

Proposed Re-Development, Dave Cook Engineering site, Quadring Road, Donington, Lincolnshire, PE11 4TB
Drainage Strategy Report – 5th May 2020

Further to instruction from Cook Property Holdings Ltd. [CPH] to undertake an assessment of the data provided for the design of the infrastructure on the above site, and following receipt of the topographical site survey, soils investigation reports and other relevant data, including the latest proposed Layout Ref. 235-01SK09-D, please find below our assessment of the infrastructure design that is proposed for this development.

FOUL WATER DISPOSAL

There is an Anglian Water foul-water pumping station immediately to the east of the site and the gravity sewers from the village cross the site frontage in Quadring Road at depths of over 4m.

The proposal would be to carry all the foul water from the site to a backdrop chamber in the back of plot 7 and gravitate out to the adopted FWS in Quadring Road, where we will build a new foul water manhole on the existing sewer. This connection will require a S106 application to Anglian Water, and we are confident that this will be permitted.

The private gravity foul drainage system within the site has therefore been designed in accordance with B.Reg. Doc.H. with no requirement for pumping.

SURFACE WATER DISPOSAL

The existing site is 0.277ha of which 0.158ha [57%] is impermeable.

The proposed site has an impermeable area of 0.133ha [48%]

The site is relatively flat at around 3.65-3.8mOD with only a slight fall from north-west to south east of 150mm.

Soils investigation report C14984A from Ground Engineering confirms ground water seepage at around 2.0m deep and standing water in test pit TP3 at 2.1m deep or approximately 1.67mOD.

Percolation rate results are considered poor, as are the CBR values of around 0.4-0.7%. at 500-700 below ground level.

The 'best' of the percolation results is below the proposed drive, but the low CBR's prevent the design using this for discharge of surface water for fear of future destabilisation.

At 57% the existing site contains more impermeable area than the 48% now proposed and apparently has only traditional soakaways, with no significant attenuation to deal with it.

It is plain that there are no other means of surface water disposal available on this site, as there are no ditches or surface water sewers in the vicinity, so in order to provide SuDS based surface water control in accordance with the Flood and Water Management Act 2010, the current design incorporates a permeable pavement over the full extent of the drive and parking areas, less the area of service corridors, and as many liner soakaway crates as possible with the base set around 1m above the observed ground water levels. The run-off from the houses is to be allowed to attenuate in the pavement sub-base and the crates.

The SuDS design allows for the 100yr + 40% Climate Change volumes to be stored in the permeable pavement subbase and crates, although the half-empty time exceeds the recommended value, we suggest that this is the best solution available as there are no other options.

Any modification to the highway drainage required by Lincs.CC as part of a S184 agreement will be connected into the existing highway surface water systems, so will be separate from the onsite systems.

T. R. Stafford, *Senior Partner*