East Devon District Council Level 2 Strategic Flood Risk Assessment Detailed Site Summary Tables

Site Code	**Whim_08**
Address	Land west of Bramley Gardens, Whimple
Area	3.3 hectares
Current land use	Greenfield
Proposed land use	Residential
Flood Risk Vulnerability	More vulnerable
Sources of flood risk	
Location of site	The site is located southwest of Whimple, southwest of Bramley Gardens off Church Road. The site is located 165m south of an unnamed watercourse (a tributary of the River Clyst).
Topography	The Environment Agency's 1m resolution 2022 Composite LiDAR shows that the topography of the site declines from the southeast at 54.7mAOD to 42.7mAOD in the northwest, with a continuous gradient. The gradient is less than 5%, therefore the site is considered to have a gentle slope, and topography is unlikely to affect any proposed SuDS features. The catchment drains northwest, into a small drainage ditch.
Existing drainage features	A small drainage ditch is located along the western site boundary flowing along a topographical depression, in a northerly direction into an unnamed watercourse. South West Water's sewer network shapefile shows there is a sewer network across the site boundary which outfalls into the drainage ditch. No other existing drainage features have been identified on site.
Fluvial	**Available data and mapping:** Environment Agency Flood Map for Planning for Rivers and Sea. **Data analysis:** Details of the sites location within each Flood Zone are provided within the SFRA Site Screening Appendix. **Flood characteristics:** The site is partially located within Flood Zone 2 across the centre of the site and within Flood Zone 3 along the western site boundary. The remainder (the majority) of the site is located within Flood Zone 1. • Flood Zone 1 represents areas which have less than 1 in 1000 (0.1%) chance of river flooding in a given year. • Flood Zone 2 represents areas which have less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of river flooding in a given year. • Flood Zone 3 representing an area greater than 1 in 100 (1%) chance of river flooding in a given year. As there is no detailed modelling available for this site, Flood Zone 3a has been used as a proxy for Flood Zone 3b. Detailed modelling should be undertaken as part of a detailed site-specific Flood Risk Assessment to define the extent of Flood Zone 3b.

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	In the absence of detailed modelling, the Risk of Flooding from Surface Water dataset (available prior to March 2025) has been used to assess the depth, hazard and velocity flood risk to the site, as extents are shown to be similar to the Flood Zones. Consideration should still be given to the Flood Zones and detailed modelling may be required within a site specific assessment.
Fluvial plus climate change	In the absence of detailed modelling, the Risk of Flooding from Surface Water dataset with a climate change allowance has been used to assess the depth, hazard and velocity flood risk to the site, as extents are shown to be similar to the Flood Zones. Consideration should still be given to the Flood Zones and detailed modelling may be required within a site specific assessment.
Surface Water	**Available data and mapping:** Environment Agency's Risk of Flooding from Surface Water dataset for the 3.3%, 1% and 0.1% AEP events. As agreed with the Environment Agency, it should be noted that the data discussed below relates to the available surface water data prior to March 2025, as the data released in March 2025 does not include depth, hazard and velocity information. A comparison of the two surface water flooding datasets is discussed below and are detailed within the Site Screening document undertaken as part of the Level 2 SFRA. Whim_08 - Surface Water 3.3% AEP – Depth Whim_08 - Surface Water 3.3% AEP – Hazard Whim_08 - Surface Water 3.3% AEP - Velocity Whim_08 - Surface Water 1% AEP – Depth Whim_08 - Surface Water 1% AEP – Hazard Whim_08 - Surface Water 1% AEP - Velocity Whim_08 - Surface Water 0.1% AEP – Depth Whim_08 - Surface Water 0.1% AEP – Hazard Whim_08 - Surface Water 0.1% AEP - Velocity **Data analysis:** **3.3% AEP (1 in 30 year) event:** Proportion - 2% Max Depth – 1.36m — Mean Depth – 0.34m Max Velocity – 1.64m/s — Mean Velocity – 0.4m/s Max Hazard – 1.78 — Mean Hazard – 1.02 **1% AEP (1 in 100 year) event:** Proportion - 5% Max Depth – 1.41m — Mean Depth – 0.24m Max Velocity – 1.95m/s — Mean Velocity – 0.63m/s Max Hazard – 1.9 — Mean Hazard – 0.87 **0.1% AEP (1 in 1000 year) event:** Proportion - 13% Max Depth – 1.6m — Mean Depth – 0.2m Max Velocity – 3.08m/s — Mean Velocity – 1.01m/s Max Hazard – 2.67 — Mean Hazard – 0.85 **Flood characteristics:** The proposed development site is shown to flood during all three scenarios. During the 3.3% AEP event, 2% of the site is shown to be at risk with a small, localised area at risk within the centre of

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	site, within a small topographical depression. The majority of the risk is shown to be along the western boundary along the drainage ditch. The extent of flood risk increases up to 13% during the 0.1% AEP event, as a connected flow path enters the site at the eastern boundary, and flows from the east to northwest, along a small topographical valley across the site. It should be noted that as the flood extent increases the mean flood depth on site decreases, due to decreased ponding. The mean depth, velocity and hazard within the 0.1% AEP event are shown to be 0.2m, 1.01m/s and 0.85 (a 'danger to some') respectively. The superseded RoFSW dataset used in this assessment has been compared with the March 2025 NaFRA2 dataset. The flood extent is shown to be similar within the 0.1% AEP event, with no significant differences. The flow path is shown to be slightly different to the 3.3% and 1% AEP events, by extending across the centre of the site during all events. • 3.3% AEP – 6% • 1% AEP – 8% • 0.1% AEP- 13%
Surface water plus climate change	**Available data and mapping:** Environment Agency's Risk of Flooding from Surface Water dataset for the 3.3%, 1% and 0.1% AEP events with 65% Climate Change scenarios. As agreed with the Environment Agency, it should be noted that the data discussed below relates to the available surface water data prior to March 2025, as the data released in March 2025 does not include depth, hazard and velocity information for climate change scenarios. Whim_08 - Surface Water 3.3% AEP plus 65% Climate Change – Depth Whim_08 - Surface Water 3.3% AEP plus 65% Climate Change – Hazard Whim_08 - Surface Water 3.3% AEP plus 65% Climate Change - Velocity Whim_08 - Surface Water 1% AEP plus 65% Climate Change – Depth Whim_08 - Surface Water 1% AEP plus 65% Climate Change – Hazard Whim_08 - Surface Water 1% AEP plus 65% Climate Change - Velocity Whim_08 - Surface Water 0.1% AEP plus 65% Climate Change – Depth Whim_08 - Surface Water 0.1% AEP plus 65% Climate Change – Hazard Whim_08 - Surface Water 0.1% AEP plus 65% Climate Change - Velocity **Management Catchment:** Whim_08 is located within the East Devon Management Catchment. The Environment Agency guidance recommends that the Upper End allowance is considered for both the 3.3% and 1% AEPs for the 2070's epoch, unless the allowance for the 2050's epoch is higher, in which case this should be used. This is appropriate for development with a lifetime beyond 2100. The recommended uplift on peak rainfall intensity for the 3.3% AEP is 40% and for the 1% AEP is 45%. As Risk of Flooding from Surface Water data with a 65% uplift was already available this has been used as the best available data for the 3.3%, 1% and 0.1% AEPs. **Data analysis:** **3.3% AEP (1 in 30 year) plus 65% climate change event:** Proportion - 7% Max Depth – 1.45m Mean Depth – 0.2m Max Velocity – 2.32m/s Mean Velocity – 0.7m/s Max Hazard – 2.05 Mean Hazard – 0.81

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	1% AEP (1 in 100 year) plus 65% climate change event: Proportion - 11% Max Depth – 1.53m Max Velocity – 2.86m/s Max Hazard – 2.51 Mean Depth – 0.19m Mean Velocity – 0.89m/s Mean Hazard – 0.83 **0.1% AEP (1 in 1000 year) plus 65% climate change event:** Proportion - 20% Max Depth – 1.84m Max Velocity – 4.36m/s Max Hazard – 4.07 Mean Depth – 0.23m Mean Velocity – 1.34m/s Mean Hazard – 1.0 **Flood characteristics:** The site is shown to be at risk of flooding in all three scenarios with flooding along the western boundary and across the centre of the site. A surface water flow path is shown to cross the site from northwest to east, increasing in extent throughout the AEP events. The mean depth is shown to be 0.23m in the 0.1% AEP event plus 65% climate change. The average velocity on site is 1.34 m/s, with a maximum of 4.36m/s. The average hazard rating during the 1% AEP plus 65% climate change event is 1.0 and is therefore stated to be a 'danger to some'.
Reservoir	The site is not located near to a Wet or Dry day reservoir flooding extent, according to the Environment Agency's reservoir flood mapping.
Groundwater	**Available data and mapping:** The JBA Groundwater Flood Data Map (GW5) is provided as a 5m resolution grid. Whim_08 - Groundwater Emergence **Flood characteristics:** Groundwater levels on site are shown to be 'low risk' to the south and north, with levels either at or very near (within 0.025m of the grounds surface) crossing the site from west to east, clipping the northwestern corner. Furthermore, across the southwestern and the northeastern corner of the site levels are shown to be between 0.025m and 0.5m below the grounds surface during a 1% AEP groundwater flood event. In these instances, where groundwater levels are close to the ground surface, there is a significant risk of groundwater emergence during a flood event. Subsurface development or development requiring deep foundations run the risk of interfering with groundwater levels by displacing water. There is a requirement for site-specific flood risk investigations to determine the groundwater risk at the site through ground investigations and to demonstrate that proposed development will not impact the risk posed within or surrounding the site. Site-specific FRAs should assess the suitability of Sustainable Drainage Systems (SuDS) within the areas at potential risk of groundwater emergence.
Sewers	No evidence of sewer flooding has been identified at or near the development site. South West Water's sewer network shapefile shows there is a sewer network across the site boundary following a similar path to the surface water extent.

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	Developers should refer to South West Water's guidance. A sewer requisition may be required to manage excess flows which cannot be dealt with on site.
Flood history	The site is not shown to be located within the Environment Agency's Recorded Flood Outlines extent. There are no flooding incidents within Devon County Council's dataset recorded within 100m of the site.
Policy zones	
Critical drainage areas	The site has not been identified to be located within a critical drainage area. It should be noted there is a critical drainage area within Whimple, however this is located approximately 300m north of the site. Mapping: Whim_08 - Critical Drainage Area
Coastal change management areas	The site has not been identified to be located within a coastal change management area.
Flood risk management infrastructure	
Existing defences	The Environment Agency's AIMS dataset shows there are no formal flood defences within the vicinity of the site.
Emergency planning	
Flood warning	The site has not been identified to be located within an area of flood warning or alerts. Mapping: Whim_08 - Flood Warnings and Alerts
Access and egress	Access and egress is shown to be largely unaffected during all assessed events, with depths of up to 0.3m along Church Road heading south from the site during the 1% AEP plus climate change surface water modelling. It should be noted that the flow path crossing the site may cause inaccessibility to the southern portion of the site, however flood depths generally remain shallow. The maximum hazard rating identified on site within the flooding extent is shown to be a 'Danger to all', however the mean hazard is shown to be a 'Danger to some'. The majority of the site is not shown to be at risk of flooding.
Requirements for drainage control and impact mitigation	
Broad-scale assessment of possible SuDS	**Geology and Soils** The geology consists of mudstone, siltstone, and sandstone, with no identified superficial deposits. The soils are shown to be slightly acid loamy and clayey soils with impeded drainage. This suggests that infiltration may not be a viable means of surface water disposal.

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	SuDS In line with Defra's National Standards for Sustainable Drainage Systems, runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy: • Priority 1: collected for non-potable use • Priority 2: infiltrated to ground • Priority 3: discharged to an above ground surface water body • Priority 4: discharged to a surface water sewer, or another piped surface water drainage system • Priority 5: discharged to a combined sewer • The site is located within a Nitrate Vulnerable Zone. Therefore, early engagement with the LLFA and the Environment Agency is recommended to determine requirements for the site to manage the impact to surrounding watercourses. Consideration of water quality is likely to be of high importance and demonstrated through the use of the Simple Index Approach. • The site has not been identified to be located within a historic landfill site or a groundwater Source Protection Zone. • Groundwater levels are shown to be either at or very close to the grounds surface across the centre of the site during a 1% AEP flood event, also suggesting that infiltration may not be viable. The infiltration potential of the site should therefore be confirmed through infiltration testing, in line with BRE 365. • Surface water discharge rates should not exceed pre-development discharge rates for the site and should be designed to be as close to greenfield runoff rates as reasonably practical in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques. • SuDS measures should follow the discharge hierarchy, and if it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner. • Due to the topography, any surface water not intercepted via infiltration will drain via gravity to the northwestern boundary. It is therefore recommended that the LLFA and the Environment Agency are consulted about viable discharge locations for surface water from the site and their attenuation potential.
Opportunities for wider sustainability benefits and integrated flood risk management	• Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. This could also provide wider sustainability benefits to the site and surrounding area. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and Environment Agency) at an early stage to understand possible constraints.

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	• The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development. • Opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting must be considered in the design of the site. • SuDS are to be designed so that they are easy to maintain, and it should be set out who will maintain the system, how the maintenance will be funded and should be supported by an appropriately detailed maintenance and operation manual. • SuDS should be designed with a holistic approach, combining ecology, landscape and drainage requirements specific to the site, and incorporating Biodiversity Net Gain requirements. • Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and their Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies. • The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. • SuDS should be designed in line with Devon County Councils SuDS Guidance. https://www.devon.gov.uk/floodriskmanagement/document/sustainable-drainage-system-guidance-for-devon-2023/#dcc-documents-cpt-contents
NPPF and planning implications	
Exception Test requirements **(Local Authority considerations)**	The Local Authority will need to confirm that the Sequential Test has been carried out in line with national guidelines. The Sequential Test will need to be passed before the Exception Test is applied. The NPPF classifies the usage as "More Vulnerable", this type is taken into consideration for the Exception Test. The site is partially located within Flood Zone 2 and 3, and the 0.1% AEP surface water extent. During a 1% AEP groundwater flood event, groundwater levels on site are partially located either at or very near (within 0.025m of) the ground surface across the centre of the site. Flow paths would be expected to follow the topography of the site and be expected to be similar to surface water flow paths. Providing development is proposed to the north or south of the site (outside of the areas at risk of fluvial or surface water flooding), the Exception Test is not required for this site, however it is recommended that detailed flood modelling is undertaken to assess the risk of flooding to the proposed development. Should development be proposed within Flood Zone 3, the Exception Test will be required and detailed flood modelling must undertaken during a site-specific FRA.

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Requirements and guidance for site-specific Flood Risk Assessment
 	
(Developer considerations)
	Flood Risk Assessment:
	The Level 1 SFRA has more guidance on this section and any relevant policies and information applicable to development within East Devon District Council.
	• Consultation with East Devon District Council, and where relevant South West Water, Devon County Council, and the Environment Agency should be undertaken at an early stage. Works affecting an Ordinary Watercourse may require consent from Devon County Council.
	• Developers should consult with South West Water to ensure that the development aims to help achieve the targets of the Drainage and Wastewater Management Plan.
	• Development plans should use the Level 1 and 2 SFRA for East Devon District Council, as well as the Local Flood Risk Management Strategies to identify cumulative flood risk issues. It should also promote an integrated approach to water management.
	• The site is located within a medium risk Cumulative Impact Assessment (CIA) catchment and therefore specific CIA policy documents are applicable to this site.
	Guidance for site design and making development safe:
	• The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime. It is for the applicant to show that the development meets the objectives of the NPPF's policy on flood risk. For example, how the operation of any mitigation measures can be safeguarded and maintained effectively through the lifetime of the development. (Para 048 Flood Risk and Coastal Change PPG).
	• As outlined in the PPG, the Finished Floor Levels of the development should be raised to a minimum of whichever is higher of 600mm above the:
	  • Average ground level of the site,
	  • Adjacent road level to the building,
	  • Estimated river or sea flood level.
	• It is suggested that flood resilient design is adopted in the construction of development. The PPG sets out that flood resistant material that have low permeability should be used to at least 600mm above the estimated flood level; flood resilient materials to at least 600mm above the estimated flood level and raising of electrical equipment at least 600mm above the estimated flood level.
	• The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any ephemeral surface water flow routes. A drainage strategy should help inform site layout and design to ensure runoff rates do not exceed greenfield rates.
	• Arrangements for safe access and egress are likely to be possible, however these will need to be considered further within a site-specific

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	FRA for the surface water events with an appropriate allowance for climate change, using the depth, velocity, and hazard outputs.

Key messages

The site is generally identified to be at low risk, and development is likely to progress if:

- A site-specific FRA is undertaken to assess the risk of fluvial, surface water and groundwater flooding in relation to the proposed development, and the access and egress arrangements.
- Development is placed outside of the areas at risk from surface water and fluvial flooding and within Flood Zone 1. Should development be proposed within areas at risk (within Flood Zones 2 and 3 or within at area at risk of surface water flooding) detailed flood modelling must be undertaken within a site-specific FRA.
- The area of Flood Zone 3 shown should be allocated as an undeveloped open space corridor and not as gardens, car parking or other features associated with individual plots.
- It is recommended that detailed flood modelling is undertaken to assess the risk of flooding to the proposed development even if development is located within Flood Zone 1.
- Infiltration rates are assessed on site as part of a drainage strategy.
- There is early engagement with the LLFA and the Environment Agency on the proposed SuDS measures and infiltration rate to discuss requirements on the site meeting relevant conditions due to the sites location within a nitrate vulnerable zone.
- Developers will need to consult South West Water regarding the surface water sewer network that crosses the site and discharges to the watercourse.
- Cumulative Impact Assessment policy documents must be understood, and the cumulative impact of development should be considered.

The Environment Agency regularly reviews their flood risk mapping, and it is important that the Local Planning Authority, Lead Local Flood Authority and Environment Agency are approached to determine whether updated information is available prior to commencing a detailed Flood Risk Assessment.