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From Tim Dawe

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Subject: **Sewage flows, Glyndwr University**

Date: **21 October 2021**

Dear Steve,

I am writing with a comparison between the sewage flows generated from the former student halls of residence at the university and those generated by the Edwards Homes Ltd residential scheme.

The former halls of residence comprised two blocks which between them provided 267 bed spaces (ref email from Philip Forster, Wrexham CBC, 19 June 2019). The EHL scheme provides 90 homes comprising 12 two-bed units, 69 three-bed and nine four-bed units. This gives a nominal population of 366 persons assuming occupancy rates of three, four and six persons respectively.

The correlation between the number of persons per household and per capita water usage is not necessarily a direct one given that some elements of water usage are shared in multi-person households. In 2020 the per-household daily water usages were reported as follows:

- One person: 149 litres
- Two persons: 276
- Three persons: 367
- Four persons: 450
- Five persons: 523
- Six persons: 592

[<https://www.statista.com/statistics/827278/liters-per-day-household-water-usage-united-kingdom-uk/>
Annual water usage in the UK in 2020 , by number of people living at home]

The total water usage of the former halls of residence is estimated at 39,783 litres daily, treating the halls as separate one-person apartments. For the EHL scheme the average daily water usage is estimated at 40,782 litres. On this basis there is a minor increase in daily water usage and therefore in sewage flows, albeit equivalent to less than 3 litres/head under the EHL scheme. If the levels of occupancy were less than those assumed above or if a small reduction in water usage could be achieved then the difference between the former and proposed site usages will reduce and may even represent a fall in water-usage and in the corresponding sewage volumes compared to the former site use.

Building Regulations now oblige the water fittings and appliances in the EHL scheme to be chosen so as to restrict daily water usage to 105 litres per head. This gives a nominal daily total for the EHL scheme of 38,430 litres based upon the occupancy levels cited above, about 97% of the estimated halls' figure.

The first method above suggests a slight increase in water usage and sewage volumes if the proposed housing scheme were occupied to the fullest degree. However when the design restrictions upon average water usage are taken into account then the calculations suggest a small but similar-scale reduction in usage and sewage volume.



We conclude from this that - in tandem with the likelihood of occupancy across the EHL scheme being less on average than that assumed - the EHL scheme will at worst generate a comparable volume of sewage to that which the former halls of residence generated and that it is more likely that a small reduction in water usage and sewage volumes will in fact be realised.

We trust that this is sufficient for your purposes: please call if you have any queries.

Yours sincerely



Tim Dawe
Associate



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