

Technical Note – Plot 10b

From: Cundall Air Quality Team

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Subject: 1033414- Plot 10b

1. Introduction

Cundall was commissioned to produce an Air Quality Chapter as part of an Environmental Statement (ES) to support the planning application of the proposed development at Plot 10b, Manchester. Air Quality Chapter 6 described the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts, and finally, the likely residual impacts after these methods have been adopted.

The Chapter was accompanied by a technical appendix, Air Quality Appendix 6, which provided further detail on the methodology for the dispersion modelling, results of dispersion modelling and the construction dust assessment methodology and findings.

Since the production of the Chapter and Appendix, there has been modifications to the proposed design. In particularly the ground and mezzanine area extends further to the north-east, closer to the road, as shown in Figure 1-1. As the design update results in the north-east corner being closer to the modelled road network, the exposure assessment reported in the ES Chapter is therefore no longer based on worst case.

This Technical Note has therefore been produced to assess the significance of this and whether it will change the conclusions provided within the Air Quality ES Chapter.



Figure 1-0-1 Updated Design, modelled roads and original modelled receptors

2. Detailed Dispersion Modelling of Operational Traffic

During operation, the Proposed Development has the potential to affect local air quality as a result of traffic exhaust emissions, such as nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) associated with vehicles travelling to and from the Proposed Development. The assessment included detailed dispersion modelling using ADMS Urban software to provide an exposure assessment for the proposed on-site receptors and inform the ventilation strategy.

Cumulative impacts have been considered in relation to an agreed list of consented developments in the area. Data used in the operational traffic assessment already included the contribution from committed development traffic flow.

A greater level of uncertainty is associated with predictions for future years than for the base year, with greater uncertainty the further into the future the predictions are made. Interpretation of the results was therefore made using worst-case data which was based on retaining emissions and background concentrations at the baseline year of 2023 but using traffic flows for the proposed opening year of 2027.

The conclusions of the ES Chapter stated that based on the predicted concentrations using worst case baseline (2023) emissions and backgrounds the impact of the operation on all traffic sensitive receptors is negligible, and therefore no mitigation measures are required.

On review of the traffic data for the nearby road links, the significant flows are on link 35 to the north with comparably minor flows on link 36a to the east. The locations of these road links are shown in see Figure 1-1 and the traffic flows are reported in Table 2-1.

Link	Road	Road width (m)	Annual operating hours		
			2019	2027 Do-Minimum (DM)	2027 Do-Something (DS)
35	River Street	6.2	2619	2619	3075
36a	Wilmott Street	14.3	654	654	706

Table 2-1: Modelled Traffic Flows

Based on the results we have for P2, which are below the annual mean objectives, it is anticipated that moving this receptor closer to link 36a will not result in predicted concentrations above the objectives. The model has been rerun with receptor P2 moved to the updated façade, as shown in Figure 2-2.



Figure 2-2 Updated Receptor Position

This is demonstrated in Table 2-2, which lists the predicted concentrations for P2 are ground floor and first floor (P2a and P2b) that were reported in the ES Chapter and updated predictions based on moving P2 to the updated façade.

Receptor ID	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) based on 2023 background with 2027 traffic flows and 2023 Emissions (Worst Case)		Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) based on 2023 background with 2027 traffic flows and 2027 Emissions (Best Case)	
	Reported in ES	Updated Result	Reported in ES	Updated Result
Annual Mean NO₂ Concentration $\mu\text{g}/\text{m}^3$				
P2a	32.4	32.3	29.9	30.0
P2b	31.8	31.5	29.6	29.5
Annual Mean PM₁₀ Concentration $\mu\text{g}/\text{m}^3$				
P2a	20.2	20.1	20.1	20.1
P2b	20.0	19.9	19.9	19.9
Annual Mean PM_{2.5} Concentration $\mu\text{g}/\text{m}^3$				
P2a	11.6	11.6	11.5	11.6
P2b	11.5	11.5	11.4	11.4

Table 2-2 Predicted Annual Mean Concentrations at P2 during Operation Phase

Moving the receptor has demonstrated that the conclusions of the ES Chapter do not change and therefore stated that based on the predicted concentrations using worst case baseline (2023) emissions and backgrounds the impact of the operation on all traffic sensitive receptors is negligible, and no mitigation measures are required.

Furthermore, it is understood that the additional area in the north-east of the development is at ground and mezzanine floor only and air intakes for this mechanically ventilated area are to be at a higher level. The updated design does not change the layout of the proposed student accommodation, which is to be located on the 2nd to 4th floors.

3. Construction Dust Assessment

The primary aim of the dust risk assessment is to identify the appropriate site-specific mitigation measures that will be adopted to ensure there will be no significant effect on local amenity and public health. A construction dust assessment in accordance with IAQM guidance¹ was carried out and reported in Appendix 6 of the ES. This concluded that the overall risk of unmitigated impacts is high for construction and medium for earthworks and trackout. As the construction impact is already high, the additional area to be constructed at ground and mezzanine area does not change this conclusion.

These best practice mitigation measures are to be implemented during the construction phase of the development via a Construction Environmental Management Plan (CEMP). It is anticipated that the generation of dust and harmful pollutants emissions from construction site activities will be reduced with the correct implementation of these measures. It is anticipated that this will be formally requested by Planning Condition and will include the requirement for a Dust Management Plan. The Dust Management Plan is to ensure that all recommended mitigation measures will be implemented properly.

Due to the proximity of sensitive receptors from the construction site and trackout routes, construction dust monitoring is included within the recommended mitigation measures. The Dust Management Plan will need to include relevant details relating to construction dust monitoring, such as number of monitors installed, locations and site action levels. The monitoring methodology will need to be agreed with Manchester City Council in advance of commencement.

Emissions from NRMM will be mitigated through the specification of minimum Non-Road Mobile Machinery (NRMM) emission requirements², in accordance with Department for Transport guidance.

¹ Institute of Air Quality Management (IAQM) (2017) Guidance on the Assessment of Dust from Demolition and Construction (Version 1.2)
<https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

² HMSO (2018) The Non-Road Mobile Machinery Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018, UK Statutory

It is anticipated that the dust generation and harmful emissions from construction site activities will be greatly reduced or eliminated with the correct implementation of the best practice methods identified.

4. **Conclusion**

This Technical Note demonstrates that the proposed post planning submission design changes will have no significant impacts on the conclusions provided within the Air Quality ES Chapter during either the construction or operation phases of the Proposed Development.