

Barton House Existing Building Conversion Foul Flow Calculations

Introduction

This brief summary report has been prepared by Kennedy Redford to demonstrate that the conversion of the Barton House building in Rossett will not negatively impact the phosphate discharges rates into the adjacent Welsh Water sewers.

Existing Site

The site is location off Darland Lane, in Rossett Wrexham, LL12 0EL. The site is bounded by Lavister Walks to the northwest, Darland Lane to the southwest and existing housing to the north, east and southeast.

The existing site has an area of approximately 0.14ha and contains a building previously used as both a British Legion Club and working offices, in addition to containing associated car parking and soft landscaping areas.

Proposed Development

It is proposed to convert the existing building into 3No. residential units consisting of 2No. 3-bedroom units and 1No. 2-bedroom unit. The existing carparking and soft landscaping will be re-developed into appropriate driveway and garden spaces.

Existing Foul Drainage

Based on the plans provided by Welsh Water the following sewers are present in or adjacent to the site.

- A 450mm diameter combined sewer flows south to north through the site.
- A 150mm diameter foul located to the north-west of the site in Lavister Walks.
- A 150mm diameter highway drain is also located north-west of the site in Lavister Walks.

The foul water from the existing building discharged into the 450mm diameter combined Welsh Water sewer.

The exact daily foul flow produced within the building is not known but can be estimated. Using the Flows and Loads 4, Table of Loadings, we get an average rate of 50 litres per person per day for *offices without a canteen* and 15 litres per day for *bars serving snacks*. Assuming an average of 8 people worked in the offices each day and 60 people visited the club each day, this gives the following flows per day:

- $(8 \text{ people} \times 50) + (60 \text{ people} \times 15) = 1300 \text{ litres per day.}$

Proposed Foul Drainage

A new system of drainage will be constructed for the proposed development in accordance with BS EN 752 and Building Regulation Part H. The foul flows will be collected in a separate gravity foul water drainage system.

The foul drainage will discharge into the 450mm diameter combined Welsh Water sewer, as per the existing foul water strategy.

Using the Flows and Loads 4, Table of Loadings, we get an average rate of 150 litres per person per day for dwellings. Assuming 3 people live in each 3-bedroom flat and 2 people live in the 2 bed-room flat. This gives the following flows per day:

- 8 people x 150 = 1,200 litres per day

Assuming the majority of this flow occurs over a 12-hour period, this produces an average flow rate of 0.028 l/s and a peak flow rate (6 x average) of 0.17 l/s.

Conclusion

The existing and proposed foul flow rates for the scheme have been estimated using Flows and Loads 4. These calculations show that the proposed conversion will reduce the overall phosphate volume into the 450mm diameter combined Welsh Water Sewer.

If any further information is required on the above, please don't hesitate to contact the undersigned.



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