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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
Area	4.0 hectares
Current land use	Greenfield
Proposed land use	Housing and Mixed Use
Flood Risk Vulnerability	More Vulnerable
Sources of flood risk	
Location of site	The site is located to the northeast of Feniton, north of Broad Land and East of Mount View. The site is not located near to any main rivers or ordinary watercourses, however there is a flood alleviation scheme in Feniton, detailed below in existing drainage features.
Topography	The Environment Agency's 1m resolution 2022 Composite LiDAR shows that the topography of the site falls from the northeast (92mAOD) to the southwest (82mAOD), with a continuous gradient. The gradient is approximately 4%, therefore the site is considered to have a gentle slope and is unlikely to affect any proposed SuDS features. The catchment drains south before joining the River Otter.
Existing drainage features	The Feniton Flood Alleviation Scheme is proposed in Feniton comprising of the construction of channels, culverts and swales (Planning Ref: 24/0331/MFUL). The scheme will be located at the south and western boundary of the site and continues off site in a southerly direction across greenfield land, down Warwick Close and alongside Green Lane via underground pipes[1]. The aim of the scheme is to collect flood water from above the village and divert it via a 1050mm diameter pipe down through the village to a new section of open channel at Metcombe Cottage. It is understood that the Feniton Flood Alleviation Scheme will run full bore during a 1% AEP plus Climate Change event thus making it unlikely that it could be a viable point of discharge for the development.
Fluvial	The proposed development site has not been identified to be in an area at risk of fluvial flooding.
Fluvial plus climate change	The proposed development site has not been identified to be in an area at risk of fluvial flooding in the future.
Surface Water	**Available data and mapping:** Environment Agency's Risk of Flooding from Surface Water dataset for the 3.33%, 1% and 0.1% AEP events. Feni_07 - Surface Water 3.33% AEP – Depth Feni_07 - Surface Water 3.33% AEP – Hazard Feni_07 - Surface Water 3.33% AEP - Velocity Feni_07 - Surface Water 1% AEP – Depth Feni_07 - Surface Water 1% AEP – Hazard Feni_07 - Surface Water 1% AEP - Velocity Feni_07 - Surface Water 0.1% AEP – Depth Feni_07 - Surface Water 0.1% AEP – Hazard

[1] https://eastdevon.gov.uk/flooding/flood-alleviation-schemes/feniton-flood-alleviation-scheme/

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
	Feni_07 - Surface Water 0.1% AEP - Velocity **Data analysis:** **3.3% AEP (1 in 30 year) event:** Proportion – 1% Max Depth – 0.27m Mean Depth – 0.13m Max Velocity – 0.84m/s Mean Velocity – 0.41m/s Max Hazard – 1.18 Mean Hazard – 0.61 **1% AEP (1 in 100 year) event:** Proportion – 2% Max Depth – 0.31m Mean Depth – 0.11m Max Velocity – 1.04m/s Mean Velocity – 0.56m/s Max Hazard – 1.24 Mean Hazard – 0.63 **0.1% AEP (1 in 1000 year) event:** Proportion – 15% Max Depth – 0.45m Mean Depth – 0.11m Max Velocity – 1.74m/s Mean Velocity – 0.88m/s Max Hazard – 1.49 Mean Hazard – 0.66 **Flood characteristics:** The site is shown to be at risk of flooding in the 0.1% AEP event with a flow path from north to southwest, with predominantly shallow depths (averaging 0.11m). During the 1% and 3.33% AEP events localised areas to the north and southwest are shown to be at risk, with a maximum depth of 0.31m and 0.27m respectively. It is therefore evident that as the flooding extent increases, the average flood depth decreases. The average hazard and velocity on site during the 1% AEP event are shown to be a rating of 0.63 'danger to some' and 0.56m/s respectively across the sites north to south-westerly flow path.
Surface water plus climate change	**Available data and mapping:** Environment Agency's Risk of Flooding from Surface Water dataset for the 3.33%, 1% and 0.1% AEP events with 65% Climate Change scenarios. Feni_07 - Surface Water 3.33% AEP plus 65% Climate Change – Depth Feni_07 - Surface Water 3.33% AEP plus 65% Climate Change – Hazard Feni_07 - Surface Water 3.33% AEP plus 65% Climate Change - Velocity Feni_07 - Surface Water 1% AEP plus 65% Climate Change – Depth Feni_07 - Surface Water 1% AEP plus 65% Climate Change – Hazard Feni_07 - Surface Water 1% AEP plus 65% Climate Change - Velocity Feni_07 - Surface Water 0.1% AEP plus 65% Climate Change – Depth Feni_07 - Surface Water 0.1% AEP plus 65% Climate Change – Hazard Feni_07 - Surface Water 0.1% AEP plus 65% Climate Change - Velocity **Management Catchment:** Feni_07 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

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
	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 – 4% Max Depth – 0.33m Mean Depth – 0.11m Max Velocity – 1.15m/s Mean Velocity – 0.63m/s Max Hazard – 1.26 Mean Hazard – 0.63 **1% AEP (1 in 100 year) plus 65% climate change event:** Proportion – 11% Max Depth – 0.39m Mean Depth – 0.1m Max Velocity – 1.55m/s Mean Velocity – 0.77m/s Max Hazard – 1.39 Mean Hazard – 0.64 **0.1% AEP (1 in 1000 year) plus 65% climate change event:** Proportion – 25% Max Depth – 0.6m Mean Depth – 0.15m Max Velocity – 2.22m/s Mean Velocity – 1.13m/s Max Hazard – 1.84 Mean Hazard – 0.77 **Flood characteristics:** The site is shown to be at risk of flooding in all three scenarios with a flow path from north to southwest, with predominantly shallow depths (averaging less than 0.15m). The maximum flood depth in the 0.1% AEP plus 65% climate change event is shown to be 0.6m along the western boundary of the site. The average velocity is shown to be no more than 1.13m/s, with a maximum velocity of 2.22m/s during the 0.1% AEP event with 65% climate change. The average hazard rating is 0.77 during the 0.1% AEP plus 65% climate change event 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. Feni_07 - Groundwater Emergence **Flood characteristics:** Groundwater levels on site are modelled to be between 0.025m and 0.5m below the grounds surface during a 1% AEP groundwater flood event.
Sewers	No evidence of sewer flooding has been identified at or near the development site. However, the site is located within a Critical Drainage Area – see Critical Drainage Area information below for more details.
Flood history	**Available data and mapping:** Environment Agency's Recorded Flood Outlines. **Flood characteristics:** The western boundary of the site is located within the Recorded Flood Outlines extent, due to the Feniton Surface Water flooding event in October 2008.

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
	Devon County Council highlights that Feniton is an area of flood risk. However, Devon County Council do not hold any historic flood risk data for the site. The nearest recorded incident in their dataset is located to the southwest of the site, where six properties flooded from surface water in October 2008. It should be noted that Feniton has been subjected to flooding more frequently than stated above with other events in 2010 and 2012.
Policy zones	
Critical drainage areas	The site is located within the centre of Feniton's critical drainage area. Information on the New Feniton CDA can be found on the Devon County Council website: https://www.devon.gov.uk/floodriskmanagement/planning-and-development/ See the *Broad-scale assessment of possible SuDS* Section for more details of the drainage requirements for this site. Mapping: Feni_07 - Critical Drainage Area
Coastal change management areas	The site is not 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.
Proposed flood alleviation scheme	The proposed Feniton flood alleviation scheme will comprise of the construction of channels, culverts and swales, and mitigation works to individual properties including flood defences and bypass channel. Due to its location on site, East Devon District Council should be consulted to discuss appropriate access on site for maintenance of the scheme. An appropriate buffer strip should be left alongside the scheme.
Emergency planning	
Flood warning	The site has not been identified to be located within an area of flood warning or alerts. Mapping: Feni_07 - Flood Warnings and Alerts
Access and egress	Access and egress during the 1% AEP plus climate change event is likely to be possible along Broad Road to the south of the site. Access and egress is shown to be largely unaffected during all assessed events, with depths of up to 0.22m in Broad Road shown in the 1% AEP plus climate change surface water modelling.

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton

Requirements for drainage control and impact mitigation

Broad-scale assessment of possible SuDS

Geology and Soils

The geology consists of interbedded sandstone and conglomerate. There are no superficial deposits at the development site. The soils are shown to be freely draining slightly acid loamy soils. This suggests that infiltration may be a viable means of surface water disposal.

SuDS

- The site is located within a groundwater Source Protection Zone therefore early engagement with the LLFA and the EA is recommended to determine requirements for mitigating the impacts to aquifers as a consequence of the surface water drainage system. The infiltration potential of the site should be confirmed through infiltration testing, in line with BRE 365. Groundwater mapping suggests levels on site could be between 0.025m and 0.5m below the ground surface during a 1% AEP flood event, therefore infiltration may not be appropriate at all times. Offsite discharge may therefore be required to discharge surface water runoff during flood events.
- The site is also located within a nitrate vulnerable zone. Therefore, early engagement with the LLFA and the EA 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 an historic landfill site.
- The site was identified to be located within a Critical Drainage Area, and the East Devon District Council website states that:
    - 'All new development will have to play their part in reducing current rainfall runoff rates. The SuDS hierarchy should be followed, by using infiltration as far as is practicable.
    - All off-site surface water discharges from development should mimic "Greenfield" performance up to a maximum 1 in 10 year discharge rate.
    - On-site all surface water should be safely managed up to the "1 in 100+climate change" conditions. This will require additional water storage areas to be created thereby contributing to a reduction in flooding downstream.'

  It is therefore highly recommended that the LLFA and the EA are consulted with regards to the development site and the infiltration potential/proposed SuDS measures.
- 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 southwestern boundary towards the

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
	proposed flood alleviation scheme (discussed above). It is therefore recommended that the LLFA and the EA are consulted about the potential for combining the scheme with the surface water discharge and SuDS requirements on site. The scheme will need to be assessed to identify whether this could be a viable discharge outlet for surface water from the site and its 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, helping meet requirements for the groundwater source protection zone and the critical drainage area. 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 EA) at an early stage to understand possible constraints. • 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, and the critical drainage area requirements. • 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, incorporating the flood alleviation scheme where possible, and 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, along with the location of the site in a Nitrate Vulnerable Zone. 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

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton
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. Given the site is in Flood Zone 1, and the limited surface water extent in the 0.1% AEP event, provided development is proposed outside of the areas at risk, the Exception Test is not required for this site.
Requirements and guidance for site-specific Flood Risk Assessment **(Developer considerations)**	**Flood Risk Assessment:** The Level 1 SFRA has more guidance on the requirements for site specific Flood Risk Assessments and relevant policies and information applicable to development within East Devon District Council. • Consultation with the East Devon District Council, and where relevant South West Water, Devon County Council, and the Environment Agency should be undertaken at an early stage. • 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 SFRA for East Devon District Council, as well as the Local Flood Risk Management Strategy to identify cumulative flood risk issues. It should also promote an integrated approach to water management. **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). • 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 surface water flow routes. Due to the sites location within a CDA all new development should reduce current rainfall runoff rates, and additional water storage areas should be created, as stated on the Devon County Council's CDA documentation linked in the CDA section above. A drainage strategy should help inform site layout and design to ensure runoff rates do not exceed required rates. • Arrangements for safe access and egress are likely to be possible, however these will need to be considered further within a site-specific FRA for the surface water events with an appropriate allowance for climate change, using the depth, velocity, and hazard outputs.

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

Site Code	**Feni_07**
Address	Land north of Broad Road, Feniton

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 surface water flooding in relation to the proposed development.
- Development is placed outside of the areas at risk from surface water flooding.
- Infiltration rates are assessed on site as part of a drainage strategy.
- Surface water is not discharged into the combined sewer.
- There is early engagement with the LLFA and the EA on the proposed SuDS measures and infiltration rate to discuss requirements on the site meeting relevant conditions due to the sites location within a groundwater source protection area, nitrate vulnerable zone and critical drainage area.
- There is early engagement with East Devon District Council to discuss the implications of the Feniton Flood Alleviation Scheme on the proposed development.
- Cumulative Impact Assessment policy documents must be understood, and the cumulative impact of development should be considered.