

7500 Johnstown Drainage Statement

Existing site drainage

Gower Homes have undertaken a number of drainage surveys to determine how the site currently drains using a combination of CCTV camera surveys, dye tracing and trench excavations. The survey has determined all foul and some surface water flows from the existing site is drained to a 100 Dia lateral drain on the eastern boundary, this discharges into a manhole located in the school playing field before connecting into the rear of No. 49 Heol Offa. The 100 Dia sewer then continues to run down the rear of Heol Offa properties and increases to 150 Dia at the outgoing pipe in the inspection chamber to the rear of No. 53.

The 100 Dia pipe is therefore serving the development site and 2 No. existing properties (No. 47 and 49) as No. 51 connects direct to the manhole in No. 53.

The Welsh Water sewer map indicates the sewers in the rear of Heol Offa as a foul sewer but the drainage survey has determined this is also taking surface water flows. Whilst the 100 Dia sewer will have sufficient capacity for foul flows the additional surface water flows will exceed capacity. We understand there has been past flooding incidents and we conclude this will be due to surface water flows exceeding capacity.

Proposed Foul Drainage

Sewers for Adoption 7th Edition states a 100mm diameter pipe has capacity for a maximum of 10 dwellings. The proposed development is for 10 new dwellings so when combined with the existing 2 Heol Offa properties we can potentially discharge a further 8 into this network to the east of the development.

It should be noted that the foul sewers are laid on a reasonable gradient and capacity is likely to be far greater than 10 dwellings on this site.

Welsh Water have confirmed they will accept the above approach and will allow a maximum 8 dwellings into the 100 Dia sewer, with the remainder discharging into the 225 Dia combined sewers in High Street to the west of the site. This is Welsh Waters preferred point of connection for all 10 plots but we can only drain 3 plots via gravity into this asset without significant raising of site levels or the incorporation of a foul pumping station on site.

Proposed Surface Water Drainage

Ground investigation trial pits have determined the site is generally made ground over clay and therefore soakaways will not be feasible to dispose of surface water flows from the development

As there are no watercourses within the vicinity of the site that would allow for a gravity connection from the development, we are proposing a connection into the surface water public sewer network. Welsh Water have confirmed they will allow flows into the network at restricted flow rates equivalent to greenfield run-off rate with a maximum pass forward of 4.1 litres / second.

Conclusion

The existing site drainage consists of undersized pipework, surface water misconnections and at least 1 underperforming soakaway. The proposals will reduce the amount of flow being passed forward into the foul sewers to the rear of Heol Offa but will still utilise this existing lateral connection from the site by connecting foul flows from 7 proposed dwellings. The remaining 3 dwellings will drain into the combined sewer to the west of the site.

Proposed surface water drainage from the site will be designed for a 100-year storm event plus a 40% allowance for climate change with flows being restricted to greenfield run-off rates. The network will be subject to SABS adoption by Wrexham County Borough Council.

The proposals will provide a significant improvement on the existing situation and will reduce any potential flood risk within the development and the neighbouring properties.

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COOPERS

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