

**WELLINGTON WAY, WATERLOOVILLE
LEVEL 1 FLOOD RISK ASSESSMENT**

FINAL REPORT

DECEMBER 2017

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TERMS OF REFERENCE

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EXECUTIVE SUMMARY

BACKGROUND

Civil Engineering Solutions Ltd (CES) have been appointed by Thornton Reynolds to undertake a Flood Risk Assessment (FRA) for a residential development at Wellington Way, Waterlooville, Hampshire PO7 7ED. The report has been prepared with due respect to the requirements of the National Planning Policy Framework (NPPF). The aims of this report are to quantify, and provide advice, regarding the risk of flooding to the site.

The site is located in Flood Zone 1 as defined by Environment Agency (EA) Flood Mapping.

CONCLUSIONS

The proposed development is situated in Flood Zone 1 as defined by EA Flood Mapping. Based on EA data and other supporting information, the site vicinity is at a low risk of flooding from surface water. In an extreme event, residents and their possessions would not likely be at risk due to the residential areas of the building being above the ground floor. The proposed development will not increase the current impermeable area, meaning there will be no increase in the peak rate of surface water run-off, or the volume of surface water run-off. Based on the findings and assumptions of this document, this report concludes that both the level of predicted flood risk and the surface water runoff are appropriate and commensurate for the proposed development.

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1 INTRODUCTION

This report is to support a planning application for the redevelopment of buildings at Wellington Way, Waterlooville, Hampshire PO7 7ED. The redevelopment includes refurbishment and change of use from a shopping centre to multi-storey residential dwellings. The development classification in accordance to the National Planning Policy Framework (NPPF) therefore changes from a “Less Vulnerable” classification to a “More Vulnerable” classification.

2 SITE DETAILS

2.1 EXISTING SITE DETAILS

The site is approximately centred at National Grid Reference: SU 68180 09405 and covers 2000 m². The site is located an urban area of Waterlooville which currently consists of an disused multi-story shopping centre. The site is classed as a Brownfield site.

2.2 PROPOSED DEVELOPMENT

Whilst the development includes refurbishment and change of use, the impermeable footprint is not predicted to change. The proposed development includes redeveloping the existing buildings to create 43 new single occupancy residential units.

3 EXISTING FLOOD RISK

The EA Flood map, shown below in Figure 1, shows the development is situated within Flood Zone 1. Less Vulnerable development such as this is permissible within this flood zone. The risk of flooding to this site is low, with the development having less than 0.1% chance of flooding from rivers or the sea in any given year (i.e. outside the 1 in 1000 year return period event).

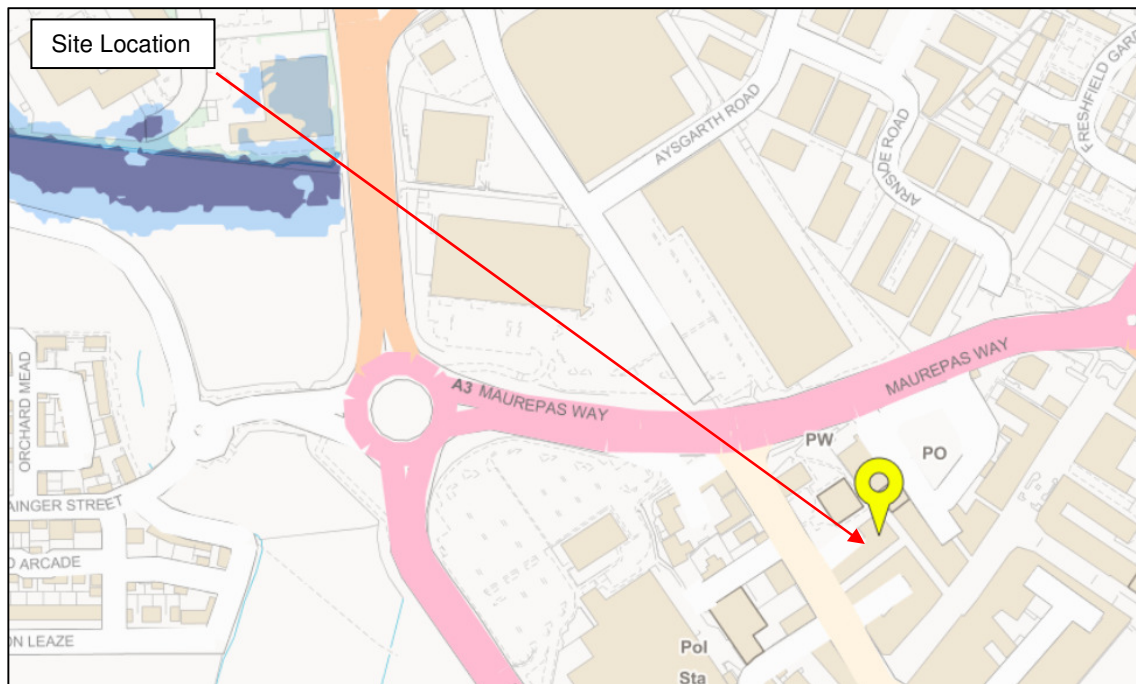


Figure 1: EA Flood Map

Where: the light blue area shows Flood Zone 2 (1 in 1000-year event), the dark blue area shows Flood Zone 3 (1 in 100-year event).



Figure 2: EA Surface Water Map

Figure 2 above shows the risk from surface water flooding to the site. The map shows that the site is not at any significant risk from surface water flooding. This risk equates to flooding from less than a 1 in 1000 year storm, but more than a 100 year storm which is an extreme event and is classified as low risk.

3.1 EA FLOOD WARNINGS

No flood warnings are currently available for the site in question. It may be assumed that the area has been omitted from the flood warning area (Figure 3 below) as the current risk to the site is generally negligible.



Figure 3: EA Flood Warning Map

3.2 GROUNDSURE FLOOD REPORT

The GroundSure Flood Report, purchased for this FRA and included in Appendix A, serves as a useful tool in assessing the general fluvial, tidal, groundwater and pluvial flood risk. The report lays out several points in its overview:

- The property has a Green Insurability Index rating.
- The chance of flooding from rivers or the sea is very low, or an area within 25m is less than 1 in 1000 in any given year.
- The chance of flooding from rainfall is negligible, or an area within 25m would be expected to be affected by surface water flooding in a 1 in 1000 year rainfall event to a depth of less than 0.1m.
- The property has not been subject to historic flooding.
- There area is not considered to be prone to groundwater flooding based on rock type
- The site is not within 25m of an area benefiting from flood defences.

The GroundSure Flood Report uses a variety of sources, some of which are inherently imprecise. However, it does help to give a basic overview as to the possible flood mechanisms for a site. For this reason, it should be taken only as guidance.

4 REQUIREMENTS OF NATIONAL PLANNING POLICY FRAMEWORK

4.1 FLUVIAL & TIDAL FLOODING

The site is located within Flood Zone 1 and as such is not expected to experience and fluvial or tidal flooding with any greater frequency than 0.1% AEP and there is no evidence of the site having experienced historical flooding. 'More Vulnerable' developments, such as this one, are suitable in this zone.

4.2 PLUVIAL FLOOD RISK

The GroundSure report states that there is expected to be less than 0.1 m of surface water flooding in a 1 in 1000 year event at the site. This is broadly in agreement with the EA flood mapping data which states there could be a risk of surface water flooding at less than a 1 in 1000 year event but greater than a 1 in 100 year event around the site, but with the site itself having a negligible risk. Further the drainage network within urban areas would be expected to provide protection for a range of events and kept properly maintained. For these reasons, it can be said that the risk of surface water flooding at this site is acceptably low.

4.3 GROUNDWATER FLOODING

The GroundSure Flood Report purchased for this FRA, included in Appendix A, uses a variety of sources, some of which are inherently imprecise, to assess the flood vulnerability of the site. The report found that "There area is not considered to be prone to groundwater flooding based on rock type"

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater is exceeded. Where groundwater flooding susceptibility is indicated, this means that given the geological conditions in the area, the groundwater flooding hazard should be considered in all land-use planning decisions.

It should be noted that groundwater flooding generally occurs slowly and is therefore unlikely to pose an emergency. It should also be noted that the residential dwellings are above the basement/ground floor. Along with the risk not being high, it can be said that the risk of ground water flooding to the residents of this development is negligible.

4.4 SEWER & HIGHWAY DRAINAGE

Due to the development proximity to WaterlooVille and the A3 highway, it is expected that maintenance and failure response times would be sufficient as to reduce damage and risk. Previous minor floods have been identified along the A3 highway, although none specifically highlighting to the developments location, which shows that events may be caused by blockages and defects.

4.5 SURFACE WATER DRAINAGE

The proposed development will not increase the impermeable area of the site. This means that there will be no increase in the amount of run-off from the site, and there will be no additional water flowing into the surface water drainage network. As it is currently an existing Brownfield site, a surface water network system will need to be designed with a reduction of 50% in the run-off rate. This run off will need to be discharged from site via a controlled flow system discharging into existing watercourses or to any existing public sewer. SUDS Hierarchy must be followed when dealing with surface water from site.

4.6 FLOOD COMPENSATION

The site is previously developed, outside the floodplain and current plans show no increase in footprint, therefore the development is not expected to displace flood water and no compensatory storage is considered required.

4.7 AWARENESS OF FLOOD RISK

Whilst the site is at a low risk of flooding the developer should be aware that the site is not immune from flooding. It is recommended that warning notices are clearly displayed within the development (especially in any basement levels) and, if suitable for the types of development proposed, emergency plans are considered.

4.8 RESERVOIR & INFRASTRUCTURE FAILURE

The development is not within the vicinity of large ornamental water features nor reservoirs, therefore, the risk of flooding from infrastructure failing is negligible. Any nearby pumping stations, water mains and sewers are likely to be well maintained with emergency response plans and are not considered a substantial risk.

4.9 ACCESS & EGRESS

The development is not currently seen to be at risk of flooding in a 1 in 100 year plus climate change event, as highlighted by the EA Flood Mapping. Therefore, safe access and egress can be maintained in such an event for residents and emergency services.

5 CONCLUSION

The flood mapping from the EA shows that the site is situated in Flood Zone 1. The development is classed as 'More Vulnerable' by the NPPF. The NPPF states 'More Vulnerable' developments may be permissible in Flood Zone 1. There is less than a 1 in 1000 chance of flooding from the sea or rivers. Surface water flooding may occur around the site in an extreme event, but is not expected to be a significant risk. The proposed site development does not increase the impermeable area and no increase in surface water runoff is expected from the site. It can be said that this development is in an area which has an acceptably low risk of flooding from all considered sources. Based on the findings and assumptions of this document, this report concludes that both the level of predicted flood risk and the surface water runoff are appropriate and commensurate for the proposed development.

6 APPENDICES

APPENDIX A: GROUNDSURE FLOOD REPORT

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