

**Proposed Residential Development Site**  
**Land North of Elbourn Way, Bassingbourn**  
**Technical Note on Flood Risk**

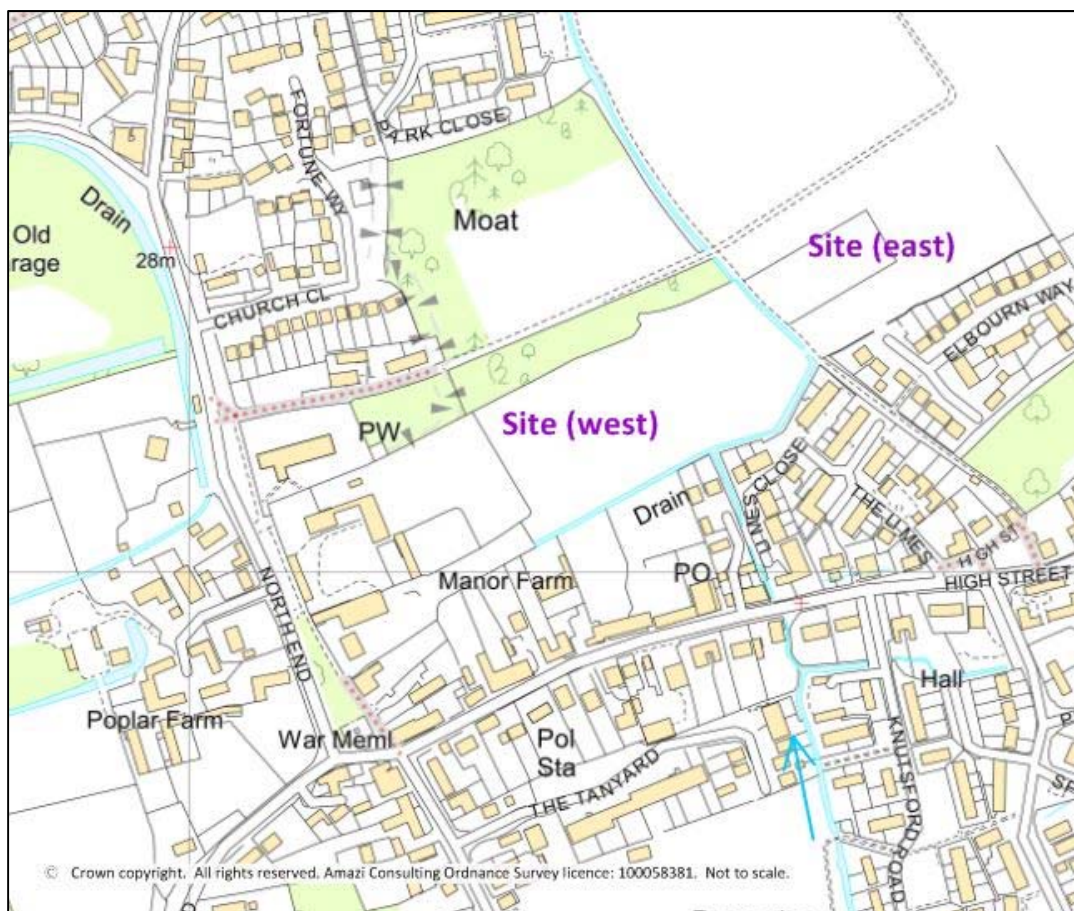
**Introduction**

This technical Note has been prepared in support of residential development at land north of Elbourn Way, Bassingbourn as part of the representation being made by Abbey Properties Cambridgeshire Limited to the South Cambridgeshire Call for Sites (March 2019) for this site to be included as potential land for development in Greater Cambridge (which comprises the administrative districts of Cambridge and South Cambridgeshire).

This note has been prepared for Abbey Properties Cambridgeshire Limited and is intended for review by the Council for the purposes noted above and may not be used by any other part without written permission from Amazi Consulting Ltd. This Note concludes that a future flood risk assessment would be able to demonstrate that the land is suitable for residential development.

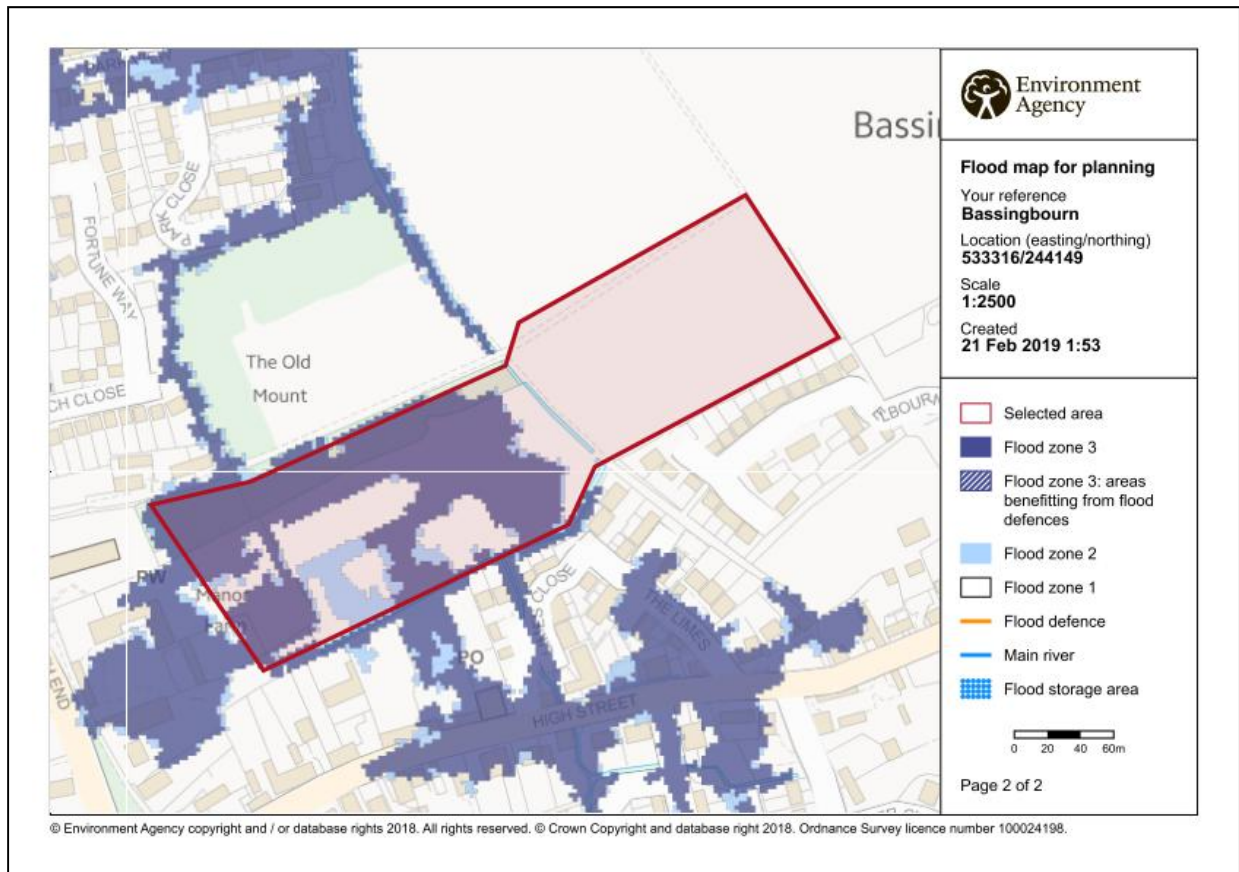
**Fluvial Flooding**

As shown in Figure 01, the site straddles east and west of the fluvial watercourse that is routed through the eastern side of Bassingbourn.



**Figure 01 - Site setting**

The flood map for planning associated with this watercourse system is shown in Figure 02 below.

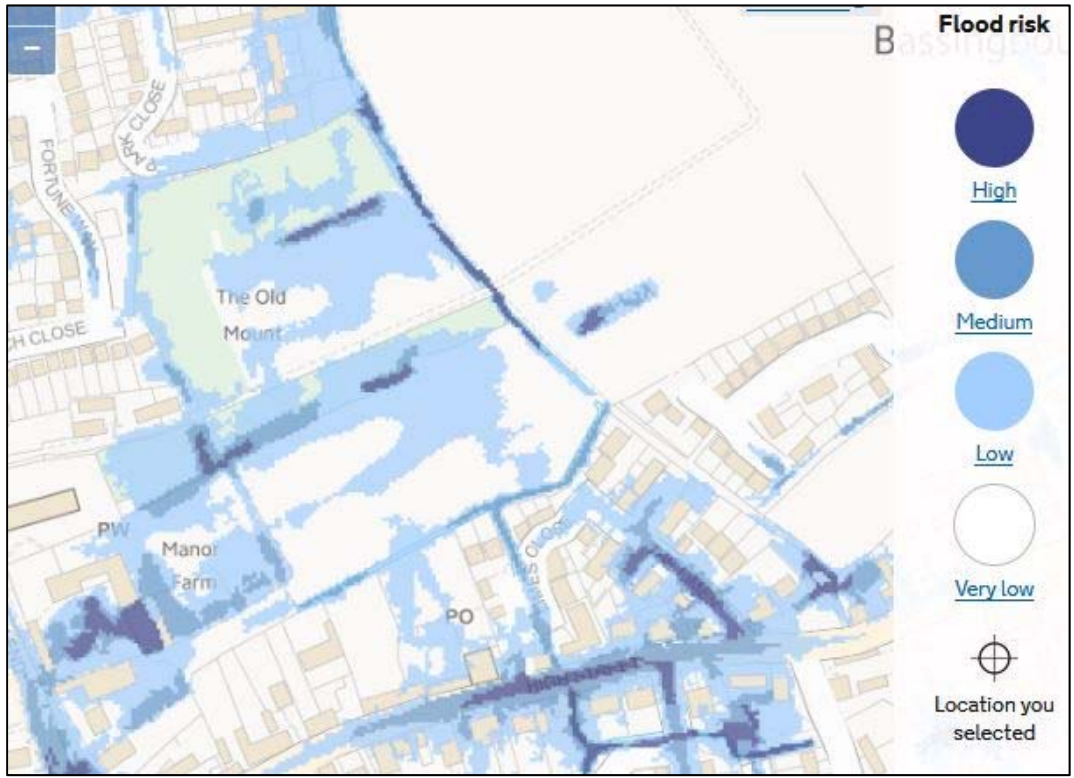


**Figure 02 - Fluvial flood zones**

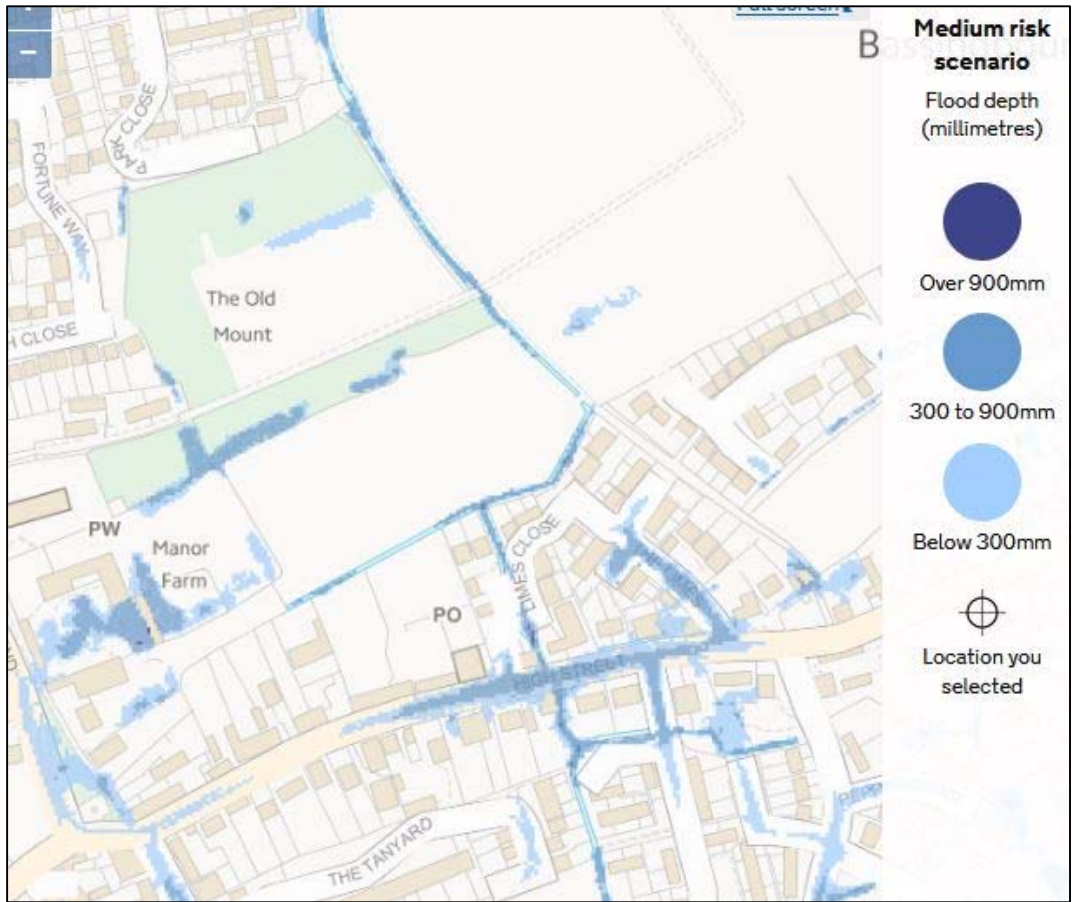
The watercourse flows from south to north and has an upstream catchment of 3.63 km<sup>2</sup>. From review of topographical and catchment information, the flood flow routing in the vicinity of the site includes overland flow, south of and across the west part of the site. This flow routing results in the high risk (1:100 year/flood zone 3\*) flood outline over substantial parts of the west of the site, but not directly at the central watercourse itself, or on any of the east part of the site.

The Risk of Flooding from Surface Water mapping, shown in Figure 03 also indicates flooding on the west part of the site, but most of this is low risk (the extreme 1:1,000 year event) only. This is better illustrated on Figure 04 which shows the medium (1:100 year) flood extent, which is significantly less extensive. The differences in flood outlines is possibly due to the difficulties there are in mapping this type of small upper catchment area where various flow routes are either piped or over ground. The actual flood extent at the site would therefore only be established through detailed site specific flood modelling. We have requested more detailed flood data from the Environment Agency and are awaiting a response to confirm if this is available.

\* Refer to National Planning Policy Framework, Planning Practice Guidance *flood risk and coastal change*, table 1.



**Figure 03 - Risk of flooding from surface water**  
 (high = 1:30, medium = 1:100, low = 1:1,000)



**Figure 04 - Risk of flooding from surface water – medium risk**

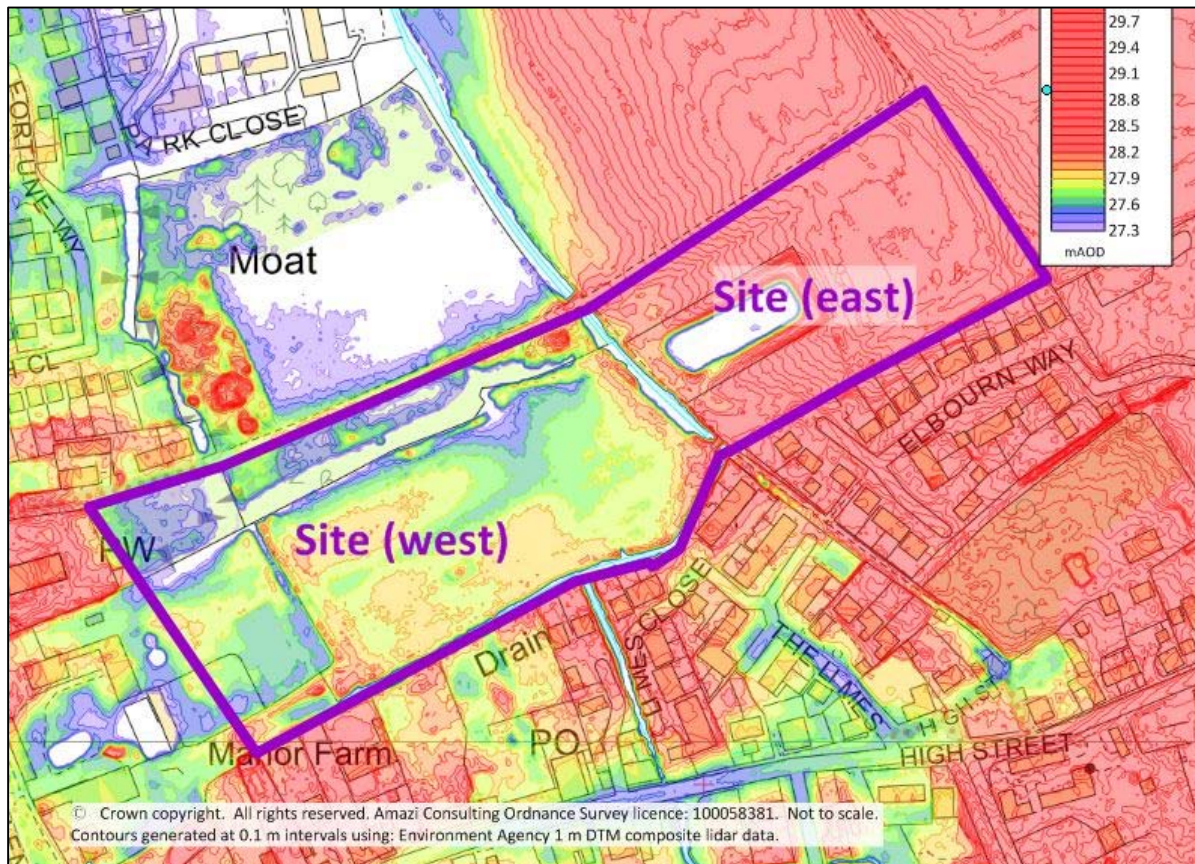
Although the land being represented includes the area at risk of flooding west of the watercourse, the proposed development and its site vehicular access route is proposed to be focused upon the land east of the watercourse only that is located fully within flood zone 1\*. So there would be no constraints relating to flood risks to development on this east part of the site.

Figure 05 shows the local topography and clarifies:

West of the site ground levels vary from c 26.8 to 28.3 mAOD.

East of the site ground levels vary from c 27.8 to 30.5 mAOD.

The outer edge of flood zone 2 at the west of the site corresponds with an approximate ground level of 27.8 mAOD.



**Figure 05 - Local topography**

### **Site Surface water Drainage**

#### *Existing*

The eastern field of the site is mainly greenfield, and includes an existing surface water attenuation basin which serves the c50 residential properties in the adjacent Ebourn way. This attenuation basin was constructed c 1990 its profile is seen in Figure 06a below.

This existing basin is in the ownership of the site being represented in this report. It would be proposed to review its design: ensuring its design outflow rates remain as existing (as originally designed), but to use the more contemporary analysis techniques to re-design its size and shape. So its flow characteristics remain, but it makes more efficient use of the land on site.

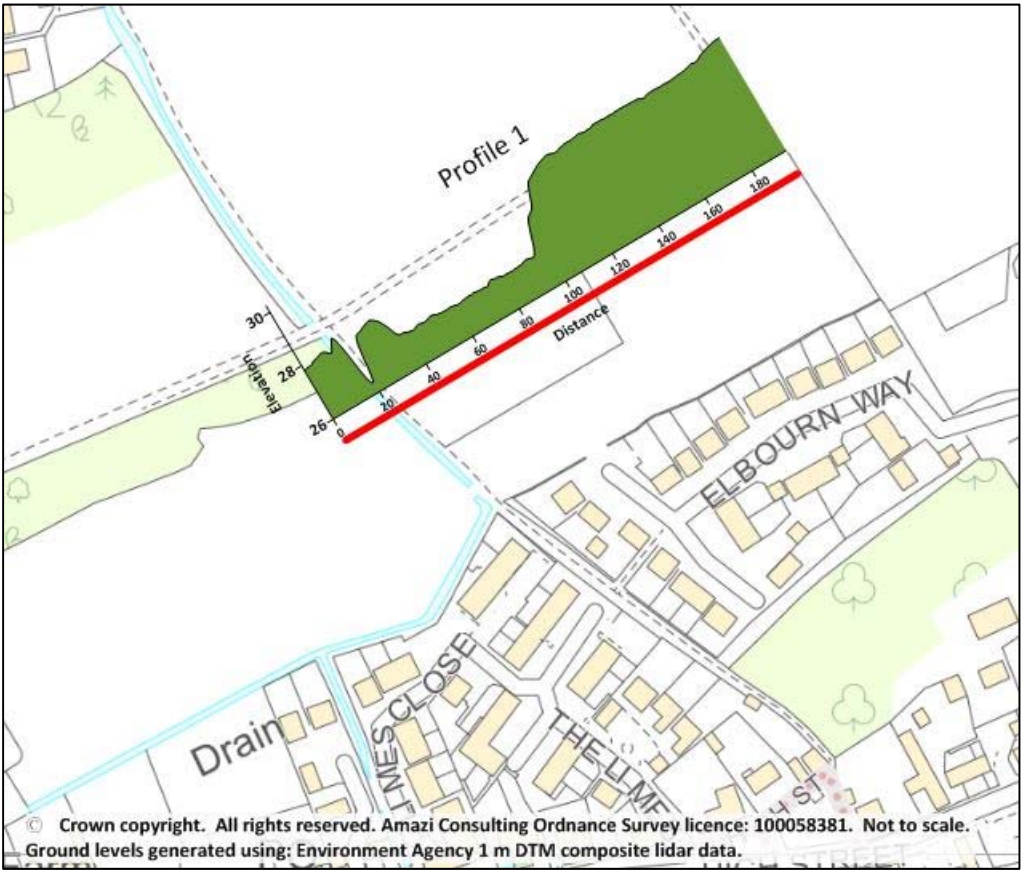


Figure 06a - Section through west area – including existing basin

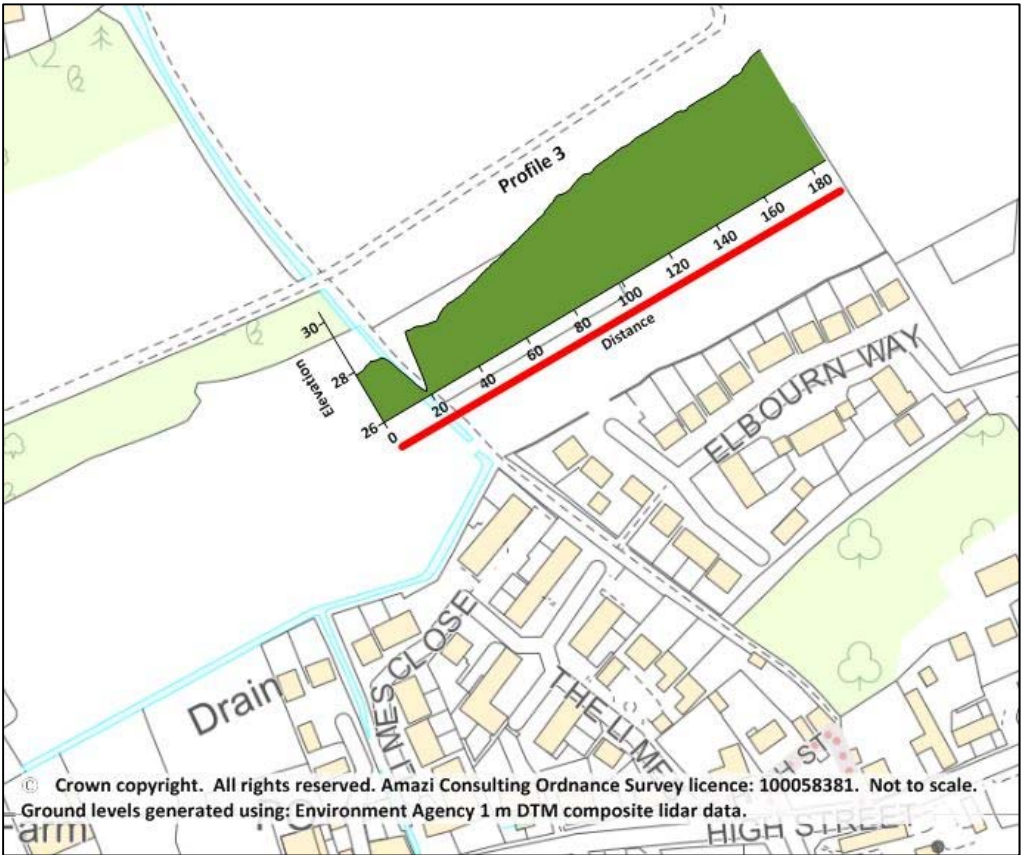


Figure 06b - Section through west area – not including existing basin

## *Proposed*

The development of the existing site would introduce drained hard surfacing so would therefore result in the generation of additional surface water runoff if measures are not taken to mitigate against the impact of introducing hard surfaces. The proposed site surface water drainage strategy would therefore include sustainable drainage systems (SuDS) to control runoff rates. The proposed site runoff would be reduced to the existing 1:1 year return period greenfield rate, in accordance with National Planning Policy Framework Guidance and the Cambridgeshire County Council SuDS Guidance.

It is anticipated that attenuation storage would be provided on site serving the new development. The restricted outflow would enter the existing watercourse, to mimic the existing site runoff regime. The attenuation systems are likely to include an open system, such as a new attenuation basin, along with other techniques to provide additional storage at source, e.g. tanked permeable paving. These systems would provide the required attenuation storage along with treatment to the quality of site runoff.

Local borehole records show that neighbouring sites are underlain by calcareous clay (chalk marl) to significant depth. This is unlikely to be suitable for using infiltration drainage systems, although an intrusive site investigation would be undertaken to confirm prior to finalising any site surface water strategy.

## **Summary**

The proposed development on the eastern field of the site is fully within flood zone 1 and not at risk of fluvial or surface water flooding.

Site surface water drainage for proposed development would be managed on site to reduce runoff to existing greenfield rates, in accordance with national and local guidance.

The existing surface water drainage system on site that serves Elbourn Way would be re-configured to maintain its attenuation/flood risk mitigation function, at the same time as making more effective use of space on site.