

Our ref: SR/SH11118/LET-003

21 January 2014

Mr Matt Naylor
Keyland Developments Ltd
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Dear Matt

Ingbirchworth - Drainage Strategy

We have examined the drainage options for the Ingbirchworth site and are able to report as shown on the attached Drawing No SH11118-004 *Drainage Strategy* and as described below.

Foul Sewerage

The recommended connection to a public sewer is that suggested by Yorkshire Water in their Pre-Planning Sewerage Enquiry return, namely to the 150mm diameter public combined sewer in Wellthorne Lane, adjacent to the northern site boundary. A foul water pumping station located at the south-western corner of the site will collect foul sewage from the houses and deliver it via a rising main running along Annat Royd Lane and Wellthorne Lane to the existing terminal manhole in Wellthorne Lane at a rate not exceeding 5 l/s as stipulated by Yorkshire Water in their Pre-Planning Sewerage Enquiry return.

Surface Water Drainage

The hierarchy set out in Section 3, Part H3 of the Building Regulations requires infiltration and discharge to watercourses to be given priority for surface water disposal, with discharge to public sewer being the last resort. There is also a requirement to adopt SuDS principles and particularly to attenuate discharges to agreed flows by providing storage devices.

As regards infiltration, the site is located on clayey made ground and superficials where it is unlikely that a high enough permeability value would be achieved to make a soakaway system small enough to fit in the gardens of the houses, and even then it would be too close to the buildings to be permitted. Consequently, and as suggested by Yorkshire Water in their Pre-Planning Sewerage Enquiry return, the recommended solution is to connect to the Ingbirchworth Dike watercourse, downstream of the reservoir spillway, a distance of about 150m to the south.



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A SuDS-based attenuation system will be required to reduce the site run-off in the 1 in 100 year event with 30% allowance for climate change to the calculated Greenfield run-off discharge of 8.8 l/s. About 140 m³ of storage will be needed and, ideally, open ponds and swales would be adopted for this, but on a small site such as this it is difficult to find enough room and only underground storage can be relied on to provide an adequate solution. As there is insufficient length of access road to provide this volume in permeable paving cells or oversized pipes, a single underground tank in the rear garden of Unit 5 in the south-east corner of the site would provide a robust solution. There is enough gradient on the land to provide a gradient from the invert of a 10m x 6m x 2.3m deep buried tank to the Ingbirchworth Dike to the south.

As regards water quality, as the development contains car parking areas of less than 800m² and less than 50 car parking spaces, according to the Environment Agency's Pollution Prevention Guidelines *Use and design of oil separators in surface water drainage systems: PPG3*, there will be no requirement for oil interceptors.

We trust that the above is sufficient for your present purposes. If you have any queries or require any further information then please do not hesitate to contact us.

Yours sincerely
for Wardell Armstrong LLP



STEVE RILEY
Associate Director



N P TOVEY
Director

