

**PROPOSED HOUSING AT
RUSPER DRIVE, MOOR ROW**

for

RGG DEVELOPMENTS LTD

FLOOD RISK ASSESSMENT

Issue 1 – 31 May 2016

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1. **BRIEF**

This document has been prepared following instructions from MJN Associates and RGG Developments Ltd.

The document reviews the proposed development in accordance with current Planning Guidance namely 'National Planning Policy Framework' (NPPF) and associated 'Technical Guidance' - March 2012, and 'Building Regulation Part H'.

2. **THE SITE**

The site is located to the western end of the village of Moor Row, immediately to the North of Rusper Drive (approximately coordinates 300279/514437), and the potential intended layout for the redevelopment is indicated on Coniston Consultants drawing number RG/KT/15/01 appended to this document. The approximate site redevelopment area is 1.36 ha.

The site is currently greenfield and generally slopes downward from southeast to northwest, generally away from Rusper Drive toward the line of the former railway which is located beyond the rear boundary which is now used as a footpath together with the Coast to Coast cycleway. At the western edge of the site is a surface water ditch which extends in a northerly direction to an outfall beside the cycleway. Similarly, the existing underground foul water system is also located slightly further northeast from the surface water outfall position. All of these features are indicated on the aforementioned Architects drawing. Current EA flood information confirms that the site is located in Flood Zone 1, as illustrated on the attached EA flood map, and being a potential site for domestic housing the development is classed as 'More Vulnerable' in accordance with Table 2 of the aforementioned Technical Guidance.

On the basis that the site area exceeds 1 ha, within Flood Zone 1, we understand that a Flood Risk Assessment is required.

3. **FLOOD RISK**

a) **Watercourse Flooding**

The site is located close to a ditch/watercourse to the West/North of the site, however, the level of this feature is considerably lower than the general topography on the site, which typically slopes towards the ditch.

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It is most unlikely that any surcharge of the latter will have any impact on the development in the event of flooding, and this is reflected by the EA flood map which does not illustrate any flooding in this locality beside the site. Consequently, it is presumed that the site has a low risk of watercourse flooding.

b) **Surface Water Flooding**

The proposed development is identified as having a low risk of surface water flooding, if ground floor levels are not located below existing ground levels.

The general topography of the site is as described above and all intended development levels are generally envisaged as replicating the general site gradient from southeast to northwest, toward the cycleway/site boundary in this locality.

c) **Groundwater Flooding**

Due to the general sloping topography on the site, together with its elevated location within the Village, it is most unlikely that groundwater issues should arise, however, this should be confirmed during the course of a site investigation prior to the commencement of the development. Based on the currently available information, the risk is therefore considered likely to be low.

d) **Reservoir Failure Flooding**

Based on the currently available information, the site is not located close to any such features, and therefore it is considered that there is no risk to this aspect.

e) **Other Sources of Flooding**

It is considered that there are no other potential sources of flooding which apply in this instance.

4. SURFACE WATER DRAINAGE

In accordance with Part H of the Building Regulations, the hierarchy for the discharge of surface water is as follows.

- i) Discharge to soakaway or infiltration system.
- ii) Discharge to watercourse.
- iii) Where other forms of discharge as i)/ii) above are not possible, surface water discharge to the existing sewer network may be possible, possibly with storage and attenuation, subject to UU approval.

Due to the relatively steeply sloping site, it would be difficult to discharge surface water run-off directly into the ground, and guarantee that uncontrolled seepage would not occur off-site, and we understand that there is an insitu underground outfall system already in place serving the properties on Rusper Drive, which has been designed to accommodate a larger future development. This system drains into the ditch/watercourse to the West of the site, and then continues via a culvert, ultimately connecting into the underground drainage system within the cycleway.

Consequently, the most sensible proposition would be to connect the new surface water outfall from the development into this system, limiting the discharge to greenfield run-off, or a maximum of 5 l/sec (whichever is the greater) via a controlled discharge (Vortex valve chamber) with temporary short term storage within the site boundary, as necessary to replicate the existing method of successfully accommodating greenfield run-off. All of the discharge from impermeable areas within the site will be directed to this created SUDS outfall feature, in accordance with currently recognised SUDS guidelines for a 1:30 year return period.

Generally it should be demonstrated that no flooding will occur on any part of the site for the 1:30 year event, excepting where designated to do so. Similarly, flooding should not occur to any of the dwellings during a 1 in 100 year event (including climate change), and flows arising in excess of a 6 hour event for the latter will be managed to the stated conveyance route, all as agreed in writing with the Local Authority.

5. **FOUL WATER DRAINAGE**

We are not aware of any potential issues concerning the existing nearby underground UU Network, and a simple gravity connection is therefore likely to be considered favourable subject to an enquiry/application to UU.

6. **DESIGN FINISHED FLOOR LEVELS**

In all locations the proposed finished ground floor levels will be at or above existing ground levels to ensure that the risk of surface water flooding is not increased.

7. **CONCLUSIONS**

In terms of a Flood Risk Assessment, the potential risks are generally confirmed to be low, as the site location and topography result in it being unlikely that any surface water flooding issues could arise.

Direct infiltration into the existing ground, is not considered to be an ideal proposition due to the sloping topography, which could encourage seepage off-site to neighbouring land.

Groundwater levels are unlikely to be problematical, however, this should be confirmed during a site investigation, prior to the commencement of the development.

An effective existing surface water outfall system is known to be present, to the northwest of the site, which includes provision for future development. Subject to the creation of a controlled discharge into this system, commensurate with current SUDS guidelines, this should allow effective discharge from the site, which should not create any adverse effects

Ground floor levels in the properties should not be below existing ground levels.

A simple gravity foul water connection into the existing nearby UU Network is unlikely to create any adverse effects.

7. **APPENDIX/REFERENCE DRAWINGS**

Coniston Consultants drawing number RG/KT/15/01

Environment Agency Flood Map