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# DRAINAGE QUERY CLARIFICATION REPORT FOR PLANNING APPLICATION FUL/2022/0149 FOR HOUSING DEVELOPMENT AT HOLLIN CROSS FARM, WOODPLUMPTON ROAD, BURNLEY.

**20TH DECEMBER 2022**

**Job No. 21061**


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Following deferral of the above application at Planning Committee on 8 December, REFA has been commissioned by our client and the applicant Prospect Homes to provide the below clarification on the drainage queries raised at the committee:

**1. Suitability of the existing surface water culvert proposed to drain the site**

As confirmed on the topographical survey for the site (enclosed) the culvert has a diameter of 600mm.

Utilising the UKSuds website by HR Wallingford we have input a value of 1 hectare to give greenfield run-off rates in l./sec./hectare: This has generated a value of 9.4l./sec./hectare. (Copy of greenfield estimate is attached).

The proposed site area is noted in the FRA as 8.7 hectares this gives a greenfield run-off rate for the 1 in 100-year event of 170.9 l./sec.

Utilising the current planning layout, we have calculated the proposed impermeable areas from roads, driveways and roofs will equate to approximately 3.81 hectares. Impermeable area multiplied by Qbar value of 9.4l./sec./hectare gives a discharge rate of 35.8l./sec. Once the development is complete all these impermeable areas will be restricted to this value of 35.8l./sec. for all events up to the 100year + climate change event. All green areas (approximately 4.89 hectares) will be allowed to drain as per the existing situation. This is in line with Approach 2 from the LLFA consultation report.

Restricting the discharge rate to the Qbar value for all impermeable areas will reduce the overall discharge rate from the development, reducing flows into the existing culvert.

It is also proposed by the client to install a cut-off drain to the South of the development to cater for off-site flows which may have historically discharged to the existing culvert in the Northeast corner of this development, further reducing flows into the existing culvert.

Also attached is a culvert capacity plan which shows an assumed route of the existing 600mm diameter culvert. There is an existing manhole within the verge off New Road which is likely constructed on the existing culvert. If we estimate there is 1.0m of cover at the outfall manhole this gives an approximate invert level of 228.84m with the outfall from the development at an invert level of 233.79m as noted on the survey; these levels give the existing culvert an approximate gradient of 1 in 13. Utilising Causeway Flow design software a 600mm diameter pipe at a gradient of 1 in 13 gives a pipe capacity of 1892l./sec.

Based on the above information the existing 600mm culvert has sufficient capacity to allow the flows from the development, which will be confirmed through the detailed drainage design being prepared to discharge condition 23.

**2. Design of the Drainage Basin and risk of flooding to existing adjacent properties**

Attached are the current feasibility design proposals for the drainage basin which includes levels and sections. In summary:

- The base of the basin is circa 1.5m below the existing level of the boundaries of the adjacent existing properties to the north.
- The basin has been designed to an approximate depth of 1.1m, sufficient to accommodate a very rare 1:100-year flood event + an allowance for climate change; A further 500mm of free board (depth) within the basin has been accounted for as an extra-over flood protection measure
- As shown by the arrows on the plan, the surface water has been designed to flow to the east away from the existing properties.
- Circa 1/3 of the basin (eastern side) has been designed to permanently hold around 300mm of water where the client is to create a wetland/nature feature, whilst the remaining 2/3 of the basin has been designed to only hold water temporarily following rainfall events, and aside from these events will be a predominantly dry area, with access into this area via a gentler 1 in 3 batters.

**3. Potential impact on the existing Septic tanks**

The drainage system for the site (extract below) is being designed to enable the existing septic tanks to remain in situ and we understand that Prospect will be allowing the owners of the septic tanks access over Prospects land to enable the owners to maintain and service the tanks. Given the large area of public open space to work with in this area, this give flexibility over the siting of necessary drainage and service infrastructure to ensure that there is no interference with the operation of the septic tanks.