

Air Quality Neutral Assessment

Kneller Hall

For Radnor House School Limited

Quality Management

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Date of Issue	05/09/2022		Revision Number	Rev 1
Job Number	JAR02925			

Revision History

Rev	Date	Status	Reason for revision	Comments
0	05/09/2022	Draft	-	-
1	07/09/2022	Final	Final Report	-

Calculations or models file name, link and location

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1 Introduction

- 1.1 This supplementary Air Quality Neutral report quantifies the emissions of atmospheric pollutants from the development at source (i.e. from vehicles and building plant) and compares the emissions with official benchmark levels that define neutrality. This report complements RPS' air quality impact '*Air Quality Assessment: Kneller Hall*' report. That air quality assessment report considered the impacts of the development on ambient air quality at the point of exposure (i.e. at sensitive receptor locations) by comparing predicted levels with Air Quality Strategy objectives.
- 1.2 The requirement for this Air Quality Neutral report is driven by Policy SI 1 in the London Plan [1], entitled 'Improving Air Quality', which states that development proposals should "... *be at least 'air quality neutral'*".
- 1.3 The 'air quality neutral' policy is designed to address the problem of multiple new developments that individually add only a small increment to pollution at the point of human exposure (i.e. to ambient concentrations), but cumulatively lead to baseline pollution levels creeping up. The policy requires developers to design their schemes so that they are at least Air Quality Neutral in terms of emissions at source.
- 1.4 The Greater London Authority (GLA) Sustainable Design and Construction Supplementary Planning Guidance (SPG), published in April 2014, provides a formal definition for the term 'air quality neutral' and allows a transparent and consistent approach to demonstrating whether a development is 'air quality neutral'. This Air Quality Neutral report determines whether the proposed development is air quality neutral using the GLA SPG calculation method that separately quantifies building emissions (from heating and power plant) and transport emissions.

2 Methodology - Air Quality Neutral Calculation

Building Emissions

- 2.1 The SPG requires a comparison of the 'Total Development Building Emissions' with the 'Total Building Emissions Benchmark' (Total BEB).
- 2.2 For this development, no on-site combustion is proposed. As a result, the calculations for the 'Total Development Building Emissions' have been scoped out of the assessment.

Transport Emissions

- 2.3 The SPG requires a comparison of the 'Total Development Transport Emissions' with the 'Total Transport Emissions Benchmark' (Total TEB).
- 2.4 The number of vehicle movements generated by the operation of the development has been provided by the project's transport consultants, along with the average trip length. For this development there is only one land use. The number of vehicle movements has been multiplied by the average distance driven to derive the vehicle.km term. The total vehicle.km for the development has then been multiplied by the NO_x and PM₁₀ emission factors (in kg/annum) provided in the SPG to determine the 'Total Development Transport Emissions'.
- 2.5 For each pollutant, the 'Total Development Transport Emissions' have been compared with the 'Total TEB'. Where the 'Total Development Transport Emissions' exceeds the 'Total TEB', the need for on or off-site mitigation has been identified.

3 Results of Air Quality Neutral Calculation

Transport Emissions

3.1 [Table 3.1](#) and [Table 3.2](#) set out the annual mass of NO_x and PM₁₀ emitted by the proposed development per annum, respectively. The land use class for a school does not have an emission benchmark for transport. Instead, the emissions benchmarks for Land Class Use B1 (Office) have been used for the calculations, as the Proposed Development will only be operational during weekdays and most traffic movements are likely to be from staff members.

Table 3.1: NO_x - Total Development Transport Emissions (kgNO_x/annum)

Land Use Class	Development trip rate (vehicle/day)	Average Trip Length (km)	Vehicle.km/ annum	Development Emissions (kgNO _x /annum)
School	509	6.4	1,189,304	420
Total Development Transport Emissions (kgNO_x/annum)				420

Emissions factor for outer London = 0.353 g/vehicle.km

Table 3.2: PM₁₀ - Total Development Transport Emissions (kgPM₁₀/annum)

Land Use Class	Development trip rate (vehicle/day)	Average Trip Length (km)	Vehicle.km/ annum	Development Emissions (kgPM ₁₀ /annum)
School	509	6.4	1,189,304	72
Total Development Transport Emissions (kgPM₁₀/annum)				72

Emissions factor for outer London = 0.0606 g/vehicle.km

3.2 The Total Development Transport Emissions have been calculated assuming that the trips occur in 365 days of the year. This is likely to be an over-estimate.

3.3 [Table 3.3](#) and [Table 3.4](#) set out the benchmark mass emissions of NO_x and PM₁₀ against which the transport emissions from the development have been compared.

Table 3.3: NO_x - Total Transport Emissions Benchmark (kgNO_x/annum)

Land Use Class	Gross Floor Area (m ²)	NO _x TEB (g/m ² /annum)	Transport Emissions Benchmark (kgNO _x /annum)
School	8813	68.5	604
Total Benchmarked Transport Emissions (kgNO_x/annum)		604	

Table 3.4: PM₁₀ - Total Transport Emissions Benchmark (kgPM₁₀/annum)

Land Use Class	Gross Floor Area (m ²)	PM ₁₀ TEB (g/m ² /annum)	Transport Emissions Benchmark (kgPM ₁₀ /annum)
Class D1 (School)	8813	11.8	104
Total Benchmarked Transport Emissions (kgPM₁₀/annum)		104	

3.4 [Table 3.5](#) provides a comparison of the development transport emissions with the benchmark.

Table 3.5: Summary of Transport Results

	Total Development Transport Emissions	Total Transport Emissions Benchmark	Difference: Total Development – Transport Emissions Benchmark
NO _x (kg/annum)	420	604	-184
PM ₁₀ (kg/annum)	72	104	-32

3.5 For NO_x, the Total Development Transport Emissions fall below the Total Benchmarked Transport Emissions by 184 kgNO_x/annum. For PM₁₀, the Total Development Transport Emissions falls under the Total Benchmarked Transport Emissions by 32 kgPM₁₀/annum.

3.6 In accordance with the SPG, no further action will be required.

4 Conclusions

- 4.1 The results of the air quality neutral calculation demonstrate that the total transport emissions are below the relevant transport benchmarks and no mitigation measures need to be considered.

Glossary

AQMA	Air Quality Management Area
BEB	Building Emissions Benchmark
CHP	Combined Heat and Power
GLA	Greater London Authority
Impact	The change in atmospheric pollutant concentration and/or dust deposition. A scheme can have an 'impact' on atmospheric pollutant concentration but no effect, for instance if there are no receptors to experience the impact.
MAQS	Mayor's Air Quality Strategy
SPG	Supplementary Planning Guidance
TEB	Transport Emissions Benchmark

References

- 1 GLA, March 2021, The London Plan –The Spatial Development Strategy for Greater London.