



Engineering Limited



Oak Road, Wrexham Industrial Estate, Wrexham, North Wales LL13 9RG
Telephone: Wrexham (01978) 661523 Fax (01978) 661227
Web: www.rrengineeringltd.co.uk

R&R ENGINEERING

PHOSPHATE OUTPUT ASSESSMENT

OAK ROAD, WREXHAM, LL13 9RG

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Michael Tolley



Engineering Limited



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1. INTRODUCTION

1.1 Purpose of this report

- 1.1.1** In September 2021 R&R Engineering Ltd (R&R) received planning approval ISY P/2020/0679 from Wrexham County Borough Council (WCBC) for a proposed re-development of R&R Engineering's units on the North side of Oak Road. The re-development does lie within the River Dee and Bala Lake Special Area of Conservation (SAC).
- 1.1.2** R&R Engineering have undergone an extensive research task to make an assessment of the potential phosphate outputs to the River Dee SAC from the existing and proposed development on site in order to progress planning approval.
- 1.1.3** The purpose of this report is to satisfy Natural Resources Wales (NRW), a key consultee in the planning process, that the proposed 're-development will not increase the current phosphate levels to the River Dee SAC. The development will in fact reduce the current phosphate levels.

1.2 PHOSPHATE SOURCES

- 1.2.1** Phosphate inputs to the River Dee SAC originate from a number of sources within the catchment. Sewage effluent from waste water treatment and agriculture are the largest sources of phosphorous to waterbodies¹.
- 1.2.2** The proposed re-development has the potential to contribute phosphorous to the River Dee SAC via disposal of foul water (toilets and kitchen waste water) to the Five Fords Wastewater Treatment Works operated by Welsh Water. Volumes of waste water generated relate directly to the intended use of the sites.

1.3 EXISTING AND PROPOSED DEVELOPMENT

- 1.3.1** The proposed development will demolish an existing site that R&R use for staff and workshop areas, and re-develop new units for storage and warehouse usage. The proposed new development will use the existing foul sewerage line to the Five Fords Wastewater Treatment Works. Both the existing use and proposed business use(s) have been taken into account in this assessment.

¹ <https://www.flintshire.gov.uk/en/PDFFiles/Planning/Examination-Library-Documents/FCC/FCC031-Phosphate-Strategy.pdf>



R&R Engineering Ltd

- 1.3.2** The proposed development site was previously used by R&R Engineering Ltd.
- 1.3.3** R&R Engineering Ltds workspace comprised of multiple buildings. The uses of the buildings varied over the years. In the early years, it was used as additional workshop space for the welders. There was enough space for 30+ fabricators. In its latter years, it was used for office space, storage, toilet facilities (staff and visitors) and a mess/ kitchen area for staff use. Other areas around the site included bin storage, service points (foul, water supply, electricity supply) and gas bottle storage. Above ground diesel tanks were also present on site at one stage. The total floor area of the previously used building was 334.29m². Total land area is 0.0818ha.
- 1.3.4** The intended use for the area was to be another workshop unit for welder fabricators to operate out of. In the peak of R&R's employment years, the area was home to circa 80+ employees, all of whom would have used the toilet/ mess facilities that were available at the time. These toilet/ mess facilities were not altered until the moment of demolition. In its latter years, the site was used to facilitate all of the R&R office staff. Average numbers for this were 15+ people.
- 1.3.5** Waste water generated from the site was disposed to foul sewer.

PROPOSED DEVELOPMENT

- 1.3.6** The proposed development will see the existing R&R buildings demolished.
- 1.3.7** One new building on site will be developed, being split into two separate units via an internal partition wall. The unit is built comprising of one disabled W/C per unit. Total area of the new units will be 254m². Total land area is 0.0723ha as R&R are retaining some land for access to their Laser Cutting Site.
- 1.3.8** There will be a significant difference in the number of people using the area. The development only has parking facilities for 3 cars per unit, so discharge into the foul sewerage will be decreased significantly.
- 1.3.9** Waste water from the main unit will be disposed to foul sewer.
- 1.3.10** All surface water is managed on-site via two bio retention areas. It is also passed through catch-pits. An attenuation tank is also installed to house any excess water, as the water is discharged to the surface water drainage scheme via a hydro-brake chamber, with a discharge rate of 0.3l/s. Surface water is not thought to be a contributor to phosphate in the natural environment.



2 PLANNING CONTEXT

2.1 National Resources Wales Planning Policy Statement- Phosphate

- 2.1.1** In January 2021, National Resources Wales published an evidence package outlining phosphate levels for all river SACs across Wales following a review of tighter standards by the Joint Nature Conservation Committee. In the WCBC area it was found that the River Dee SAC failed to meet these standards.
- 2.1.2** As part of the evidence, a planning policy statement was released by NRW stating that all proposed developments within an SAC should be screened by the Local Planning Authority (LPA) via a Habitats Regulation Assessment (HRA) to prevent damage to SACs as a result of increased phosphate levels associated with new developments.
- 2.1.3** NRW advised WCBC that existing phosphate discharge permit levels at waste water treatment works were insufficient to ensure no further damage would be incurred to the River Dee SAC. With that in mind, WCBC and NRW are seeking either phosphate neutrality or adoption of alternative phosphate removal via direct treatment of phosphate generating waste water to remove phosphorous or offset land use.

2.2 Dee Catchment Phosphorous Reduction Strategy

- 2.2.1** This document, developed by Wrexham and Flintshire County Borough Councils forms the basis for future assessment of development against the NRW planning policy statement on phosphate output to the Dee SAC.
- 2.2.2** It sets out the strategic approach for delivering phosphorous reductions in the River Dee SAC.
- 2.2.3** The strategy is still in consultation and, whilst its recommendations are taken into account in this assessment, future changes to the strategy, development of a nutrient management board and updates to future local development plan (LDP) policies may alter future assessments of phosphate outputs from development.



3 ESTIMATED PHOSPHATE OUTPUT

3.1 Calculating Phosphate Outputs

- 3.1.1** Guidance on reporting and assessing phosphate outputs from development is relatively new (2020 England², 2021 in Wales³) as such, modelling and calculation tools are scarce and those available are still in their infancy.
- 3.1.2** Calculators have been developed to support the assessment of phosphate potential within the Local Development Plans (LDPs). LDPs focus on wider scale housing needs and economic development potential rather than specific proposed developments.
- 3.1.3** As part of this assessment publicly available phosphate calculators have been evaluated against available information on the proposed re-development. Whilst there was no 'perfect fit' calculator for the proposed new development, the calculator developed by Somerset Councils Partnerships⁴ to assess their LDP, does offer some insights.
- 3.1.4** The calculator offers good data on potential phosphate offset options should R&R need to pursue such data for other projects. The assessment within the Somerset model calculates estimated outputs based on land area and wide-ranging land use categories rather than the more detailed assessment of estimate waste-water outputs. As such, it is unable to give an accurate representation for both existing and proposed development at R&R.
- 3.1.5** However, despite limitation, the Somerset model has been used to offer an indication and comparison of potential phosphate outputs from both existing and proposed re-development at R&R.
- 3.1.6** The best fit category, "Urban Development" has been used for this assessment. As mentioned above, potential phosphate outputs for this re-development will arise from toilet and very limited kitchen uses, rather than across the whole site. With this in mind, total indoor floor area has been used as opposed to total land area in the calculator.

3.2 Existing Operations Estimated Phosphate Output

- 3.2.1** The proposed re-development will demolish the existing building(s) that R&R use(d). As such, the floor area of these buildings has been used in the calculator. This totals 334.29m².

² <https://www.push.gov.uk/wp-content/uploads/2020/06/Natural-England%E2%80%99s-latest-guidance-on-achieving-nutrient-neutrality-for-new-housing-development-June-2020.pdf>

³ <https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/our-role-in-planning-and-development/advice-to-planning-authorities-for-planning-applications-affecting-phosphorus-sensitive-river-special-areas-of-conservation/?lang=en>

⁴

https://ssccust1.spreadsheethosting.com/1/3d/08e177701b0026/Copy%20of%20P%20budget%20Calc_V3.1%20developer%20version/Copy%20of%20P%20budget%20Calc_V3.1%20developer%20version.htm



- 3.2.2** The Somerset calculator estimates total phosphate output for a site of this size under the Urban Development Category is 0.03kg/year.

3.3 Proposed Development Estimated Phosphate Output

- 3.3.1** The proposed development has a total floor area of 254m².
- 3.3.2** The estimated total phosphate output for a site of this size under the Urban Development category is 0.02kg/year.
- 3.3.3** Whilst limitations to this methodology are identified above, this demonstrates a small potential decrease between existing and proposed operations.

4 CONCLUSIONS

4.1 Comparing Current to Proposed Use

- 4.1.1** The estimated amount of people and waste water generation and therefore, phosphate output across the site will be significantly reduced over the course of a year as a result of a removal of the larger, higher footfall building, and replaced with a smaller unit with less WC/ kitchen/mess facilities. This in itself is likely to reduce waste water and therefore phosphate outputs from site.
- 4.1.2** Estimated total phosphate outputs using the Somerset Calculator show a clear reduction from current uses.

4.2 Waste Water Disposal

- 4.2.1** The waste water discharged to foul sewer as a result of the proposed re-development will come from on site toilets and the small kitchen/ mess area within. This is expected to be significantly lower than the outputs generated from the sites current use, where it was home to more WCs and a lot more staff members, therefore, producing more waste from toilets and kitchen/ mess areas.

4.3 Phosphate Neutrality

- 4.3.1** It is in our conclusion that the cumulative reduction of staff numbers across the site, combined with the reduction of toilets accessible to said users, will reduce phosphate outputs from Site when compared to prior operations/ use. This should be sufficient to meet NRW's requirement to evidence no increase in phosphate outputs as a result of the proposed development.