



1rAQ10019

REPORT FOR

AIR QUALITY TECHNICAL NOTE

AT

CROWN STREET PHASE 2 (PHASE B), MANCHESTER

PRODUCED FOR

RENAKER BUILD LIMITED

PRODUCED BY

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PLANNING AND ENVIRONMENTAL CONSULTANTS LTD**

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1 INTRODUCTION

Planning and Environmental Consultants (PEC) Ltd have been commissioned by Renaker Build Limited, hereafter referred to as “the Client” to undertake an Air Quality Technical Note in support of the reserved matters application for Phase B (Tower C5) of Crown Street Phase 2. It is understood that a technical note is required to outline that the conclusions of the original EIA assessment remain valid.

The Air Quality Environmental Impacts Assessment (EIA), in support of a hybrid planning application for Crown Street Phase 2 was approved under application 126668/FO/2020 on 3 August 2020. The hybrid planning permission established the principle of development for the outline phase, Phase B (Tower C5).

Air quality was scoped into the EIA submitted and approved as part of the hybrid planning permission (ref: 126668/FO/2020) - Chapter 6 (Air Quality) Environmental Statement Volume 1. Following the submission of the planning application (ref: 126668/FO/2020) to Manchester City Council (MCC), planning permission for the development was granted subject to planning condition 22 in relation to Air Quality:

Prior to first occupation of Phase B, an Air Quality Impact Assessment (AQIA) shall be submitted to and approved in writing by the Local Planning Authority. The AQIA shall include full details of all mitigation measures required for the development. Any agreed mitigation measures shall be implemented in full before first occupation of the development and shall remain in situ whilst the development is in operation.

2 CHANGES TO BACKGROUND CONCENTRATIONS AND MONITORING DATA

The following section provides a summary of changes to baseline conditions which may affect the validity of the previous impact assessment, as well as potential exposure to elevated pollutant concentrations during the occupation of the Proposed Development.

At the time of the previous assessment, 2019 monitoring data undertaken by MCC and SCC had not been released, as such 2018 monitoring data, alongside 2018 background and emission factors formed the baseline for this assessment.

Table 1 provides a comparison of predicted DEFRA background pollutant concentrations used within the previous assessment, against those predicted for 2019. Data for 2020 onwards has not been considered due to the reduction in background concentrations as a result of covid-19.

Table 1 Comparison of Background Pollutant Concentrations

Pollutant	Predicated Background Concentration (µg/m³)		
	2018	2019	Change
NO _x	36.21*	33.56*	-2.65
NO ₂	23.37*	22.79*	-0.85
PM ₁₀	12.71	13.47	+0.76
PM _{2.5}	8.42	8.69	+0.26

DEFRA 1km x 1km Grid Square – 383500, 397500

*NO_x removal of A-Roads applied

As indicated in Table 1, predicted NO₂ background concentrations have reduced since 2018 and remain below the annual mean Air Quality Objectives (AQO) of 40µg/m³. PM₁₀ and PM_{2.5} experienced a marginal increase but critically remained below the annual mean Air Quality Objectives (AQO) of 40µg/m³ and for 20µg/m³ respectively.

Subsequently, it is considered that there would be no worsening of current baseline conditions than those assessed within the previous submitted ES chapter.

Regarding MCC and Salford City Council (SCC) Air Quality monitoring data, a comparison of 2018 and 2019 monitoring results are provided in Table 2.

Table 2 Comparison of Monitored Pollutant Concentrations

ID	Type	NGR (m)		Annual Mean Concentration ($\mu\text{g}/\text{m}^3$)		
		X	Y	2018	2019	Change
MAN29A	Urban Traffic	384117	397505	58.80	55.40	-3.37
MAN77	Urban Centre	383602	397488	40.99	43.66	+2.67
MAN82	Urban Traffic	384233	397287	52.80	51.60	-0.37
SA59*	Urban Traffic	381822	397895	33.33	32.40	-0.87
SA60*	Urban Traffic	382445	397724	40.20	36.66	-3.57

*SCC Diffusion tube

Similar to background concentrations, the monitored data presented in Table 2 indicates that pollutant concentrations have undergone a net decrease within the study area since the completion of the previous assessment, with the exception of MAN77 which is considered least representative of the proposed development site, given its location within a street canyon, adjacent to the rail lines.

The reductions to both background concentrations predicted by DEFRA and monitored NO_2 concentration undertaken by the MCC and SCC, would consequently lead to a reduction of baseline concentration and associated impacts.

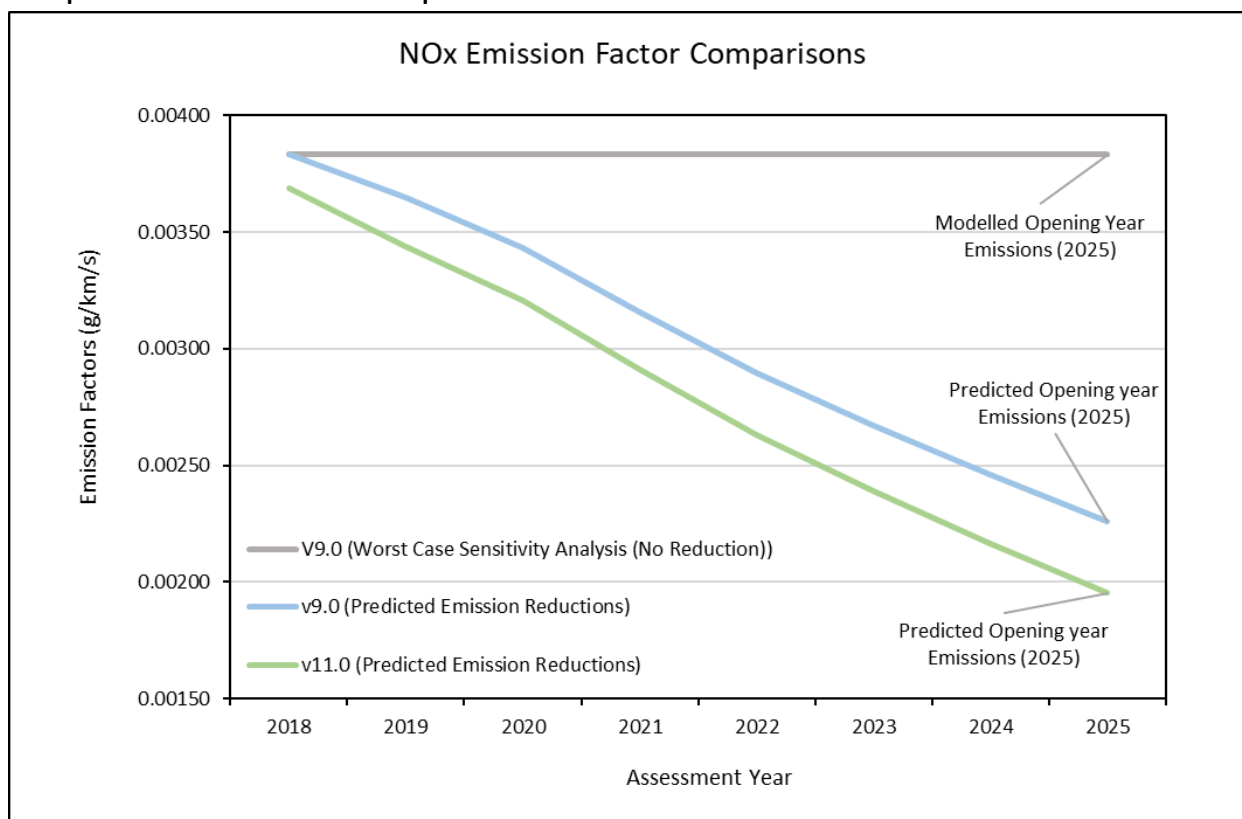
3 CHANGE TO EMISSION FACTORS

Air quality is predicted to improve in the future (due to the current shift towards a greater production and uptake of low emission vehicles, supported by national government targets). However, in order to provide a robust assessment, the previous assessment used 2018 emission factors within the dispersion model, to represent the anticipated future year of the development.

As such, the use of 2025 traffic data with 2018 emission factors obtained from Eft v9.0, within the previous assessment was considered to provide an absolute worst-case scenario, which significantly overestimates potential impacts. A sufficient level of confidence can therefore be placed upon the previous assessment conclusions regarding impact significance.

Since the previous AQA, EFTv11.0 was released which provides a more realistic emission profile based on real world simulations. A comparison of NO_x emission factors obtained from v9.0 and v11.0 are provided in Graph 1.

Graph 1 NO_x Emission Factor Comparisons



* Factors based on 1,000 AADT (0% HDV) average speed of 50km/h.

As detailed in Graph 1, this worse case approach does not consider any future emission reductions and accounts for an 86% increase when compared to the more realistic 2025 predictions provided by Eft v11.0.

4 ON SITE MITIGATION MEASURES

As indicated in Chapter 6 of the 2020 ES Chapter, predicted NO₂ concentrations exceed the AQO of 40.0µg/m³ across the ground and first floor levels of the Phase B (Tower C5) development. It was therefore proposed that the inclusion of mechanical ventilation should be implemented throughout all residential units across the ground and first floor of Building C4.

It has since been confirmed that there would be no residential units located upon the ground or first floor of the proposed development. Additionally in accordance to the IAQM and EPUK Guidance highlighted in Table 6.2 the annual mean objective does not apply at the proposed commercial floorspace within Phase B (Tower C5). This is due to the intermittent nature of access to this land use, in which users are present for intermittent and irregular periods.

Predictions of 1-hour NO₂ concentrations were not produced as part of the dispersion modelling assessment. However, as stated in LAQM (TG22) if annual mean NO₂ concentrations are below 60µg/m³ then it is unlikely that the 1-hour AQO will be exceeded. As such based on the results in Table 6.21 within Chapter 6 of the 2020 ES Chapter, it is not predicted that concentrations will exceed the 1-hour mean AQO for NO₂ across the development Site in the opening year scenario.

NO_x filtration was previously discussed at commercial and amenity spaces within the 2020 ES Chapter as a recommendation only in the interests of a thorough mitigation strategy, but are not a direct requirement using current LAQM TG22 guidance.

A high specification of air tightness on the windows and doors should be incorporated at all habitable and commercial units on the ground to first floors of Phase B (Tower C5). This provides freedom of choice over whether natural ventilation is preferable during certain periods. The key to reducing exposure using this method is to ensure occupants are informed about the potential impacts associated with prolonged exposure to elevated pollution levels. As such, it may also be possible to provide residents with a welcome pack containing air quality information which will allow them to follow appropriate advice on protection against high concentrations during certain periods.

5 CONCLUSION

PEC Ltd were commissioned by Renaker Build Limited to undertake an Air Quality Technical Note in support of the reserved matters application for Phase B (Tower C5) of Crown Street Phase 2.

A review of data used to undertake the previous assessment demonstrates that air quality has improved marginally since the previous submission. Reductions in background concentrations predicted by DEFRA and monitored pollutant concentrations undertaken by the MCC indicate that the previous assessment was highly conservative in its consideration of pollutant concentrations in relation to the national Air Quality Objectives (AQO).

Furthermore, advancement to vehicle technologies since 2018, as well as real world monitoring have resulted in wholesale reduction to road vehicle emission factors. When comparing previous and current baseline scenarios (2018 and 2019, respectively) this indicated a reduction of 7% between 2018 and 2019 emission factors.

In light of the baseline information, including considerations to background concentrations, MCC monitoring data and emission factors, it is concluded that air quality at the proposed development is unlikely to exceed that predicted during the previous assessment.

Based on the above, Air Quality impacts associated with the Proposed Development will not exceed those previously predicted, and a worst-case scenario has been robustly assessed throughout all elements of the assessment.

It is therefore considered that no further assessment is necessary, and furthermore Air Quality should not be viewed as a constraint to planning approval and is sufficient to discharge condition 22.