

Land rear of Nos. 41 – 47 Pevensey Road, Bognor Regis

Statement on Flood Risk and Foul / Surface Water Drainage

Introduction

This statement has been produced in support of an application for planning consent for the construction of three new dwellings on land to the rear of Nos 41 – 47 Pevensey Road, Bognor Regis, West Sussex PO21 5NY; OS Grid Reference SZ 9219 9983. See the attached plan, Drawing No. 1615/2.13 for a Location Plan and details of the proposals.

Flood Risk

The site is shown to lie in Flood Zone 1 on the current Environment Agency Flood Map for Planning and is thus considered to have a low risk of flooding from both tidal and fluvial sources. However, the rear gardens of 41 - 47 are shown to have a low to medium risk of flooding from surface water (pluvial flooding) on the Surface Water Flood Map and there is concern to ensure that the proposed new dwellings can be safe and that the site can be suitably built and drained without increasing the risk of flooding elsewhere.

Historical Flooding

During the 10th, 11th and 12th June 2012, an extreme rainfall event led to widespread flooding across parts of West Sussex. Storm frequencies with a return period in the region of 1 in 200 years were recorded in this area, resulting in overloading of much of the local drainage network and causing flooding to almost 800 properties across the region. The flooding has been attributed partly to issues with local land drainage systems and partly to simple hydraulic overloading.

Several properties in Pevensey Road were flooded and from records of the flooding and residents' reports, we have determined a peak flood level here of 6.62m Above Ordnance Datum (AOD), based on the Ordnance Survey Benchmark on the boundary wall at 32 Pevensey Road, value 7.12m AOD.

Since this flood event, Arun District Council has carried out various repairs and improvements to the local land drainage system, clearing blockages and repairing partial collapses.

Flood Mitigation

Notwithstanding the extreme nature of the June 2012 event and the improvements that have been carried out subsequently, the area remains at risk from surface water flooding due to the local topography and it will be important to have due regard for this in the design of any new dwellings.

It is not normal practice to design against such extreme 1 in 200-year return period floods but it would be considered imprudent here to recommend floor levels any lower than the recorded June 2012 flood event and we therefore recommend that they are set no lower than 6.62m AOD. The proposal is for finished floor levels of 6.72m AOD in order to provide some freeboard.

This floor level is some 600 to 800mm above existing ground levels and it is proposed to provide garaging at ground floor level and raised floors of beam and block construction for the dwellings that will allow any flood water to flow beneath as necessary, in order not to significantly affect the flood storage availability within the site. See Folkes Architect's drawing for details of the proposed construction which shows how this can be achieved.

The new buildings will, nevertheless, result in some loss in flood storage and this will need to be compensated for if the flood risk to adjoining land is not to be increased. In this respect, it is proposed to remove an existing extension, garage and annex building and raised planters (already removed). There are also plans to provide additional storage in an open pond with water levels maintained lower than bank level in order for the storage to be available when needed. The Architects have calculated that this will provide a balance of available flood storage within the site.

Additionally, storage of 55.61 m³ will be available beneath permeable paved access and parking areas, which will represent a significant improvement – see below.

Surface Water Drainage

The local geology comprises River Terrace Deposits of sand, silt and clay over London Clay and Lambeth Group 'bedrock' of similar material. Percolation testing to BRE 365 has been undertaken to determine which SuDS features can best be employed here. The testing that we have carried out has provided a design soil infiltration rate of 4.19×10^{-6} metres/ second. Winter groundwater monitoring will need to be carried out in order to determine the optimum base level for any SuDS features provided.

It is proposed to use permeable block paving for the access and parking areas with 150mm of coarse graded aggregate subbase (CGA) underlain with 150mm of Polypipe Permavoid or similar geocellular storage. Surface water drainage of the access /parking areas will require 132 mm of CGA for storage, leaving 18mm of CGA together with the Permavoid, free to provide compensatory storage for the development. This amounts to 55.61m³ of shallow storage, which is sufficient to provide full compensation together with an additional volume for security.

If the groundwater monitoring shows high winter groundwater levels, then shallow geocellular structures will be required for draining roof areas or a controlled discharge to the piped watercourse running through the rear of the site or additional Permavoid under the access/parking areas. The proposed open pond could also be considered.

Foul Water Drainage

Southern Water Services Ltd has not been consulted but it is considered unlikely that they would object to just three additional dwellings being connected to the 225mm diameter public foul water sewer in the highway.

1705-R5
3 August 2018

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