



PLANNING CONSULTANCY

FLOOD RISK ASSESSMENT

Outline planning application for the erection of 34 dwellings (8x2 bed, 16x3 bed and 10x4 bed) at a maximum height of two storeys, with associated landscaping, access and parking. All matters reserved except access.

 Land Between 107 and 127 Capel Street, Capel-le-Ferne,
CT18 7HB

Prepared by Hume Planning Consultancy Ltd.

On behalf of Mr T Odlin

June 2019

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1 INTRODUCTION

- 1.1 This Flood Risk Assessment (FRA) has been prepared on behalf of Mr T Odlin to support an outline planning application for the erection of 34 dwellings on a site within Capel-le-Ferne that has been allocated for residential development under Policy LA 26 of the Dover Land Allocations Local Plan (adopted 2015). The location of the site can be seen in Figure 1.
- 1.2 This allocation in the adopted Local Plan has been based on a Local Plan Evidence Base that would have included a Strategic Flood Risk Assessment (SFRA). In addition to this, the submission site has been the subject of a previous application for residential development which was dismissed at appeal principally on design grounds and not for reasons relating to flood risk.
- 1.3 The site is located within Flood Zone 1. Flood Zone 1 predicts an annual probability of flooding of less than 1 in 1000 (<.0.1%) and holds the lowest probability of flooding out of all the flood zones. The different flood zones can be seen in Figure 2; these Flood Zones refer to the probability of fluvial and coastal flooding, ignoring the presence of defences.
- 1.4 The two types of flooding mentioned above are the main focus of this FRA, which has been prepared to demonstrate that the development will be safe its lifetime and where possible will reduce the overall flood risk hazard.
- 1.5 A key design driver behind the development of this site has been the establishment of a drainage strategy to inform the layout design. Policy LA 26 allocated this site for residential development of up to 40 units, the indicative layout presented in Appendix B shows a reduced number of dwellings to account for the easement zones around the implemented sustainable drainage strategy.
- 1.6 This submission should be read alongside the Surface Water Management Strategy prepared by Herrington Consulting.



Figure 1. Location of proposed development site.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	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 flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	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.(Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	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. (Not separately distinguished from Zone 3a on the Flood Map)

Figure 2. Definition of the different flood zones taken from the MHCLG Planning Guidance 'Flood Risk and Coastal Change'.

2 SITE LOCATION AND BACKGROUND

- 2.1 The site comprises an area of 1.6ha and lies on the northern side of Capel-le-Ferne. There is no watercourse within close proximity of the site and the site lies away from the sea. Figure 3 and Figure 4 show the location of the site taken from the Environment Agency’s ‘Flood Map for Planning’.
- 2.2 The site is currently undeveloped. A topographic survey (provided at Appendix A) shows that the elevation of the site, even at its lowest point, is over 149m AODN.
- 2.3 The topographic survey reveals that the elevation of the land rises by approximately 3.5m towards the north-west of the site. There is currently no known existing drainage infrastructure on the site and the sloping topography of the site means that surface water caused by rainfall landing on the site is likely to currently drain into the existing public highway to the east of the site.
- 2.4 The underlying geology of the site comprises chalk, overlain by clay silt sand and gravel superficial deposits.



Figure 3 + 4. Location of the site shown on the Environment Agency’s ‘Flood Map for Planning’.

3 NATIONAL GUIDANCE

- 3.1 Flood risk is primarily regulated through planning policy. The National Planning Policy Framework, which was last updated in February 2019, requires an FRA to support planning applications for all sites over one ha in area and all smaller sites within Flood Zones 2 and 3.
- 3.2 The Environment Agency's Flood Risk Map identifies the site as Flood Zone 1. The site therefore lies within the flood risk zone with the lowest probability of flooding. Despite this, the site is greater than 1ha in size and a FRA is therefore required. The need for a FRA in this type of location is usually necessary to ensure that a Surface Water Management Strategy can alleviate surface water runoff rates to match or improve on greenfield runoff rates. The Dover District Council Strategic Flood Risk Assessment (SFRA) highlights the need for a Surface Water Management Plan to ensure that developments do not increase the risk of flooding offsite as a result of increased runoff.
- 3.4 Paragraph 163 of the NPPF states that the LPA should ensure that flood risk is not increased elsewhere when determining any planning applications and where appropriate, incorporate sustainable drainage systems to mitigate the impact of flooding.
- 3.5 Local Planning Authorities are encouraged to take a risk-based approach to the consideration of potential housing sites. This exercise has already taken place through the local plan process and the allocation of his site following a SFRA.
- 3.6 The Planning Practice Guidance 'Flood Risk and Coastal Change' outlines the Flood Risk Development Vulnerability Classifications (Figure 5). Housing is categorised as a use of more vulnerability, a category that Figure 6 shows to be appropriate for development in both Flood Zone 1 and 2.
- 3.7 In addition to Sequential Testing of sites, it can be

seen from the table at Figure 6, taken from Practice Guidance Flood Risk and Coastal Change, that the sequential and exception test is not required in this case. Whilst the site passes the sequential and exception test it is greater than 1 hectare in area so that other flood risk concerns relating to surface run off should be examined. This is addressed in the accompanying Surface Water Management Strategy.

<p>Essential infrastructure</p> <ul style="list-style-type: none"> Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. Wind turbines. <p>Highly vulnerable</p> <ul style="list-style-type: none"> Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. Emergency dispersal points. Basement dwellings. Caravans, mobile homes and park homes intended for permanent residential use. Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'). 	<p>More vulnerable</p> <p>Hospitals</p> <p>Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.</p> <p>Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.</p> <p>Non-residential uses for health services, nurseries and educational establishments.</p> <p>Landfill* and sites used for waste management facilities for hazardous waste.</p> <p>Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.</p> <p>Less vulnerable</p> <ul style="list-style-type: none"> Police, ambulance and fire stations which are not required to be operational during flooding. Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. Land and buildings used for agriculture and forestry. Waste treatment (except landfill* and hazardous waste facilities). Minerals working and processing (except for sand and gravel working). Water treatment works which do not need to remain operational during times of flood. Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. 	<p>Water-compatible development</p> <ul style="list-style-type: none"> Flood control infrastructure. Water transmission infrastructure and pumping stations. Sewage transmission infrastructure and pumping stations. Sand and gravel working. Docks, marinas and wharves. Navigation facilities. Ministry of Defence defence installations. Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. Water-based recreation (excluding sleeping accommodation). Lifeguard and coastguard stations. Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.
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Figure 5. Flood Risk Vulnerability Classifications

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	✗	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	✗	✗	✗	✓*

Key:

- ✓ Development is appropriate
- ✗ Development should not be permitted.

Figure 6. Table showing in which of the classifications development is deemed appropriate.

4 ASSESSMENT

- 4.1 The SFRA and EA mapping base shows that this site is likely not at risk of fluvial or coastal flooding. It also be demonstrated that the development of this site should reduce the risk of flooding to other areas as a result of surface water runoff.
- 4.2 Flood and Coastal Risk specialists ‘Herrington Consulting’ were instructed to design a suitable sustainable drainage system to help meet this goal, the details of which can be found in the accompanying Surface Water Management Strategy.
- 4.3 A number of ground investigations were undertaken by Southern Testing at the site to determine the infiltration potential of the soil and the geology at the site. Shallow infiltration tests revealed insufficient rates to support the use of infiltration SuDS.
- 4.4 Deeper borehole soakage testing yielded higher infiltration rates than surface infiltration and the findings concluded that a number of deep borehole soakaways would be the most sustainable solution for managing surface water runoff at this site.
- 4.5 Based on an infiltration rate of 0.75m/hr, a total of four borehole soakaways have been determined to be able to sufficiently infiltrate the surface water discharge of the site (location at Figure 7). A number of pipes laid throughout the site will direct surface water runoff from hard surfacing towards these borehole soakaways and each soakaway will be connected to a storage tank to store the runoff before it can discharge into the ground. Figure 8 shows the location of these storage tanks and highlights the additional permeable surfacing that is being incorporated into the scheme to improve infiltration.
- 4.6 As a result of these four borehole soakaways, the proposal will not raise the likelihood of surface water runoff causing flooding offsite. The recommended strategy concludes that runoff toward the highway channel will be improved compared with the current greenfield runoff rate.



Figure 7. Locations of the four deep borehole soakaways.

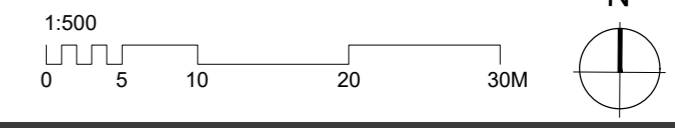


Figure 8. Layout showing the drainage strategy.

5 CONCLUSION

- 5.1 The site is currently undeveloped and lies within Flood Zone 1. The site has also been allocated for residential development following a Strategic Flood Risk Assessment. The topography of the site currently ensures that surface water runoff is directed towards the public highway at Capel Street.
- 5.2 Inspection of the Environment Agency website has not highlighted any fluvial sources that pose an obvious flood risk to the site. The elevation of the site is 149m AODN at its lowest and therefore any coastal/tidal flooding is unlikely to occur.
- 5.3 A Surface Water Management Strategy supports this application which aims to reduce the risk of flooding elsewhere as a result of this proposal. This strategy has identified four deep borehole soakaways and additional permeable surfacing as a suitable way to mitigate the surface water discharge from this site.
- 5.4 It is therefore considered that the risk of flooding to the proposed development is acceptable and it has been shown (alongside the accompanying Surface Water Management Strategy Report) that the proposal will not increase flood risk elsewhere.

APPENDIX A
TOPOGRAPHIC SURVEY



Proposed Residential Development
 At: Land between 107-127 Capel Street, CT18 7HB
 Project Name: Existing Site Plan
 Drawing Name: Site Plan
 A2

Revision	date	note
-	-	-

Drawing No: A1382-105
 Date: Dec 2018
 Scale: 1:500@A2
 (RIBA STAGE 1)

APPENDIX B
INDICATIVE SITE LAYOUT



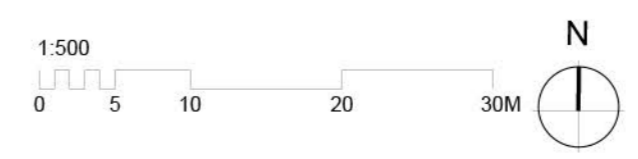
Proposed Residential Development
 At: Land between 107-127 Capel Street, CT18 7HB

Proposed
 Illustrative Masterplan

Project Name: Drawing Name:

Urban & Rural Ltd
 Specialists in Bespoke Development

NOTE:
 Do Not Scale.
 Report all discrepancies, errors and omissions.
 Verify all dimensions on site before commencing any work on site or preparing shop drawings.
 All materials, components and workmanship are to comply with the relevant British & European Standards, Codes of Practice,
 and appropriate manufacturers recommendations that from time to time shall apply.
 For all specialist work, see relevant drawings. This drawing is copyright of Urban & Rural Ltd. Urban & Rural LTD is a registered
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Revision:	date	note
08.04.19		P1 - Issued for comment
07.05.19		P2 - Issued for comment
16.05.19		A - Issued for Planning
30.05.19		B - Amended following updated Badger Settl Locations

A1
 Drawing No: A1382-110
 Revision: B
 Date: Dec 2018
 Scale: 1:500@A1
 PLANNING

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