% AEP event for the year 2125 if defences remain as they currently are. The policy for most of the Castle Point area is to increase flood defences in line with climate change, and therefore this modelling provides a conservative assessment.
Proportion of Site within flood extent for Tidal Overtopping 1000yr (0.1% AEP) 2125	Outputs provided from tidal modelling completed as part of the SFRA. Assuming the defences remain at their current level, this shows the extent of flooding during a 1000YR (0.1% AEP) flood event for the year 2125 as a result of overtopping.	This provides an indication of future tidal flood risk during 0.1% AEP event for the year 2125 if defences remain as they currently are. The policy for most of the Castle Point area is to increase flood defences in line with climate change, and therefore this modelling provides a conservative assessment.

Proportion of Site within flood extent for Tidal Breach Event 200yr (0.5% AEP) 2125	Outputs provided from tidal modelling completed as part of the SFRA showing the extent of flooding in the event of a breach in the flood defences at 10 locations along the frontage during a 200YR (0.5% AEP) flood event for the year 2125.	This provides an indication of the *residual* risk of tidal flooding, in the event of a breach in the defences during the 0.5% AEP event for the year 2125. This informs emergency planning design requirements for development.
Proportion of Site within flood extent for Tidal Breach Event 1000yr (0.1% AEP) 2125	Outputs provided from tidal modelling completed as part of the SFRA showing the extent of flooding in the event of a breach in the flood defences at 10 locations along the frontage during a 1000YR (0.1% AEP) flood event for the year 2125.	This provides an indication of the *residual* risk of tidal flooding, in the event of a breach in the defences during the 0.1% AEP event for the year 2125. This informs emergency planning design requirements for development.
Time to Inundation	Outputs provided from tidal modelling completed as part of the SFRA showing the lowest time to inundation in the event of a breach in the flood defences at 10 locations along the frontage during a 1000YR (0.1% AEP) flood event for the year 2125 Upper End.	The lowest time to inundation from the 10 different breach locations has been selected.

Risk of Surface Water and Groundwater Flooding

Percentage Overlap with Surface Water modelling dataset 3.3% AEP (High probability)	Calculated from Surface Water modelling dataset (3.3% AEP) Flood Extent (percentage overlap).	
Percentage Overlap with Surface Water modelling dataset 3.3%+ CC AEP (High probability)	Calculated from Surface Water modelling dataset (3.3% AEP + CC) Flood Extent (percentage overlap).	
Percentage Overlap with Surface Water modelling dataset 1% AEP (Medium probability)	Calculated from Surface Water modelling dataset (1% AEP) Flood Extent (percentage overlap).	
Percentage Overlap with Surface Water modelling dataset 1% AEP +CC (Medium probability)	Calculated from Surface Water modelling dataset (1% AEP + CC) Flood Extent (percentage overlap).	
Percentage Overlap with Surface Water modelling dataset 0.1% AEP (Low probability)	Calculated from Surface Water modelling dataset (0.1% AEP) Flood Extent (percentage overlap).	
Percentage Overlap with Surface Water modelling dataset 0.1% AEP +CC (Low probability)	Calculated from Surface Water modelling dataset (0.1% AEP + CC) Flood Extent (percentage overlap).	
Site intersects with Risk of Flooding from Surface Water (ROFSW) dataset 0.1% AEP (Low probability)	Calculated from Risk of Flooding from Surface Water (0.1% AEP) Flood Extent dataset, obtained from Defra Data Services platform (Yes/No).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Percentage overlap with Risk of Flooding from Surface Water (ROFSW) dataset 0.1% AEP (Low probability)	Calculated from Risk of Flooding from Surface Water (0.1% AEP) Flood Extent dataset, obtained from Defra Data Services platform (percentage overlap).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Site intersects with Risk of Flooding from Surface Water (ROFSW) dataset 1% AEP (Medium probability)	Calculated from Risk of Flooding from Surface Water (1% AEP) Flood Extent dataset, obtained from Defra Data Services platform (Yes/No).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Percentage overlap with Risk of Flooding from Surface Water (ROFSW) dataset 1% AEP (Medium probability)	Calculated from Risk of Flooding from Surface Water (1% AEP) Flood Extent dataset, obtained from Defra Data Services platform (percentage overlap).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Site intersects with Risk of Flooding from Surface Water (ROFSW) dataset 3.3% AEP (High probability)	Calculated from Risk of Flooding from Surface Water (3.3% AEP) Flood Extent dataset, obtained from Defra Data Services platform (Yes/No).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Percentage Overlap with Risk of Flooding from Surface Water (ROFSW) dataset 3.3% AEP (High probability)	Calculated from Risk of Flooding from Surface Water (3.3% AEP) Flood Extent dataset, obtained from Defra Data Services platform (percentage overlap).	This dataset has been superseded by the Surface Water modelling study, 2024, AECOM, however has been included for reference purposes.
Type of Bedrock Geology intersecting the site	Calculated from BGS data from 625k BGS website	
Type of Superficial Geology intersecting the site	Calculated from BGS data from 625k BGS website	

BGS Susceptibility to Groundwater Flooding	Calculated from BGS data provided by Castle Point Borough Council. The dataset has three classes of groundwater flood susceptibility: A: Limited potential for groundwater flooding to occur B: Potential for groundwater flooding of property situated below ground level C: Potential for groundwater flooding to occur at surface	This dataset shows where groundwater flooding could occur — defined by the term susceptibility — but does not indicate risk, that is the likelihood that it will occur. https://www2.bgs.ac.uk/groundwater/datainfo/GFSD.html
BGS Infiltration SUDS Suitability	Calculated from BGS data provided by Castle Point Borough Council. The dataset has four categories: Highly compatible for infiltration SuDS Probably compatible for infiltration SuDS Opportunities for bespoke infiltration SuDS Very significant constraints are indicated	The dataset gives a preliminary indication of the suitability of the ground for infiltration SuDS. These are drainage systems that allow surface water to infiltrate to the ground, such as soakaways, infiltration basins, infiltration trenches and permeable pavements. The selection and design of an appropriate system depends on the properties of the ground, in particular these four factors: the presence of severe constraints that must be considered prior to planning infiltration the drainage potential of the ground the potential for ground instability when water infiltrates the protection of groundwater quality https://www.bgs.ac.uk/datasets/infiltration-suds-map/
DG5 Sewer Flooding	Calculated from Castle Point Sewer Flooding Records for the last 5 years, obtained from Anglian Water.	This provides flood records based on postcode area.
Groundwater Management Category	Calculated from Anglian GW Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the groundwater management catchment the site lies within.
Groundwater Operational Category	Calculated from Anglian GW Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the groundwater operational catchment the site lies within.
Groundwater Waterbody Name	Calculated from Anglian GW Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the groundwater waterbody name the site lies within.
River Management Category	Calculated from Anglian River Basin District Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the river management catchment the site lies within.
River Operational Category	Calculated from Anglian River Basin District Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the river operational catchment the site lies within.
River Waterbody Name	Calculated from Anglian River Basin District Management Catchment dataset, obtained from EA Catchment Data Explorer.	This identifies the main river waterbody in the area.

Reservoir Risk

Percentage Overlap with Reservoir Flooding - Dry Day	Calculated from Risk of Flooding from Reservoirs dataset, obtained from Defra Data Services platform (percentage overlap).	This data shows the individual flood extents for all large raised reservoirs in the event that they were to fail and release the water held on a “dry day” when local rivers are at normal levels. It represents a prediction of a credible worst case scenario, however it’s unlikely that any actual flood would be this large. The data gives no indication of the likelihood or probability of reservoir flooding. Flood extents are not included for smaller reservoirs or for reservoirs commissioned after the reservoir modelling programme began in October 2016.
Percentage Overlap with Reservoir Flooding - Wet Day	Calculated from Risk of Flooding from Reservoirs dataset, obtained from Defra Data Services platform (percentage overlap).	This data shows the individual flood extents for all large raised reservoirs in the event that they were to fail and release the water held on a “wet day” when local rivers had already overflowed their banks. It represents a prediction of a credible worst case scenario, however it’s unlikely that any actual flood would be this large. The data gives no indication of likelihood or probability of reservoir flooding. Flood extents are not included for smaller reservoirs or for reservoirs commissioned after the reservoir modelling programme began in October 2016.

Initial Draft Ranking

The information in the Site Assessment tab should be used to sequentially test sites. An initial ***example*** ranking of the sites has been undertaken, based on the Flood Risk criteria below which take account of the risk posed to the site by all sources of flooding (tidal, fluvial, surface water, groundwater and reservoirs). ***NOTE***: Not all the datasets available in the Site Assessments tab have been used in this version of the site ranking. ***This just provides an initial example of how the data can be used to compare sites.*** The data should be interrogated to answer specific questions on sites most at risk both now and in the future.

NOTE: The scoring colour code will not show up on the csv version of this dataset.

Score	Criteria
1	More than 20% of the site is within the 3.3% AEP flood extent (Flood Zone 3b) associated with the Prittle Brook or Benfleet Hall Brook
2	Over 20% of the site is shown to be at risk of fluvial flooding from Prittle Brook or Benfleet Hall Brook for the design event including an allowance for climate change (1% AEP plus 38% climate change allowance).
3	Part of the site is shown to be at risk of fluvial flooding from Prittle Brook or Benfleet Hall Brook for the design event including an allowance for climate change (1% AEP plus 38% climate change allowance).
4	Part of the site is at risk of flooding from overtopping of the River Thames flood defences, for the design flood event for the year 2125 (0.5% AEP 2125).
5	More than 20% of the site is defined as high risk of flooding from surface water.
6	More than 20% of the site is defined as medium risk of flooding from surface water.
7	More than 20% of the site is defined as low risk of flooding from surface water.
8	Part of the site is at residual risk of flooding from a breach in the Canvey Island flood defences, for the design flood event for the year 2125 (0.5% AEP 2125 and has a Time to Inundation of under 1 hour.
9	Part of the site is at residual risk of flooding from a breach in the Canvey Island flood defences, for the design flood event for the year 2125 (0.5% AEP 2125 and has a Time to Inundation of 1 - 4 hours.
10	The site is defined as Flood Zone 1 and intersects an area at high risk of flooding from surface water and/or intersects an area that has the potential for groundwater flooding to occur at surface.
11	The site is defined as Flood Zone 1 and intersects an area at medium risk of flooding from surface water and/or intersects an area that has the potential for groundwater flooding of property situated below ground level.
12	The site is defined as Flood Zone 1 and intersects an area at low risk of flooding from surface water and/or intersects an area that has limited potential for groundwater flooding to occur.
13	Remaining sites.