

TECHNICAL NOTE

BACE

**Benjamin Allen
Consulting Engineers**

Date

08.07.2023

By

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Chkd

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Sheet
Ref

1 – Rev-

Project

16 Lord Street, Wrexham
- Residential Development

Proj Ref

77294

1.0 Introduction

This Technical Note has been produced in order to support a planning application for a new residential development of the former office building of 16 Lord Street Wrexham.

The development is renovation only and no new building elements.

In order to allow full assessment of the Nutrient Neutrality requirements posed by the risk of increase foul water discharge to the existing waste water treatment works and then onwards to a special area of Conservation the below existing and proposed foul water discharge loadings have been calculated/estimated.

The figures are based on passed usage and waste appliances along with expected occupancy numbers for the residential setting.

Pre Application wording:

“It should also be noted that the site lies wholly within the freshwater catchment of the River Dee and Bala Lake Special Area of Conservation (SAC). In January 2021, NRW introduced stringent standards on the discharge of phosphorus into the SAC. It is expected that foul water flows from the proposed development would be disposed of via the mains sewerage system which connects to Five Fords Wastewater Treatment Works. Whilst Five Fords does have an environmental permit and does have phosphate stripping in place, at this time, the permit has not been assessed against the revised phosphorus targets set-out in the conservation objectives for the River Dee and Bala Lake SAC. This work is currently being undertaken by NRW, however the Local Planning Authority is not aware when this will be completed. As the increased foul waste water flows to the WWTW would result in an increase in phosphate discharges into the SAC, accordingly it is not possible to conclude that the development is unlikely to adversely impact upon the SAC at this present time. Adversely impacting upon a statutorily protected site represents a conflict with UDP Policy EC6 and TAN 5, together with Planning Policy Wales and Future Wales.”

2.0 Existing Foul water Discharge loading – estimated.

The existing building setting was a 4 storey office block used by the local council and job seekers organisation. The existing floor area was approximately 650m² per floor.

Using British standard guidance for appliance usage would not give a true representation of the foul loading due to the small appliance number relative to large occupancy and floor area figures.

It would therefore be suggested to use the below British Water “flow and loads” document No 4 for more accurate existing foul flow rates.

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Completed:

- Existing Floor area 650m² x 4.
- Existing occupancy (office space) approximately 60 persons – 15 per floor.

Using BW Flows and Loads table it can be seen that office use without canteen gives suggested flows of 50 Litre, per person, per day

This then equate to:

50 x 60 = 3000 Litres of foul flows per 24 hours as the estimated existing foul flow rate.

3.0 Proposed Foul water Discharge loading – estimated.

The proposed building setting is for full residential conversion of the 4 floors to create 23No 1 and 2 bedroom apartments. The below accommodation schedule highlights the number of beds and number of persons.

ACCOMMODATION SCHEDULE		Compliance with The Welsh Housing Quality Standard for:		
Apartment number:	Gross Internal Area (GIA):	Minimum floor area for bedrooms	Min. bedroom widths & ceiling heights	Nominal Occupancy living space area
Apartment 01: 2B4P	82m ²	Yes	Yes	Yes
Apartment 02: 1B2P	58m ²	Yes	Yes	Yes
Apartment 03: 1B2P	60m ²	Yes	Yes	Yes
Apartment 04: 2B4P	79m ²	Yes	Yes	Yes
Apartment 05: 1B2P	60m ²	Yes	Yes	Yes
Apartment 06: 1B2P	59m ²	Yes	Yes	Yes
Apartment 07: 2B4P	88m ²	Yes	Yes	Yes
Apartment 08: 1B2P	60m ²	Yes	Yes	Yes
Apartment 09: 2B4P	78m ²	Yes	Yes	Yes
Apartment 10: 1B2P	65m ²	Yes	Yes	Yes
Apartment 11: 2B4P	76m ²	Yes	Yes	Yes
Apartment 12: 1B2P	54m ²	Yes	Yes	Yes
Apartment 13: 1B2P	48m ²	Yes	Yes	Yes
Apartment 14: 2B4P	90m ²	Yes	Yes	Yes
Apartment 15: 1B2P	49m ²	Yes	Yes	Yes
Apartment 16: 2B4P	64m ²	Yes	Yes	Yes
Apartment 17: 1B2P	66m ²	Yes	Yes	Yes
Apartment 18: 2B4P	76m ²	Yes	Yes	Yes
Apartment 19: 1B2P	54m ²	Yes	Yes	Yes
Apartment 20: 1B2P	48m ²	Yes	Yes	Yes
Apartment 21: 2B4P	75m ²	Yes	Yes	Yes
Apartment 22: 1B2P	51m ²	Yes	Yes	Yes
Apartment 23: 1B1P	42m ²	Yes	Yes	Yes
Ancillary spaces				
Circulation spaces				

The residential proposal have a suggested occupancy of 63 persons.

Again using the BW flows and loads no 4 information but for a residential setting it is determined that suggested flow rates are 150Litres, per person, per day.

This then equate to:

150 x 63 = 9450 Litres of foul flows per 24 hours as the estimated proposed foul flow rate.

4.0 Conclusion

From the existing and proposed figures generate it can be seen that there would potentially a 3 fold increase in foul flows due to the change of use proposals. The peak flow figures would however vary greatly with the residential setting having noticeable morning and evening peaks and the existing office setting having a more constant rate through out the day.

In terms of volume and expected impact on the downstream waste water treatment works there would and approximate 6.5m³ increase in foul volume arriving at the treatment works over a 24 period. This would be considered a relatively small increase given the catchment area.

This volume increase equates to a very small litres per second increase and would therefore not be considered to have a significant impact on the capacity or efficiency of the existing waste water treatment works. Any Nutrient Neutrality assessment should consider an increase discharge rate from the site at approximately 0.1Litres per second.

This assessment is an approximation only to allow for further consideration of the possible adverse effect the development may have on the special area of conservation and to allow for a possible completion of a Nutrient Neutrality Assessment and a Habitats regulations assessments (HRA).

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Director

For and on behalf of

BACE – Benjamin Allen Consulting Engineers

REVISION SCHEDULE					
Rev	Date	Comment/details	Prepared By	Reviewed By	status

