Air Quality Neutral Assessment

Alpha House, 24-27 Regis Road

For .Big Yellow Self Storage Company Limited

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Quality Management

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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 *'Proposed Mixed-use Development at Alpha House, 24-27 Regis Road: Air Quality Assessment'* 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 significant on-site combustion plant 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 For each land-use class, the number of vehicle movements generated by the operation of the development has been provided by the project's transport consultants. The average trip length (km) for each land-use class could not be provided; however, consistent with the examples provided in the Air Quality Neutral Planning Support Update [2], the average London distances driven per annum for the different development categories have been obtained. The number of vehicle movements has been multiplied by the average distances driven for each land use class to derive the vehicle.km term. The total vehicle.km for the development has then been multiplied by the NO_X and PM_{10} emission factors (in kg/annum) provided in the SPG to determine the 'Total Development Transport Emissions'.

2.5 The SPG provides TEB factors for NO_X and PM_{10} as mass emissions per dwelling per annum for residential properties and mass emissions per floor space per annum for all other land- use classes. A separate TEB for each pollutant (NO_X and PM_{10}) has been calculated for each land-use class. A 'Total TEB' has been calculated as the total of the individual TEBs for each land-use class and for each pollutant.

2.6 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 PM_{10} emitted by the proposed development per annum, respectively.

Table 3.1: NOx - Total Development Transport Emissions (kgNOx/annum)

Land Use Class	Development trip rate (vehicle/day)	Average Trip Length (km)	Vehicle.km/ annum	Development Emissions ($kgNO_x$/annum)
Offices (E(g)(i))	0	9.3	0	0
Storage and Distribution (B8)	115	*9.3	390,368	164.89
Total Development Transport Emissions (kgNOx/annum)				**164.89**

Emissions factor for the Central Activity Zone (CAZ) = 0.4224 g/vehicle.km
*In the absence of an average trip length for Storage and Distribution (B8) land uses, the average trip length for Retail land use has been used as a conservative proxy.

Table 3.2: PM_{10} - Total Development Transport Emissions ($kgPM_{10}$/annum)

Land Use Class	Development trip rate (vehicle/day)	Average Trip Length (km)	Vehicle.km/ annum	Development Emissions ($kgPM_{10}$/annum)
Offices (E(g)(i))	0	9.3	0	0
Storage and Distribution (B8)	115	*9.3	390,368	28.61
Total Development Transport Emissions ($kgPM_{10}$/annum)				**28.61**

Emissions factor for the CAZ = 0.0733 g/vehicle.km
*In the absence of an average trip length for Storage and Distribution (B8) land uses, the average trip length for Retail land use has been used as a conservative proxy.

3.2 Table 3.3 and Table 3.4 set out the benchmark mass emissions of NO_X and PM_{10} 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)	NOx TEB (g/m^2/annum)	Transport Emissions Benchmark (kgNOx/annum)
Offices (E(g)(i))	566	1.27	1
Storage and Distribution (B8)	8,997	*169	1520
Total Benchmarked Transport Emissions (kgNOx/annum)			**1521**

*In the absence of NOx TEB for Storage and Distribution (B8) land uses, the NOx TEB for Retail land use has been used instead as an appropriate proxy.

Table 3.4: PM_{10} - Total Transport Emissions Benchmark ($kgPM_{10}$/annum)

Land Use Class	Gross Floor Area (m^2)	PM_{10} TEB (g/m^2/annum)	Transport Emissions Benchmark ($kgPM_{10}$/annum)
Offices (E(g)(i))	566	0.22	0
Storage and Distribution (B8)	8,997	*29.3	264
Total Benchmarked Transport Emissions ($kgPM_{10}$/annum)			**264**

*In the absence of PM_{10} TEB for Storage and Distribution (B8) land uses, the PM_{10} TEB for Retail land use has been used instead as an appropriate proxy.

3.3 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)	165	1521	-1356
PM_{10} (kg/annum)	29	264	-235

3.4 For NO_X, the Total Development Transport Emissions falls below the Total Benchmarked Transport Emissions by 1356 $kgNO_X$/annum. For PM_{10}, the Total Development Transport Emissions fall below the Total Benchmarked Transport Emissions by 235 $kgPM_{10}$/annum.

3.5 In accordance with the SPG, no further action will be required either by on-site mitigation measures or by off-setting.

4 Conclusions

4.1 The total transport emissions fall below the relevant benchmarks during the operational phase of the proposed development. On-site mitigation measures and options for offsetting excess emissions are not required.

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.

2 AQC, April 2014, Air Quality Neutral Planning Support Update: GLA 80371

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