Stantec

Concord Logistics, Wythenshawe

Air Quality Assessment

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1 Introduction

1.1 Proposed Development

1.1.1 Karlin VMH Ltd, c/o Global Mutual (the 'Applicant') has commissioned Stantec to undertake an Air Quality Assessment to support an application for full planning permission for the redevelopment of Concord House, Threapwood Road, Wythenshawe (the 'Site'), located to the south of the Simonsway on Concord Business Park. The Site is located within the administrative boundary of MCC (Manchester City Council).

1.1.2 The development proposals consist of:

"Erection of two-storey Warehouse Units (Use Class B2/ B8/ E(g)(iii)), with ancillary offices and trade counters, along with all associated works including landscaping, car parking and alterations to access arrangements".

1.2 Scope of Assessment

1.2.1 This report describes existing air quality within the study area, considers the suitability of the Site for the proposed end-use in relation to air quality and assesses the impact of the construction and operation of the Proposed Development on air quality in the study area.

1.2.2 The main air pollutants of concern associated with the Proposed Development during the construction period are emissions of dust and fine particulate matter (PM_{10}) associated with on-site construction activities and off-site trackout. Additionally, there is the potential for emissions of nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$) from construction-related traffic.

1.2.3 A separate planning application will be prepared for the demolition of the existing on-site units. As a result, impacts relating to demolition are not part of these proposals, and are not considered in this report.

1.2.4 The main air pollutants of concern associated with the Proposed Development during the operational period are NO_2, PM_{10} and $PM_{2.5}$ emissions associated with proposed and existing road traffic.

1.2.5 The energy strategy for the Proposed Development will not utilise any on-site combustion, in accordance with the latest building regulations, policy and guidance requirements. As a result, there will be no emissions to air associated with on-site combustion-based energy plant and the impacts on local air quality will not be significant. A detailed assessment of combustion-based energy plant emissions has therefore been scoped out of this assessment.

1.2.6 The assessment has been prepared taking into account the requirements of relevant local and national guidance, policy and legislation.

1.2.7 A glossary of terms used in this assessment is provided in **Appendix A.**

2 Legislation, Policy and Guidance

2.1 Air Quality Regulations

2.1.1 The Air Quality (England) Regulations 2000 (AQR) defined National Air Quality Objectives (NAQOs, a combination of concentration-based thresholds, averaging periods and compliance dates) for a limited range of pollutants. Subsequent amendments were made to the AQR in 2001 and 2002 to incorporate 'limit values' and 'target values' for a wider range of pollutants as defined in European Union (EU) Directives.

2.1.2 These amendments were consolidated by the Air Quality Standards Regulations 2010 (AQSR) (with subsequent amendments most notably in 2016 and for the devolved administrations), which transposed the EU's Directive on ambient air quality and cleaner air for Europe (2008/50/EC) (European Parliament, Council of the European Union, 2008).

2.1.3 Following the Transition Period after the UK's departure from the EU in January 2020, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (and subsequent amendments for the devolved administrations) have amended the Air Quality Standards Regulations 2010 to reflect the fact that the UK has left the EU. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 amended the $PM_{2.5}$ limit value in the AQSR to 20 µg/m^3.

2.1.4 The relevant NAQOs and limit values for this assessment are shown in **Table 2-1**.

Table 2-1 Relevant Air Quality Objectives/limit values

Pollutant	Time Period	Objectives	Source
NO_2	1-hour mean	200 µg/m^3 not to be exceeded more than 18 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m^3	NAQO and AQSR limit value
PM_{10}	24-hour mean	50 µg/m^3 not to be exceeded more than 35 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m^3	NAQO and AQSR limit value
$PM_{2.5}$	Annual mean	20 µg/m^3	NAQO and AQSR limit value

2.1.5 The NAQOs for NO_2 and PM_{10} were to have been achieved by 2005 and 2004 respectively but also continue to apply in all future years thereafter.

2.1.6 The 2019 Clean Air Strategy includes a commitment to set a "*new, ambitious, long-term target to reduce people's exposure to $PM_{2.5}$*" which the Environment Act 2021 (Statutory Instrument, 2021) commits the Secretary of State to setting. Two $PM_{2.5}$ targets were published via The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 and are set out below:

- an annual mean concentration target for $PM_{2.5}$ levels in England to be 10 µg/m^3 or below by 2040; and
- a target for a reduction in $PM_{2.5}$ population exposure of 35% compared to 2018 to be achieved by 2040.

2.1.7 The Environmental Improvement Plan 2025 (DEFRA, 2025a) was published on the 1st December 2025 (DEFRA, 2025a) and includes Commitment 21 which states the following regarding targets for $PM_{2.5}$:

- an annual mean concentration target of 10 micrograms per cubic metre to be achieved by December 2030; and
- a population exposure target of 30% compared to 2018 to be achieved by December 2030 (This is an Environment Act interim target).

2.1.8 DEFRA is developing guidance to ensure that the above $PM_{2.5}$ targets are appropriately considered in planning applications and planning decisions. Interim guidance (DEFRA, 2024a) has been published, requiring applicants to evidence that key sources of air pollution have been identified within their schemes and appropriate action taken to minimise exposure to emissions of $PM_{2.5}$ as far as reasonably practicable.

National Air Quality Plan for NO_2 in the UK

2.1.9 The National Air Quality Plan for NO_2 (DEFRA, 2018) sets out how the Government plans to deliver reductions in NO_2 throughout the UK, with a focus on reducing concentrations to below the EU limit values throughout the UK within the "*shortest possible time*".

2.1.10 The Plan requires all local authorities in England which DEFRA identified as having exceedances of the limit values in their areas past 2020 to develop local plans to improve air quality and identify measures to deliver reduced emissions, with the aim of meeting the limit values within their area within 'the shortest possible time'. Potential measures include changing road layouts, encouraging public and private ultra-low emission vehicle (ULEV) uptake, the use of retrofitting technologies and new fuels and encouraging public transport. In cases where these measures are not sufficient to bring about the required change within 'the shortest possible time' then local authorities may consider implementing access restrictions on more polluting vehicles (e.g. Clean Air Zones (CAZs)).

2.2 Air Quality Management

The Air Quality Strategy

2.2.1 Part IV of the Environment Act 1995 (Statutory Instrument, 1995) required the Secretary of State to prepare and publish a 'strategy' regarding air quality.

2.2.2 The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK (DEFRA in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland, 2007) . The primary objective of the Air Quality Strategy is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Air Quality Strategy sets out the NAQOs and Government policy on achieving these.

2.2.3 The Environment Act required an updated Air Quality Strategy (DEFRA, 2023b) which sets out six priorities including boosting active travel and public transport. The Air Quality Strategy sets out the Government policy on achieving the NAQOs, including the new targets for $PM_{2.5}$.

2.2.4 The Clean Air Strategy (2019) aims to lower national emissions of pollutants, thereby reducing background pollution and minimising human exposure to harmful concentrations of pollution. The Strategy aims to create a stronger and more coherent framework for action to tackle air pollution (DEFRA, 2019).

Local Air Quality Management

2.2.5 Part IV of the Environment Act 1995 (Statutory Instrument, 1995) introduced a system of Local Air Quality Management (LAQM) which requires local authorities to regularly and systematically

review and assess air quality within their boundary. In addition, local authorities are required to appraise development and transport plans against these assessments.

2.2.6 Where an NAQO is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the NAQOs within its AQMA.

2.2.7 The Local Air Quality Management Technical Guidance 2022 ((LAQM.TG(22); (DEFRA, 2025b)), issued by the DEFRA for local authorities provides advice on where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year) as summarised in **Table 2-2**.

Table 2-2 Relevant Public Exposure

Averaging Period	NAQOs should apply at:	NAQOs do not apply at:
Annual mean	All locations where members of the public might be regularly exposed. For example: Building façades of residential properties, schools, hospitals, care homes etc	Façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residences. Kerbside sites. Any other location where public exposure is expected to be short term.
24-hour mean and 8-hour mean	All locations where the annual mean NAQO would apply, together with hotels and gardens of residences.	Kerbside sites. Any other location where public exposure is expected to be short term.
1-hour mean	All locations where the annual mean and 24 and 8-hour mean NAQOs apply as well as: Kerbside sites . Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside locations where the public would not be expected to have regular access.

2.3 Planning Policy

National Planning Policy

2.3.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they are expected to be applied (MHCLG, 2024). The following paragraphs are considered relevant from an air quality perspective.

2.3.2 Paragraph 109 on promoting sustainable transport states:

"Transport issues should be considered from the earliest stages of plan-making and development proposals, so that: …

f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains."

2.3.3 Paragraph 110 goes on to state:

"Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health."

2.3.4 Paragraph 187 on conserving and enhancing the natural environment states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by: …

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land stability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans, and…"

2.3.5 Paragraph 198 within ground conditions and pollution states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

2.3.6 Paragraph 199 states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

2.3.7 Paragraph 200 states that:

"Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed".

National Planning Practice Guidance

2.3.8 Paragraph 005, Reference 32-005-20191101 (revision date 01.11.2019), of the Planning Practice Guidance (PPG) (MHCLG, 2019) provides guidance on how considerations regarding air quality can be relevant to the development management process as follows:

"Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on

air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

- *Where air quality is a relevant consideration the local planning authority may need to establish:*
- *The 'baseline' local air quality, including what would happen to air quality in the absence of the development;*
- *Whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and*
- *Whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."*

2.3.9 Paragraph 006, Reference 32-006-20191101 (revision date 01.11.2019), of the PPG identifies what specific air quality issues need to be considered in determining a planning application:

"Considerations that may be relevant to determining a planning application include whether the development would:

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; and significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*
- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*
- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*
- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations; and*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."*

2.3.10 Paragraph 007, Reference 32-007-20191101 (revision date 01.11.2019), of the PPG provides guidance on how detailed an assessment needs to be:

"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".

and

"The following could form part of assessments:

A description of baseline conditions and any air quality concerns affecting the area, and how these could change both with and without the proposed development;

- *Sensitive habitats (including designated sites of importance for biodiversity);*
- *The assessment methods to be adopted and any requirements for the verification of modelling air quality;*
- *The basis for assessing impacts and determining the significance of an impact;*
- *Where relevant, the cumulative or in-combination effects arising from several developments;*
- *Construction phase impacts;*
- *Acceptable mitigation measures to reduce or remove adverse effects; and*
- *Measures that could deliver improved air quality even when legally binding limits for concentrations of major air pollutants are not being breached."*

2.3.11 Paragraph 008, Reference 32-008-20140306 (revision date 01.11.2019), of the PPG provides guidance on how an impact on air quality can be mitigated:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented. Planning conditions and obligations can be used to secure mitigation where the relevant tests are met.

Examples of mitigation include:

- *Maintaining adequate separation distances between sources of air pollution and receptors;*
- *Using green infrastructure, trees, where this can create a barrier or maintain separation between sources of pollution and receptors;*
- *Appropriate means of filtration and ventilation;*
- *Including infrastructure to promote modes of transport with a low impact on air quality (such as electric vehicle charging points);*
- *Controlling dust and emissions from construction, operation and demolition; and*
- *Contributing funding to measures, including those identified in air quality action plans and low emission strategies, designed to offset the impact on air quality arising from new development."*

Local Planning Policy

Greater Manchester Places for Everyone Joint Development Plan

2.3.12 The Greater Manchester Places for Everyone Joint Development Plan (GMCA, 2024) was adopted on 21 March 2024, and sets out development priorities for Manchester's nine boroughs, during the period between 2022 to 2039. Places for Everyone includes policies relating to air quality, including Policy JP-S5: Clean Air, which states:

"A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:

1. Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution;

2. Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;

3. Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;

4. Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;

5. Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;

6. Implementing the Clean Air Plan and associated measures;

7. Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra-low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;

8. Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;

9. Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;

10. Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and

11. Development should be located in areas that maximise the use of sustainable travel modes and be designed to minimise exposure to high levels of air pollution, particularly for vulnerable users."

Manchester's Local Development Framework: Core Strategy Development Plan Document

2.3.13 Manchester's Core Strategy (MCC, 2012) sets out a number of policies relating to development in Manchester, and includes Policy EN 16: Air Quality, which states:

"The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester's principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas."

Greater Manchester Clean Air Plan

2.3.14 GMCA has produced a Clean Air Plan (GMCA, 2025a), which provides a non-charging alternative to the previously proposed CAZ in Manchester. Measures in the Plan are largely centred around electrifying and improving the fleet of public transport vehicles, and targeted traffic interventions in areas where air quality objectives are exceeded. Measures in the Plan include:

- £51.1 million Clean Bus Fund;
- £8 million Hackney (black cab) Support Fund; and
- £3 million local measures.

2.4 Assessment Guidance

2.4.1 The primary guidance documents used in undertaking this assessment are detailed in the section below.

DEFRA 'Local Air Quality Management Technical Guidance (LAQM.TG(22))'

2.4.2 DEFRA LAQM.TG(22) was published for use by local authorities in their LAQM review and assessment work (DEFRA, 2025b). The document provides key guidance on aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

EPUK & IAQM 'Land-Use Planning & Development Control: Planning for Air Quality'

2.4.3 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance to help ensure that air quality is properly accounted for in the development control process (EPUK & IAQM, 2017). It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

IAQM 'Guidance on the Assessment of Dust from Demolition and Construction'

2.4.4 Guidance on the assessment of dust from demolition and construction has been published by the IAQM (IAQM, 2024). The guidance provides a series of matrices to determine the risk of impacts from potential dust sources associated with construction activities on a development site. The risk of dust impacts assessed is then used to identify appropriate mitigation measures which are set out in the guidance.

Manchester City Council Air Quality and Planning Technical Guidance

2.4.5 Manchester City Council (MCC) has produced an 'Air Quality & Planning Technical Guidance' SPG (MCC, 2022), which sets out guidance for developers on how to undertake air quality assessments in the City. The document sets out the requirements of an quality assessment including further relevant guidance documents which should be referred to (including the IAQM construction dust guidance and EPUK & IAQM land-use planning guidance) and recommended air quality mitigation measures.

3 Methodology

3.1 Introduction

3.1.1 The assessment methodology detailed in the following sections has been applied to ascertain the potential impacts of emissions to air in order to identify their significance and compliance with policy and regulatory requirements (outlined in **Section 2** of this report), and whether or not additional mitigation is required.

3.1.2 This assessment first defines the 'study area' and outlines the baseline air quality (for both the 'existing'[1] and relevant future year i.e. first year of development operation) within this study area. The impacts of construction and operational activities on existing sensitive receptors located within the study area are then assessed followed by the suitability of the Site for the proposed end use.

3.2 Baseline Air Quality

3.2.1 Any exceedances of the limit values along roads within the study area have been identified using the 2020 NO_2 and PM Projections Data published by DEFRA (DEFRA, 2020a). Information on baseline air quality in the study area has been obtained by collating the results of monitoring carried out by GMCA and their LAQM reports to identify potential AQMAs. Background concentrations for the study area have been defined using the national pollution maps published by DEFRA which cover the whole country on a 1x1 km grid (DEFRA, 2024b).

3.3 Construction Dust Impacts

3.3.1 During construction, dust from on-site activities and off-site trackout by construction vehicles has the potential to impact on sensitive human receptors within the study area. The main potential impacts are loss of amenity (as a result of dust soiling) and deterioration of human health (as a result of increased concentrations of PM_{10}).

3.3.2 The suspension of particles in the air is dependent on surface characteristics, weather conditions and on-site activities. Impacts have the potential to occur when dust generating activities coincide with dry, windy conditions, and where sensitive receptors are located downwind of the dust source(s).

3.3.3 Separation distance is also an important factor. Large dust particles (greater than 30 µm), which can be potentially responsible for most dust annoyance, will largely deposit within 100 m of sources. Intermediate particles (10-30 µm) can travel 200-500 m. Consequently, significant dust annoyance is usually limited to within a few hundred metres of its source. Smaller particles (less than 10 µm), which are the predominant fraction that can be potentially responsible for human health impacts largely remain airborne. However, the impact on the short-term concentrations of PM_{10} occurs over a shorter distance due to the rapid decrease in concentrations with distance from the source due to dispersion.

3.3.4 The assessment of the risk of potential construction dust impacts has been undertaken with reference to relevant guidance produced by the IAQM (IAQM, 2024).

Screening Assessment

3.3.5 The first stage of the assessment involves screening to determine if there are sensitive receptors within threshold distances of the activities associated with the construction phase of

[1] 2024 has been used as the 'existing' year as this is the latest year for which representative local monitoring data are available from GMCA.

the Proposed Development; defined as the study area. No further assessment is required if there are no receptors within the study area.

3.3.6 The IAQM guidance outlines that an assessment is only required in cases where:

- A 'human receptor' is located within:
  - 250 m of the boundary of the Site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).
- An 'ecological receptor' is located within:
  - 50 m of the boundary of the Site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

Further Assessment

3.3.7 The risk of impacts associated with dust soiling and PM_{10} caused by the Proposed Development has been determined (following the IAQM guidance) based on the dust emission class (or magnitude) for each activity arising from three activities in the absence of mitigation (earthworks, construction and trackout), the sensitivity of nearby receptors and the overall sensitivity of the area. The dust emission class, receptor sensitivity and the overall sensitivity of the area are determined using the criteria outlined in **Table B-1**, **Table B-2**, **Table B-3**, **Table B-4** and **Table B-5** of **Appendix B** (based on the IAQM guidance), indicative thresholds and professional judgement. The risk of dust impacts arising is a product of the relationship between the dust emission magnitude and the area sensitivity and is based on the criteria outlined in **Table B-6** (based on the IAQM guidance). The risk of impact is then used to determine the mitigation requirements.

3.3.8 The IAQM guidance recommends that no assessment of the significance of effects is made without mitigation in place, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations.

3.3.9 With appropriate mitigation in place, the IAQM guidance indicates that the residual effect dust emissions associated with the construction can be classified as being 'not significant'.

3.4 Construction Road Traffic Emission Impacts

3.4.1 The potential for a significant overall effect on existing sensitive receptors within the study area as a result of emissions from construction traffic generated by the Proposed Development has been determined qualitatively, taking into consideration the screening criteria outlined in the EPUK & IAQM guidance (EPUK & IAQM, 2017) (see **Appendix C**) the anticipated routing of the generated traffic and the anticipated duration of impacts associated with the generated traffic.

3.5 Construction Non-Road Mobile Machinery Emission Impacts

3.5.1 The impacts of emissions associated with Non-Road Mobile Machinery (NRMM) during the construction phase of Proposed Development has been undertaken qualitatively, taking into account the following:

- Duration of works;
- Type and number of NRMM to be used on-site;

- Operating hours of NRMM;
- Emissions standard to which NRMM comply;
- Proximity of receptors to NRMM working areas; and
- Existing background pollutant concentrations.

3.5.2 In accordance with DEFRA's LAQM TG.22 (DEFRA, 2025b), with suitable controls and site management in place, emissions associated with NRMM and site traffic are unlikely to have significant impact on local air quality.

3.6 Operational Road Traffic Emission Impacts

Screening Assessment

3.6.1 The potential for significant impacts on existing sensitive receptors within the study area as a result of emissions from traffic generated by the Proposed Development is determined based on the screening criteria outlined in the EPUK & IAQM guidance (see **Appendix C**)) which includes consideration of the volume and composition of traffic generated by the Proposed Development and existing local air quality conditions (i.e. the presence of any declared AQMAs).

3.6.2 In relation to proposed sensitive receptors within the Site, a qualitative assessment is initially undertaken to identify the potential for exceedances of the relevant NAQOs at sensitive locations within the Proposed Development. This takes into account future baseline air quality conditions within and in close proximity to the Site, and the proximity of sensitive locations within the Proposed Development to nearby sources of emissions to air.

3.6.3 If it is not possible to screen out the potential for significant impacts, then a detailed assessment is undertaken (see **Paragraphs 3.6.4** to **3.6.10**).

Detailed Assessment

3.6.4 Concentrations of pollutants (NO_2, PM_{10} and $PM_{2.5}$) have been predicted for a range of worst-case locations of relevant human receptor exposure both at sensitive existing properties and within the Proposed Development itself to allow comparison with the NAQOs and (for existing receptors only) determination of the significance of impacts at each receptor.

3.6.5 Emissions from road vehicles and their resultant impact at receptor locations have been predicted using the ADMS-Roads dispersion model (v5.1.0.2). The model requires the user to provide various input data, including traffic flows (in Annual Average Daily Traffic (AADT) format), vehicle composition (i.e. the proportion of Heavy Duty Vehicles (HDVs)), road characteristics (including road width, gradient and street canyon dimensions, where applicable), and average vehicle speed. AADT flows and the proportions of HDVs, for roads within the study area have been provided by the Project's transport consultants, Stantec. Traffic data used in this assessment are summarised in **Appendix D.** The existing Concord Business Park is currently operational as a commercial office (anticipated to be vacated in March 2026); however, to ensure a robust assessment is undertaken, the air quality impacts of the total proposed development trip generation have been assessed, rather than the net trip generation taking into account the existing use.

3.6.6 The model also requires meteorological data and has been run using 2024 meteorological data from the Manchester Airport meteorological station, which are considered suitable for this area due to its proximity to the Site (approximately 2.5 km southwest). **Appendix D** provides further details on the model inputs.

3.6.7 Traffic emissions have been calculated using the Emission Factor Toolkit (EFT) v13.1 (DEFRA, 2025c), which utilises nitrogen oxides (NO_x) emission factors taken from the European Environment Agency (EEA) COPERT 5.8 emission tool. The traffic data were entered into the

EFT to provide emission rates for each of the road links entered into the model. Road vehicular emissions are primarily associated with the exhaust emissions but also include particles generated from abrasion (of tyres, brakes and road). The EFT allows users to calculate road vehicle pollutant emission rates for NO_x, PM_{10} and $PM_{2.5}$ (exhaust and brake, tyre and road wear) for a specified year, road type, vehicle speed and vehicle fleet composition.

3.6.8 The EFT provides pollutant emission rates for 2021 through to 2050 and takes into consideration bespoke vehicle fleet information as well as the following information available from the National Atmospheric Emissions Inventory (NAEI) (National Atmospheric Emissions Inventory, 2024):

- fleet composition data for motorways, urban and rural roads in the UK;
- euro composition based on European emission standards from pre-Euro I to Euro6/VI (including Euro 6 subcategories);
- vehicle size distributions;
- scaling factors reflecting improvements in the quality of fuel and some degree of retrofitting;
- technology conversions in the national fleet; and
- primary NO_2 (f-NO_2) emission factors for road transport.

3.6.9 Road vehicle exhaust emissions of NO_x are projected to decrease year-on-year due to technological advances and improvements to the fleet mix i.e. penetration of Euro VI HDVs. Whilst there has been uncertainty over NO_x emissions from vehicle exhausts (particularly from Euro 5 and 6 LDVs) it is important to note the EFT is not based on the Euro emission standards.

3.6.10 Generally, concentrations of air pollutants in the UK are anticipated to decrease in the coming years. As such, in most cases, the earlier the year that is assessed, the more worst-case the assessment is. The earliest year that the Proposed Development could potentially be operational is 2029. Therefore, in order to take account of uncertainties relating to future year vehicle emissions and background pollutant concentrations, the assessment has been carried out utilising 2029 emission factors and background concentrations combined with traffic data from the same year (which includes full development flows).

3.7 Consideration of $PM_{2.5}$ Targets

3.7.1 A qualitative assessment has been undertaken in accordance with the $PM_{2.5}$ Target: Interim Planning Guidance (DEFRA, 2024a). The qualitative assessment outlines how exposure to $PM_{2.5}$ has been considered when selecting the Site (i.e. site suitability), as well as what actions and/or mitigations have been considered to reduce $PM_{2.5}$ exposure for development-users and nearby receptors (houses, hospitals, schools etc.) and to reduce emissions of $PM_{2.5}$ and its precursors. The predicted $PM_{2.5}$ concentrations at worst-case proposed receptor locations within the Site will also be taken into account when considering the likelihood of the targets being met within the Proposed Development.

3.8 Assumptions and Limitations

3.8.1 There are many components that contribute to the uncertainty in predicted concentrations. The model used in this assessment is dependent upon the traffic that have been input which will have inherent uncertainties associated with them. There is then additional uncertainty as the model is required to simplify real-world conditions into a series of algorithms.

3.8.2 There has been an acknowledged disparity between national road transport emissions projections and measured annual mean concentrations of nitrogen oxides (NO_x) and NO_2 for many years. Recent monitoring has shown that reductions in concentrations are now being measured in many parts of the country (Air Quality Consultants Ltd., 2022), however, there is

still some uncertainty regarding the rate at which emissions will reduce in the future and therefore some consideration must be given to the accuracy of any projection and to appropriately respond to this.

3.8.3 The complete development modelling has been based on 2029 emission factors and background concentrations, whilst utilising traffic flows for 2029 for the first year of development operation. The model has been verified against 2024 monitoring data.

3.9 Air Quality Impacts Significance Criteria

3.9.1 The relevant NAQOs are set out in **Table 2-1** and **Table 2-2**. The predicted pollutant concentrations in the future year (2029) at each identified sensitive receptor have been compared to the relevant NAQOs and any exceedances identified.

3.9.2 Analysis of long-term monitoring data suggests that if the annual mean NO_2 concentration is less than 60 µg/m^3 then the 1-hour mean NO_2 NAQO is unlikely to be exceeded where road transport is the main source of pollution. Therefore, in this assessment this concentration has been used to screen whether the 1-hour mean objective is likely to be achieved (DEFRA, 2025b). Analysis of long-term monitoring data also suggests that if the annual mean PM_{10} concentration is less than 32 µg/m^3 then the 24-hour mean PM_{10} NAQO is unlikely to be exceeded where road transport is the main source of pollution. Therefore, in this assessment this concentration has been used to screen whether the 24-hour mean NAQO is likely to be achieved

3.9.3 There is no official guidance in the UK on how to assess the significance of the air quality impacts of existing air quality on a new development. The assessment of proposed receptors within the Site has therefore been limited to predicting pollutant concentrations at worst-case receptors within the Site and comparing these predicted concentrations to the relevant NAQOs, with the overall significance being based on whether the NAQOs for each pollutant are exceeded or not.

3.9.4 There is no official guidance in the UK on how to assess the significance of the air quality impacts of a new development on existing receptors. The approach developed by EPUK and the IAQM (EPUK & IAQM, 2017), which considers the change in air quality as a result of a Proposed Development on existing receptors in combination with baseline concentrations at the receptors, has therefore been used. The guidance sets out three stages: determining the magnitude of change at each receptor, describing the impact, and assessing the overall significance. Impact magnitude relates to the change in pollutant concentration; the impact description relates this change to the air quality objective and is shown in **Table 3-1**.

Table 3-1 Impact Significance Criteria

Long term average concentration at receptor in assessment year	**% Changes in concentration with development in relation to NAQO / limit value**			
	1	**2-5**	**6-10**	**>10**
> 110 % [a]	Moderate	Substantial	Substantial	Substantial
>102% - ≤110% [b]	Moderate	Moderate	Substantial	Substantial
>95% - ≤102% [c]	Slight	Moderate	Moderate	Substantial
>75% - ≤95% [d]	Negligible	Slight	Moderate	Moderate
≤75% [e]	Negligible	Negligible	Slight	Moderate

Where concentrations increase the impact is described as adverse, and where it decreases as beneficial.
% change rounded to nearest whole number. Where the % change is 0 (i.e. less than 0.5%) the impact will be 'negligible'.
[a] NO_2 or PM_{10}: > 44 µg/m^3 annual mean; $PM_{2.5}$ >22 µg/m^3 annual mean; PM_{10} >35.2 µg/m^3 annual mean (days).
[b] NO_2 or PM_{10}: > 40.8 – ≤ 44 µg/m^3 annual mean; $PM_{2.5}$ > 20.4 – ≤22 µg/m^3 annual mean; PM_{10} >32.64 – ≤35.2 µg/m^3 annual mean (days).
[c] NO_2 or PM_{10}: > 38 – ≤40.8 µg/m^3 annual mean; $PM_{2.5}$ >19 – ≤20.4µg/m^3 of annual mean; PM_{10} >30.4 – ≤32.64 µg/m^3 annual mean (days).

[d] NO_2 or PM_{10}: >30 - ≤38 µg/m^3 annual mean; $PM_{2.5}$ >15 - ≤19 µg/m^3 annual mean; or <24 - ≤ 30.4 µg/m^3 annual mean (days).
[e] NO_2 or PM_{10}: ≤30 µg/m^3 annual mean; $PM_{2.5}$ ≤15 µg/m^3 annual mean; PM_{10} ≤24 µg/m^3 annual mean (days).

3.9.5 The guidance states that the overall assessment of significance should be based on professional judgement, taking into account factors including:

- the number of properties affected by 'slight', 'moderate' or 'substantial' adverse air quality impacts and a judgement on the overall balance;
- the magnitude of the changes and the descriptions of the impacts at the receptors;
- whether or not an exceedance of an NAQO or limit value is predicted to arise in the operational study area (where there are significant changes in traffic) where none existed before or an exceedance area is substantially increased;
- the uncertainty, comprising the extent to which worst-case assumptions have been made; and
- the extent to which an NAQO or limit value is exceeded.

3.9.6 Therefore, where impacts at an individual receptor are classified as 'negligible' or 'slight', effects would typically be considered 'not significant'. However, where 'moderate' or 'substantial' adverse impacts are identified at individual receptors, the overall effect needs to be considered in the round taking into account the changes at all of the modelled receptor locations, with a judgement made as to whether the overall air quality effect of the Proposed Development is 'significant' or not.

4 Baseline Environment

4.1 Site Context

4.1.1 The Site is located on Concord Business Park, off Threapwood Road, and is bound to the north by Simonsway, and a parallel running Metrolink line, close to Peel Hall station. To the immediate east and west of the Site there are areas of dense woodland, and to the south there are further areas of woodland, as well as adjacent office and commercial buildings. There are nearby residential properties off Hatchett Road and Coxton Road to the southwest. The general character of the immediate surrounding area is a mix of residential and commercial / industrial, with a high proportion of woodland in the immediate vicinity of the Site.

4.2 Study Area

4.2.1 For the construction dust risk assessment, the study area (based on IAQM, 2024 guidance) is defined as comprising the area up to 250 m from the site boundary and 50 m from the route used by construction vehicles (up to 250 m from the site entrance(s)).

4.2.2 For the construction and operational phase road traffic emission assessment, the study area (based on EPUK & IAQM, 2017 guidance) includes the Site, all roads (and adjacent properties) within 250 m of the site boundary and any other roads (and adjacent properties) predicted to exceed the screening criteria outlined in **Appendix C**).

4.3 Sensitive Receptor Locations

4.3.1 Relevant sensitive human receptor locations are places where members of the public might be expected to be regularly present over the averaging period of the NAQOs. The NO_2, PM_{10} and $PM_{2.5}$ annual mean, PM_{10} 24-hour mean and NO_2 1-hour mean NAQO sensitive locations include existing residences, schools and childcare facilities in the study area. The PM_{10} 24-hour mean and NO_2 1-hour mean NAQO sensitive locations include the proposed commercial units and offices. When identifying these receptors, particular attention has been paid to assessing impacts close to junctions, traffic lights and roundabouts where traffic may become congested, where there is a combined effect of several road links and routes along which substantial volumes of traffic generated by the Proposed Development will travel.

4.3.2 Based on these criteria, fifteen existing residential properties, two schools and one childcare facility within the study area have been identified as worst-case receptors for the assessment. The locations of these receptors have been chosen to represent locations where impacts from road traffic generated by the Proposed Development are likely to be the greatest i.e. as a result of development traffic at junctions. Furthermore, six locations within the Proposed Development itself have been identified as worst-case receptors for the assessment. Modelled receptor locations are described in **Appendix D** and shown in **Figures 01 - 05, Appendix G**.

4.3.3 Concentrations have also been predicted at three diffusion tube monitoring sites located along the A34 and B5358 (see **Table 4-1**) in order to verify the modelled results. **Appendix E** provides further details on the verification method.

4.4 Ambient Air Quality

Limit Values

4.4.1 The study area is not within a zone where DEFRA have reported an exceedance of a limit value either in the 'existing' baseline year (2024) or in future years (DEFRA, 2020a).

LAQM

4.4.2 MCC has investigated air quality within its area as part of its responsibilities under the LAQM regime. MCC, as part of the GMCA, originally declared the Greater Manchester AQMA in 2001 due to exceedances of the NO_2 annual and PM_{10} 24-hour NAQOs. The AQMA has since been amended twice, in 2007 and 2016, and as of 2016 is only declared in areas where GMCA's air quality modelling predicted an NO_2 annual mean concentration in excess of 35 µg/m^3. The Site is not located within this AQMA; the closest part of the AQMA is 270 m to the northwest of the Site on Simonsway.

Local Monitoring Data

NO_2

4.4.3 GMCA carries out monitoring at 25 automatic monitoring stations across the city region, the nearest of which, Manchester Sharston, is located approximately 920 m east of the Proposed Development. The Council also deploys NO_2 diffusion tubes at a number of locations, eight of which are representative of the study area. Neighbouring Cheshire East and Chester Council (CECC) also undertakes monitoring at locations which are considered to be representative of the study area.

4.4.4 NO_2 monitoring results for representative local authority monitoring locations are provided in **Table 4-1** to **Table 4-2** and their locations are shown in **Figure 06**, **Appendix G**. Whilst 2020 and 2021 monitoring results have been included below, it should be noted that these are not considered to be representative due to the impacts of COVID-19 restrictions in place during these years on travel patterns and behaviours.

Table 4-1 Measured Annual Mean NO_2 Concentrations 2020 – 2024

Site Location – ID	Site Type	Within AQMA	Annual Mean (µg/m^3)				
			2020	2021	2022	2023	2024
MCC							
Automatic Sites							
Manchester Sharston - MAHG	Suburban	No	14	16	15	14.7	14.2
Stockport Cheadle A34 – STK7*	Roadside	Yes	26	28	29	25.6	24.9
Diffusion Tubes							
Manchester Sharston - MA90BNO, MA91BNO, MA92BNO	Suburban	No	13.8	14.1	15.2	14.2	13.9
Palatine Road - MA93BNO	Roadside	Yes	29.4	33.8	34.0	31.0	30.4
Cheadle Library - ST6NO	Urban Background	No	11.9	9.7	12.9	12.0	12.4
Prospect Vale - ST13NO	Urban Background	No	11.6	13.6	13.3	12.5	12.2
A34 Kingsway - ST2NO, ST12NO, ST14NO	Roadside	Yes	26.1	28.4	29.6	27.1	24.7
Finney Lane - ST28NO*	Roadside	Yes	25.7	30.3	30.3	27.6	25.9
CECC							
183 Wilmslow Road – CE279*	Roadside	No	19.4	22.0	21.4	21.3	19.4
7 & 9 Stanneylands Road – CE299	Kerbside	No	26.0	26.8	25.5	23.7	23.8
NAQO		**40**					

2020-2024 data taken from the GMCA Air Quality Annual Status Report for 2024 (GMCA, 2025b) and CECC Air Quality Annual Status Report for 2025 (CECC, 2025).

* Used for model verification.

Table 4-2 Measured Exceedances of the Hourly Mean NO_2 NAQO 2020-2024

Site ID	Number of Hours >200µg/m³				
	2020	2021	2022	2023	2024
Manchester Sharston - MAHG	0	0	0	0	0
Stockport Cheadle A34 – STK7*	0	0	0	0	0
NAQO		**18 (hours >200µg/m³)**			

2020-2024 data taken from the GMCA Air Quality Annual Status Report for 2024 (GMCA, 2025b).

4.4.5 Measured concentrations at the closest monitoring location to the Site, Manchester Sharston, located approximately 920 m east of the Site, have been well below the annual mean NAQO in each of the previous five years. Measured concentrations at remaining monitoring locations presented in **Table 4-1** have also been below the annual mean NO_2 NAQO in each of the previous five years, and measured concentrations at all diffusion tube monitoring sites are below 60 µg/m³, indicating that it is unlikely that any exceedances of the 1-hour mean NAQO have occurred at these locations. Additionally, at the automatic sites presented, there have been no measured exceedances of the 1-hour NO_2 NAQO. There is no clear trend in concentrations over time at most of the monitoring sites presented.

PM_{10}

4.4.6 The results of the PM_{10} monitoring at Manchester Sharston and Stockport Cheadle A34 are shown in **Table 4-3** and **Table 4-4**.

Table 4-3 Measured Annual Mean PM_{10} Concentrations 2020 – 2024.

Site Name	Annual Mean PM_{10} (µg/m³)				
	2020	2021	2022	2023	2024
Manchester Sharston	11.9	12	13	10.8	10.7
Stockport Cheadle A34	15	16	16	13.5	12.3
NAQO	**40**				

2020 - 2024 data taken from the GMCA Air Quality Annual Status Report for 2024 (GMCA, 2025b).

Table 4-4 Measured Exceedances of the Daily Mean PM_{10} NAQO 2020-2024

Site Name	Number of Days >50µg/m³				
	2020	2021	2022	2023	2024
Manchester Sharston	-	-	1	0	0
Stockport Cheadle A34	0	1	1	0	0
NAQO	**35 (days >50 µg/m³)**				

2020 - 2024 data taken from the GMCA Air Quality Annual Status Report for 2024 (GMCA, 2025b).

4.4.7 Measured PM_{10} concentrations have been below the relevant NAQOs for the duration of the monitoring period presented.

$PM_{2.5}$

4.4.8 The results of the $PM_{2.5}$ monitoring at Manchester Sharston are shown in **Table 4-5**. Monitoring of $PM_{2.5}$ concentrations is not carried out at the Stockport Cheadle A34 automatic monitor.

Table 4-5 Measured $PM_{2.5}$ Concentrations 2020 - 2024

Site Name	Annual Mean $PM_{2.5}$ (µg/m^3)				
	2020	2021	2022	2022	2023
Manchester Sharston	-	6.3	7	6.4	6.5
NAQO	**20**				

2020 - 2024 data taken from the GMCA Air Quality Annual Status Report for 2024 (GMCA, 2025b).

4.4.9 Measured $PM_{2.5}$ concentrations have been below the relevant NAQO for the duration of the monitoring period presented.

4.5 Predicted Background Concentrations

4.5.1 Estimated background concentrations for the Site and modelled receptors have been obtained from the latest 2021-based national maps provided by DEFRA (DEFRA, 2024b). The DEFRA background concentrations for the study area are provided in **Table 4-6**.

4.5.2 The background concentrations are all well below the relevant NAQOs both in the 'existing' and future years.

Table 4-6 Estimated Annual Mean Background Concentrations

Year	Location	Represents	Annual Mean (µg/m^3)		
			NO_2	PM_{10}	$PM_{2.5}$
2024	381_387	Receptors R08 – R11	15.0	13.7	7.4
	382_386	Receptors R04 and R05	14.1	11.5	7.1
	382_387	Receptors R06 and R07	13.1	11.8	7.1
	383_386	Development Site, Receptors R01 – R03 and Proposed Receptors	12.8	11.2	6.9
	385_384	Verification monitoring site CE279	10.6	10.9	6.9
	385_386	Receptors R12 – R15, Verification Site ST28NO	12.0	11.2	6.9
	385_388	Receptors R16 – R18, Verification Site STK7	14.0	12.2	7.3
2029	381_387	Receptors R08 – R11	12.1	13.5	7.1
	382_386	Receptors R04 and R05	12.3	11.2	6.8
	382_387	Receptors R06 and R07	11.0	11.5	6.8
	383_386	Development Site, Receptors R01 – R03 and Proposed Receptors	11.0	10.9	6.6
	385_384	Verification Site CE279	8.8	10.6	6.6
	385_386	Receptors R12 – R15, Verification Site ST28NO	9.8	10.9	6.6

Year	Location	Represents	Annual Mean (µg/m³)		
			NO_2	PM_{10}	$PM_{2.5}$
	385_388	Receptors R16 – R18, Verification Site STK7	11.1	11.9	7.0
NAQO			**40**	**40**	**20**

4.6 Predicted Baseline Concentrations

4.6.1 The ADMS-Roads model has been used to predict baseline NO_2, PM_{10} and $PM_{2.5}$ concentrations at each of the existing receptor locations identified in **Appendix D** . The results for the baseline scenarios are presented in **Table 4-7**.

Table 4-7 Predicted Baseline Concentrations of NO_2, PM_{10} and $PM_{2.5}$ in 2024 and 2029

Receptor	Annual Mean (µg/m³)					
	NO_2		PM_{10}		$PM_{2.5}$	
	2024	2029	2024	2029	2024	2029
R01	14.7	12.3	11.5	11.2	7.1	6.8
R02	17.2	13.8	12.3	11.9	7.5	7.2
R03	17.2	13.8	12.3	11.9	7.5	7.2
R04	15.9	13.6	11.8	11.5	7.2	6.9
R05	20.3	16.1	13.1	12.8	7.9	7.6
R06	15.5	12.6	12.2	11.9	7.4	7.1
R07	17.6	13.7	12.9	12.6	7.7	7.4
R08	20.8	15.7	15.1	14.8	8.1	7.8
R09	28.9	21.1	16.1	15.8	8.8	8.5
R10	30.9	22.5	16.3	16.1	9.0	8.7
R11	29.9	21.8	16.1	15.8	8.9	8.5
R12	17.5	13.2	12.7	12.4	7.7	7.4
R13	15.6	12.1	12.0	11.7	7.3	7.0
R14	18.1	13.5	12.7	12.4	7.7	7.4
R15	21.6	15.6	13.7	13.3	8.2	7.9
R16	29.9	20.9	16.6	16.2	9.7	9.3
R17	26.4	18.6	15.5	15.1	9.0	8.6
R18	32.9	22.7	17.6	17.1	10.1	9.7
NAQOs	**40**		**40**		**20**	

Exceedances of the NAQOs are highlighted in bold.

4.6.2 The annual mean NO_2, PM_{10} and $PM_{2.5}$ NAQOs are not predicted to be exceeded at any of the existing receptor locations in 2024 and 2029. Furthermore, predicted concentrations of NO_2 are lower than 60 µg/m³ in these years, indicating that exceedances of the 1-hour mean NAQO are unlikely, and predicted concentrations of PM_{10} are lower than 32 µg/m³, indicating that exceedances of the 24-hour mean NAQO are also unlikely.

4.6.3 Overall, baseline concentrations of NO_2, PM_{10} and $PM_{2.5}$ are predicted to decrease between 2024 and 2029 as vehicle emission factors and background concentrations are assumed to improve, despite the traffic increase in the network

5 Predicted Impacts

5.1 Construction Dust Impacts

Screening Assessment

5.1.1 There are a number of existing sensitive human receptors (including residential properties and offices) located within 250 m of the site boundary and within 50 m of the routes that will be used by construction vehicles. As such, further assessment of the risk of dust soiling and PM_{10} emissions is required.

5.1.2 There are no sensitive ecological receptors located within 50 m of the site boundary or within 50 m of the routes to be used by construction vehicles on the public highway within 250 m of the Site. As such, the potential for ecological impacts as a result of dust soiling can be screened out as being 'not significant'.

Further Assessment

Dust Emission Magnitude

5.1.3 The dust emissions magnitude of earthworks and construction activities, and as a result of trackout have been determined in **Table 5-1** below based the criteria shown in **Table B-1, Appendix B**.

Table 5-1 Dust Emissions Magnitudes

Activity	Magnitude	Justification
Earthworks	Medium	Proposed earthworks activities comprise clearance of vegetation, soil preparation and landscaping across an area of between 18,000 m^2 and 110,000 m^2. The soil at the Site is classified as slowly permeable loamy and clayey (Cranfield University, 2025) which are considered to be moderately dusty, particularly during periods of dry weather. Based on this, the dust emission magnitude of earthworks activities is judged to be 'medium'.
Construction	Large	The total building volume to be constructed is expected to exceed 75,000 m^3. Construction materials will comprise a mixture of masonry material including those with a high potential for dust release, such as concrete, as well as those with a lower dust potential such as metals and timber. Based on this, the dust emission magnitude of construction activities is judged to be 'large' on a precautionary basis.
Trackout	Medium	The number of HDVs that will exit the Site will vary depending upon the processes occurring at any one time. There are unlikely to be more than 50 outward HDV movements in any one day. Due to the nature of the Site, it is not likely there would be an unpaved road length greater than 100 m in length comprising moderately dusty surface material. Based on this, the dust emission magnitude of trackout is judged to be 'medium'.

Area Sensitivity

5.1.4 The area sensitivity to dust soiling and human health impacts has been determined based on the criteria shown in **Table B-3, Table B-4, Table B-5, Appendix B**. The study area, based on the IAQM guidance is shown in **Figure XX**, **Appendix G**.

5.1.5 Medium or long-term car parks are classed as 'high sensitivity' receptors to dust soiling, based on the IAQM guidance (IAQM, 2024) (see **Table B-3**, **Appendix B**). There is a medium term car park within 20 m of the Site. As such, the sensitivity of the area surrounding the Site to dust soiling is judged to be 'high'.

5.1.6 The IAQM guidance indicates that potential impacts of trackout should be considered for sensitive receptors within 50 m of the route used by construction vehicles within a distance of up to 250 m from the site entrance. As the construction traffic routing is currently unknown, the worst-case assumption has been made that all main roads may potentially be used by HDVs leaving the Site entrances. There is at least one high sensitivity receptor (a medium term car park) within 20 m of roads extending up to 250 m of the Site. As such, the sensitivity to dust soiling of the area surrounding roads along which material may be tracked is judged to be 'high.

5.1.7 The IAQM also defines residential properties as being 'high sensitivity' receptors to human health impacts (see **Table B-4**, **Appendix B**). PM_{10} concentrations at existing residential properties within the study area are anticipated to be similar to the predicted 2024 PM_{10} concentrations at receptor locations R01 and R03 (i.e. 11.5 µg/m^3 and 12.3 µg/m^3 respectively). Based on the predicted existing PM_{10} concentrations and the number of sensitive receptors within 20 m of the Site and roads along which material may be tracked, the sensitivity to human health impacts of the areas surrounding the Site and the area surrounding roads along which material may be tracked are judged to be 'low'.

Risk of Impacts

5.1.8 The risk of construction dust impacts, without mitigation, have been defined based on the criteria shown in **Table B-6, Appendix B** and are presented in **Table 5-2**.

Table 5-2 Risk of Construction Dust Impacts without Mitigation

Potential Impact	Risk		
	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	High Risk	Medium Risk
Human Health	Low Risk	Low Risk	Low Risk

5.2 Construction Road Traffic Emission Impacts

5.2.1 At present, detailed information regarding the construction methodology for the Proposed Development, specific activities and traffic movements is not available. However, a Construction Environmental Management Plan (CEMP) will outline measures to control and minimise the risk of adverse effects from construction activities. The CEMP will be submitted to MCC for their approval, pursuant to a planning condition. The CEMP will consider Heavy Goods Vehicles (HGV) and other construction traffic movements, including details of routing and times of day of movements. HGV access will be prevented or minimised, where possible, on traffic sensitive roads, residential streets, congested roads or unsuitable junctions.

5.2.2 Vehicle movements associated with access, construction will vary through the construction programme, with short periods of peak HGV movements associated with the delivery of materials during the construction phase. However, when the HGV movements are averaged over a full year period (Annual Average Daily Traffic - AADT), these will be significantly lower than peak movements. Together with the implementation of the CEMP, the impacts of emissions associated with construction road traffic on local air quality are considered to be temporary and 'not significant'. Moreover, vehicle movements associated with construction are typically significantly lower than the number of vehicle movements associated with operation of the Proposed Development, which have been taken into account in this assessment.

5.3 Construction Non-Road Mobile Machinery Emission Impacts

5.3.1 At the closest point, construction activities could take place within 5 m of sensitive receptors, and predicted 2024 and 2029 background concentrations at the Site are also well below (i.e <50% of) the relevant NAQOs.

5.3.2 In accordance with Part 4 of the IAQM construction dust guidance, all NRMM will need to adhere to the NRMM emissions standards for NO_2 and PM_{10} outlined in the Road Vehicles and Non-Road Mobile Machinery (Type-Approval) (Amendment and Transitional Provisions) (EU Exit) Regulations 2022 (Statutory Instrument, 2022).

5.3.3 Considering the above, the impacts of emissions associated with NRMM during the construction phase of the Proposed Development are considered to be 'not significant'.

5.4 Operational Phase Road Traffic Emission Impacts

Screening Assessment

5.4.1 The Proposed Development will generate additional road traffic during the operational phase, which will result in an increase of over 500 LDV AADT / 100 HDV AADT along several roads in the local area, and an increase of over 100 LDV AADT / 25 HDV AADT along roads located within the Greater Manchester AQMA, thus exceeding the EPUK & IAQM screening criteria (see **Appendix C**). As such, it is not possible to screen out the potential for significant impacts from operational traffic generated by the Proposed Development on existing sensitive properties and, therefore a detailed assessment has been undertaken as presented in the following section.

Detailed Assessment

5.4.2 Predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ at existing receptors, both without and with the Proposed Development in place, are presented in **Table F - 1**, **Table F - 2** and **Table F - 3**, **Appendix F**. The 'without development' scenario predicted concentrations include background concentrations and emissions from existing traffic, and the 'with development' scenario predicted concentrations include background concentrations, emissions from existing traffic and traffic generated by the Proposed Development.

5.4.3 The predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations in 2029, both without and with the Proposed Development in place, are below the relevant NAQOs at all existing receptors. Furthermore, predicted annual mean NO_2 concentrations are less than 60µg/m^3 at all receptors, indicating that exceedances of the 1-hour mean NO_2 NAQO are not likely, and the predicted annual mean PM_{10} concentrations are below 32 µg/m^3 at all receptors, indicating that exceedances of the 24-hour mean PM_{10} NAQO are not likely.

5.4.4 The changes in annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations (when rounded to the nearest whole number) are 0% (i.e (<0.5%) at all modelled receptors. Using the criteria set out in **Table 3-2**, the NO_2, PM_{10} and $PM_{2.5}$ impacts are described as being 'negligible' at all receptors.

5.5 Site Suitability

Screening Assessment

5.5.1 The Site is located adjacent to a busy road which will see an increase in traffic as a result of the Proposed Development. Therefore, a more detailed assessment of site suitability has been undertaken and is presented below.

Detailed Assessment

5.5.2 Predicted concentrations at modelled receptor locations are presented in **Table 5-8**. Details of the proposed receptors are provided in **Appendix D** and shown in **Figure 01, Appendix G**.

Table 5-3 Predicted Concentrations within the Site

Receptor	Annual Mean (µg/m^3)		
	NO_2	PM_{10}	$PM_{2.5}$
PR01	12.4	11.3	6.8
PR02	12.6	11.3	6.8
PR03	12.5	11.3	6.8
PR04	12.4	11.3	6.8
PR05	12.7	11.5	6.9
PR06	12.8	11.5	6.9
PR07	12.7	11.5	6.9
NAQO	**40**	**40**	**20**

5.5.3 Predicted concentrations of NO_2, PM_{10} and $PM_{2.5}$ are well below the annual mean NAQOs at all worst-case proposed receptors. Given the proposed end-use as Class B2 / B8 / E (g) (iii), only the short-term NAQOs for NO_2 and PM_{10} will be relevant to proposed receptor locations within the Site. The annual mean NO_2 concentrations are less than 60µg/m^3 at all receptors, indicating that exceedances of the 1-hour mean NO_2 NAQO are not likely, and the predicted annual mean PM_{10} concentrations are below 32 µg/m^3 at all receptors, indicating that exceedances of the 24-hour mean PM_{10} NAQO are not likely.

5.5.4 Overall, air quality within the Proposed Development, without additional mitigation, will be acceptable for the proposed end-use.

5.6 Consideration of $PM_{2.5}$

5.6.1 In terms of how $PM_{2.5}$ has influenced the selection of the Site, the maximum DEFRA background $PM_{2.5}$ concentration at the Site in the existing year (2024) is 6.9 µg/m^3 (see **Table 4-6**). Background concentrations of $PM_{2.5}$ within the Site are therefore well below the annual mean concentration target of 10 µg/m^3 which is to be achieved by 2040. The predicted $PM_{2.5}$ concentrations at modelled proposed receptor locations within the Site in 2029 are also well below the annual mean concentration target of 10 µg/m^3, at a maximum of 6.9 µg/m^3.

5.6.2 Given the proposed end-use of the Site being commercial, with no centralised combustion-based energy sources proposed, and the operational road traffic emission impacts being assessed as being 'not significant', there are considered to be no significant sources of $PM_{2.5}$ emissions or it's precursors from the Proposed Development.

5.7 Effect Significance

5.7.1 The IAQM guidance recommends that no judgement of the significance of effects of construction dust without mitigation is made, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations (IAQM, 2024). Following the implementation of appropriate mitigation measures (as described in **Section 6.1**) the residual effects will be 'not significant'.

5.7.2 Overall, taking into account the conservative nature of the assessment, and the criteria set out in **Section 3.10**, the operational air quality effects of the Proposed Development are considered to be 'not significant' on the basis that:

- Emissions associated with the Proposed Development (i.e. from traffic generated by the Proposed Development) will not result in any exceedances of the NAQOs.
- Impacts as a result of emissions associated with the operation of the Proposed Development will be 'negligible' at all receptors.

- Predicted concentrations of pollutants (NO_2, PM_{10} and $PM_{2.5}$) at worst-case sensitive locations within the Proposed Development will be well below the relevant NAQOs and, therefore, users of the Proposed Development will experience acceptable air quality.

6 Mitigation

6.1 Construction

6.1.1 The following standard mitigation measures from the IAQM guidance (IAQM, 2024) are recommended to be incorporated into the CEMP, taking into account the outcomes of the construction dust risk assessment (presented in **Table 5-2**).

6.1.2 Furthermore, in accordance with Part 4 of the IAQM construction guidance, all NRMM will need to adhere to the relevant NRMM emissions standards for NO_2 and PM_{10}. These measures will be implemented through a CEMP secured by a suitably worded planning condition on any permission.

Table 6-1 Construction Phase Mitigation Measures

Category	Mitigation Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Management	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
	Record all dust and air quality complaints, identify cause(s) and take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- of off-site, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Where possible, commence baseline monitoring at least three months before work on a phase commences.
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as a high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust productions and the site is active for an extensive period.

Category	Mitigation Measure
	Avoid site runoff of water of mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum speed limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car sharing).
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
	Only remove the cover in small areas during work and not all at once.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water assisted dust sweepers on the site access and local roads, to remove, as necessary, any material trackout out of the site. This may require the sweeper being continuously in use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.

Category	Mitigation Measure
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10 m from receptors where possible.

6.2 Operation

6.2.1 The operational impacts of the Proposed Development are considered to be 'not significant' and no additional mitigation is therefore required.

6.3 Mitigation of $PM_{2.5}$ Emissions and Exposure

6.3.1 With regards to mitigation, the construction dust mitigation measures set out in **Section 6.1** will reduce the magnitude of $PM_{2.5}$ emissions during construction.

6.3.2 A series of mitigation measures have been embedded into the Proposed Development as part of a Travel Plan and will contribute towards reducing local $PM_{2.5}$ impacts and exposure to $PM_{2.5}$ for future users of the Proposed Development. Measures within the Travel Plan include provision of electric vehicle charging points, provision of shower and changing facilities, as well as 'soft' measures such as car clubs and monitoring of travel plan goals through a Travel Plan Co-ordinator.

6.3.3 Operational mitigation measures to reduce air pollution exposure for future users of the Site, including $PM_{2.5}$, include offices being located on the mezzanine floor and away from the Simonsway, which is likely to be the largest source of road traffic pollution at the Site. The Proposed Development also retains the green infrastructure buffer between the Simonsway and the Site, which will further help to mitigate exposure to pollutants for users of the Site. Additionally, the inclusion of on-site landscaping and retained trees to the south will contribute towards reducing exposure to $PM_{2.5}$ for receptors surrounding the Site, particularly residential receptors to the southwest of the Site.

6.3.4 Furthermore, the Proposed Development does not include any centralised combustion-based energy plant.

7 Summary and Conclusions

7.1.1 The air quality impacts associated with the Proposed Development at Concord House, Wythenshawe, located within the boundary of Manchester City Council have been assessed.

7.1.2 MCC currently has one declared AQMA, which forms part of the wider Greater Manchester Combined Authority Air Quality Management Area at all locations shown by 2016 modelling to exceed 35 µg/m^3 annual mean NO_2 concentration. The Site is not located within an Air Quality Management Area; the closest part of the Manchester City Council Air Quality Management Area is approximately 270 m northwest of the Site.

7.1.3 The construction works have the potential to create dust. During construction it is recommended that in accordance with the IAQM guidance a package of mitigation measures is put in place to minimise the risk of elevated PM_{10} concentrations and dust nuisance in the surrounding area. With mitigation in place the construction impacts are judged as being 'not significant'.

7.1.4 Concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been predicted for a number of worst-case locations representing existing properties adjacent to the road network, as well as future receptor locations within the Site. Predicted concentrations are well below the relevant NAQOs at all of the existing and proposed receptor locations with the Proposed Development in place. The operational effects of the Proposed Development on human receptors are considered to be 'not significant'.

7.1.5 Mitigation measures to reduce the impacts of the Proposed Development on air quality concentrations are not required, however, additional transport-related mitigation measures will be employed to reduce emissions associated with the Proposed Development as part of the Travel Plan.

7.1.6 Overall, the Proposed Development is considered to be in accordance with the requirements of the National Planning Policy Framework, as well as relevant local and national planning policy and guidance regarding air quality.

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Appendix A Glossary

Abbreviations	Meaning
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQR	Air Quality Regulations
AQMA	Air Quality Management Area
CAZ	Clean Air Zone
CEMP	Construction Environmental Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
Diffusion Tube	A passive sampler used for collecting NO_2 in the air
EFT	Emission Factor Toolkit
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes. Includes Heavy Goods Vehicles and buses
IAQM	Institute of Air Quality Management
GMCA	Greater Manchester Combined Authority
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle; a vehicle with a gross vehicle weight less than 3.5 tonnes. Includes cars and light goods vehicles.
MCC	Manchester City Council
NAEI	National Atmospheric Emission Inventory
NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NE	Natural England
NO_2	Nitrogen Dioxide
NO_x	Oxides of nitrogen generally considered to be nitric oxide and NO_2. Its main source is from combustion of fossil fuels, including petrol and diesel used in road vehicles
NPPF	National Planning Policy Framework
$PM_{10}/PM_{2.5}$	Small airborne particles less than 10/2.5 µm in diameter
PPG	Planning Practice Guidance
Receptor	A location where the effects of pollution may occur
SPG	Supplementary Planning Guidance
The Plan	The National Air Quality Plan for NO_2

Appendix B IAQM Dust Guidance (2024) Approach

Table B-1 Dust Emission Magnitude Classification

Activity	Dust Emission Magnitude		
	Large	**Medium**	**Small**
Demolition	Total building volume of >75,000 m^3, potentially dusty construction material, on-site crushing and screening, demolition activities >12 m above ground	Total building volume of 12,000 – 75,000 m^3, potentially dusty construction material, demolition activities 6 – 12 m above ground level	Total building volume of <12,000 m^3, construction material with low potential for dust release, demolition activities <6 m above ground, demolition during wetter months
Earthworks	Total site area of >110,000 m^2, potentially dusty soil type, >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height	Total site area of 18,000 – 110,000 m^2, moderately dusty soil type, 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3 - 6 m in height	Total site area of <18,000 m^2, soil type with large grain size, <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height
Construction	Total building volume >75,000 m^3, on-site concrete batching, sandblasting	Total building volume 12,000 - 75,000 m^3, potentially dusty construction material, on-site concrete batching	Total building volume <12,000 m^3, construction material with low potential for dust release
Trackout	>50 HDV outwards movements in any one day, potentially dusty surface material, unpaved road length >100 m	20 - 50 HDV outwards movements in any one day, moderately dusty surface material, unpaved road length 50 - 100 m	<20 HDV outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

Table B-2 Receptor Sensitivity

Receptor Sensitivity	Impact		
	Dust Soiling	**Health Effects of PM_{10}**	**Ecological Impacts**
High	An area where: • Users can reasonably expect enjoyment of a high level of amenity; • The appearance, aesthetics or value of their property would be diminished by soiling; • The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Examples include dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). Examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	Locations with an international or national designation *and* the designated features may be affected by dust soiling; OR Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain. Indicative examples include a SAC designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.

Medium	An area where: • Users would expect to enjoy of a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; • The appearance, aesthetics or value of their property could be diminished by soiling; • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods, as part of the normal pattern of use of the land. Examples include parks and places of work.	Locations where people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). Examples include office and shop workers, but will generally not include workers occupationally exposed to for PM_{10}, as protection is covered by Health and Safety at Work legislation.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; OR Locations with a national designation where the features may be affected by dust deposition. Indicative example is a SSSI with dust sensitive features.
Low	An area where: • The enjoyment of amenity would not reasonably be expected; • Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks and roads.	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a LNR with dust sensitive features.

Table B-3 Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	**Number of Receptors**	**Distance from Source (m)**			
		<20	**<50**	**<100**	**<250**
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table B-4 Sensitivity of an Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32 µg/m^3	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28 µg/m^3	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32 µg/m^3	>10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28 µg/m^3	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table B-5 Sensitivity of an Area to Ecological Impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High Risk	Medium Risk
Medium	Medium Risk	Low Risk
Low	Low Risk	Low Risk

Table B-6 Risk of Dust Impacts Calculation Matrix

Sensitivity of Area		Dust Emission Magnitude		
		Large	**Medium**	**Small**
Demolition	High	High Risk	Medium Risk	Medium Risk
	Medium	High Risk	Medium Risk	Low Risk
	Low	Medium Risk	Low Risk	Negligible Risk
Earthworks	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk
Construction	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk
Trackout	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk

Appendix C EPUK IAQM Guidance (2017) Screening Criteria

The Development Will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in LDV traffic flows on local roads with relevant receptors.	A change of LDV flow of: • >100 AADT within or adjacent to an AQMA; and • >500 AADT elsewhere.
Cause a significant change in HDV flows on local roads with relevant receptors.	A change of HDV flow of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Realign roads i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5 m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle acceleration / deceleration, e.g. traffic lights, or roundabouts.
Introduce or change a bus station.	A change of bus flows of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Have an underground car park with extraction system.	The ventilation extract for the car park will be located within 20 m of a relevant receptor; and The car park will have >100 movements per day (total in and out).

The screening criteria presented is amended from Table 6.2 of the EPUK / IAQM guidance (EPUK / IAQM, 2017). Only the screening criteria relevant to changes in transport (including both traffic and the transport network) are outlined.

Appendix D Model Inputs and Results Processing

D.1 Summary of Model Inputs

Meteorological Data	2024 hourly meteorological data from Manchester Airport station have been used in the model. The wind rose is shown in **Figure D-1**.
ADMS	Version 5.1.0.2
Time Varying Emission Factors	Based on Department for Transport statistics. Table TRA0307. Motor vehicle traffic distribution by time of day and day of the week on all roads, Great Britain: 2024
Latitude	53.4°
Surface Roughness	A value of 0.5 for 'parkland, open suburbia' was used to represent the modelled area. A value of 0.3 for 'agricultural areas (max)' was used to represent the meteorological station site.
Minimum Monin-Obukhov length	A value of 30 for 'cities and large towns' was used to represent the modelled area and the meteorological station site.
Emission Factor Toolkit (EFT)	V13.1 (DEFRA, 2025b)
NO_x to NO_2 Conversion	NO_x to NO_2 calculator version 9.1, August 2020 (DEFRA, 2024d)
Background Maps	2021 reference year background maps (DEFRA, 2020b)

D.2 Receptor Locations

Receptor	Description	X Coordinate	Y Coordinate	Height (m)
R01	107-109 Shadowmoss Road	383413	386133.8	1.5
R02	60 Simonsway	383562.8	386291.2	1.5
R03	70 Simonsway	383535.6	386311	1.5
R04	108 Robinswood Road	382806.8	386652	1.5
R05	Dee Dee's Childcare	382420.8	386955.5	1.5
R06	42 Longlevens Road	382270.7	387012	1.5
R07	Manchester Enterprise Academy	382049.6	387099.4	1.5
R08	544 Greenwood Road	381916.6	387138.5	1.5
R09	51 Peterswood Close	381692.5	387327.7	1.5
R10	Piper Hill High School (Field Boundary)	381674	387562	1.5
R11	60 Shawbury Road	381698.5	387644.7	1.5
R12	22 Finney Lane	385572.6	386226.7	1.5
R13	9 Finney Lane	385623	386203.4	1.5
R14	10 Finney Lane	385623.8	386236.9	1.5
R15	119 Wilmslow Road	385700.8	386253.6	1.5
R16	201 A34	385053.5	388320.6	1.5

Receptor	Description	X Coordinate	Y Coordinate	Height (m)
R17	Residence at junction of Gatley Road and A34 (southwest)	385014.3	388343.7	1.5
R18	Residence at junction of Gatley Road and A34 (Northeast)	385048.7	388389.4	1.5

D.3 Traffic Data

Link ID	Location	2024 Baseline		2029 without Development		2029 with Development	
		AADT	HDV (%)	AADT	HDV (%)	AADT	HDV (%)
1	Simonsway (W)	15642	0.1	16683	0.1	17012	0.3
2	Threapwood Road	1234	0.2	1316	0.2	2140	4.9
3	Shadowmoss Road (S)	3926	0.1	4187	0.1	4352	0.5
4	Shadowmoss Road (N)	5021	0.2	5355	0.2	6013	1.5
5	Wilmslow Road (S)	16174	0.7	17250	0.7	17250	0.7
6	Finney Lane	15811	0.1	16863	0.1	17027	0.2
7	Etchells Road	12977	0.2	13841	0.2	13841	0.2
8	Wilmslow Road (N)	21043	0.3	22443	0.3	22608	0.4
9	Wilmslow Road Further South	15866	0.1	16921	0.1	16921	0.1
10	M56 NB	87392	4.2	94752	4.2	94917	4.2
11	A34 N	69893	2.0	74542	2.0	74707	2.0
12	A560 E	8791	1.6	9376	1.6	9376	1.6
13	A34 S	62328	2.2	66474	2.2	66639	2.2
14	A560 W	7788	1.7	8306	1.7	8306	1.7
15	Simonsway (West of M56)	9405	0.9	10509	0.9	10509	0.9
16	M56 (South of J4) NB	76953	4.7	82072	4.7	82072	4.7
17	M56 (South of J4) SB	76631	5.0	81728	5.0	81728	5.0
18	M56 on-slip	10439	0.4	12680	0.9	12845	1.0
19	M56 (North of J4 (SB)	87900	4.4	95302	4.4	95467	4.4
20	M56 off-slip	11269	0.3	13574	0.8	13739	0.9
21	Simonsway (East)	16513	0.1	17611	0.1	17940	0.3
22	Site Access	0	0.0	0	0.0	823	12.4

D.4 Windrose

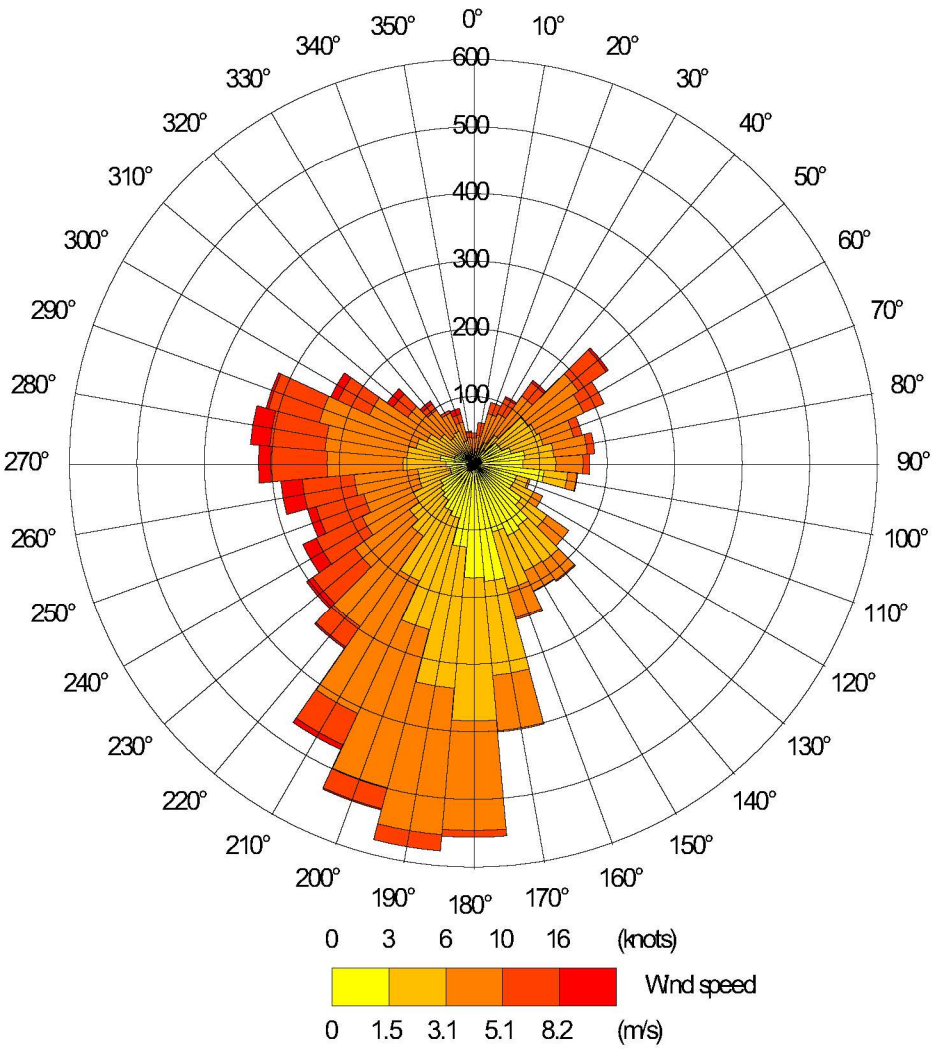


Figure D-1: 2024 Windrose for Manchester Airport

Appendix E Model Verification

NO_2

Most NO_2 is produced in the atmosphere by the reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emission of nitrogen oxides (NO_x = NO + NO_2). The model has been run to predict the 2024 annual mean road-NO_x contribution at three monitoring locations (identified in **Table 4-1**). Concentrations have been modelled at a height of 2.5 m for STK7 and ST28NO, and 2.2 m for CE279. The ST2NO, ST12NO, ST14NO diffusion tube site at co-located with STK7 has not been used as the automatic monitor is considered to provide higher accuracy of concentrations at this location.

A primary adjustment factor of **1.5742** has been determined as the slope of the best fit line between the modelled road NO_x contribution and the 'measured' road-NO_x (which is calculated from the measured and background NO_2 concentrations within DEFRA's NO_x from NO_2 calculator (DEFRA, 2024d), forced through zero (**Figure E-1**). This factor has then been applied to the raw modelled road-NO_x concentration to provide adjusted modelled road-NO_x concentrations.

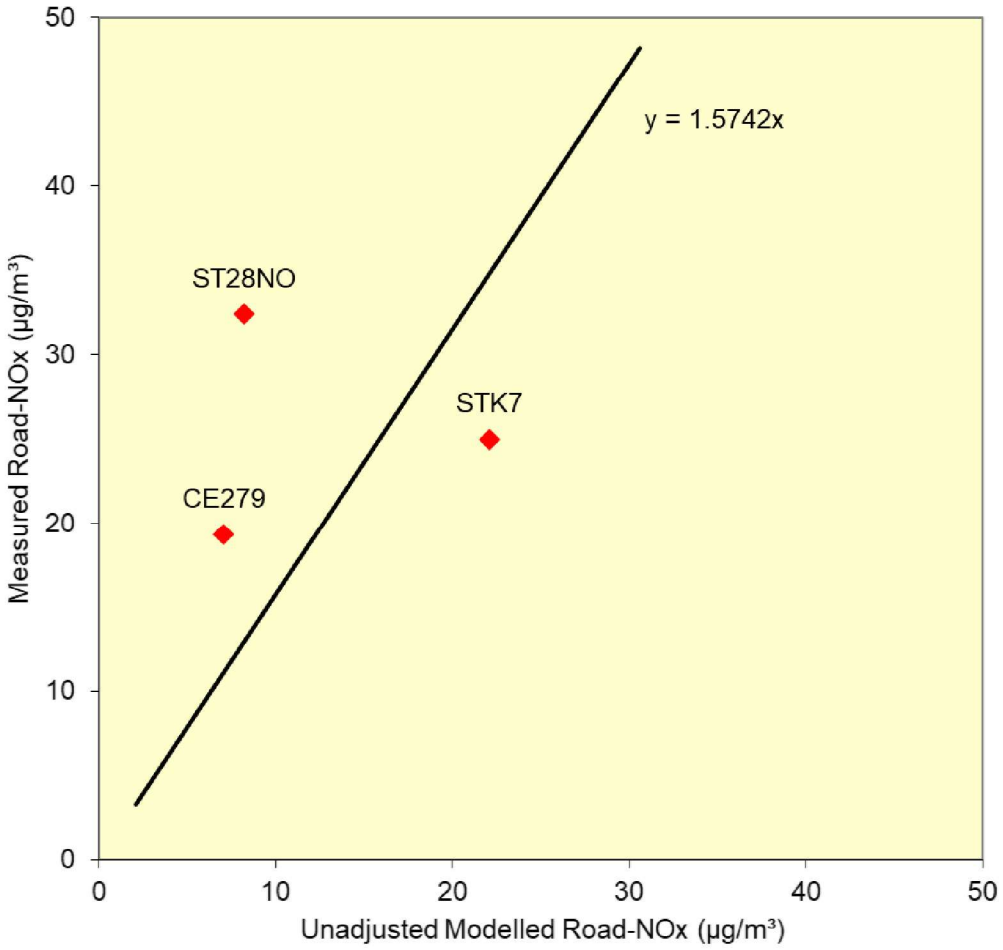


Figure E-1 Measured and Unadjusted Road-NO_x Comparison

The total NO_2 concentrations have then been determined by combining the adjusted modelled road-NO_x concentrations with the background NO_2 concentration within DEFRA's NO_x from NO_2 calculator (DEFRA, 2024d). A secondary adjustment factor of **1.0658** has then been calculated as the slope of the best fit line applied to the adjusted data and forced through zero (**Figure E-2**).

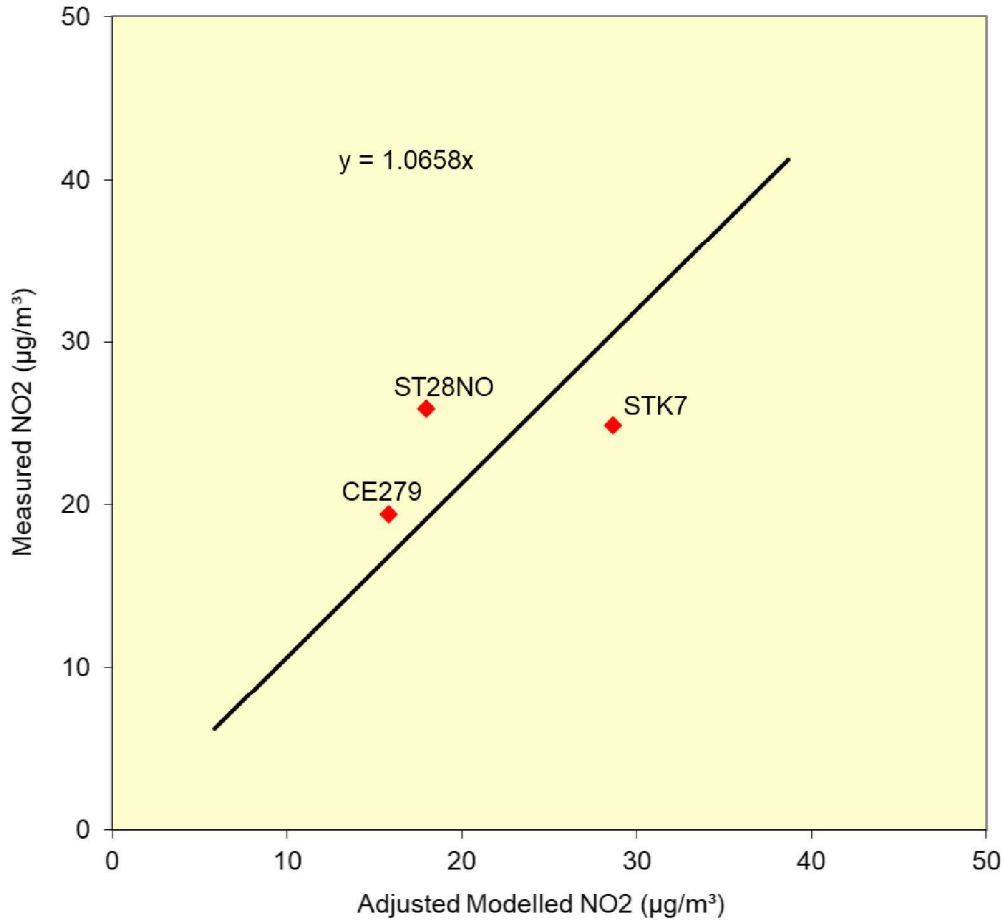


Figure E-2 Measured and Primary Adjusted Modelled NO_2 Comparison

Figure E-3 compares final adjusted modelled total NO_2 at each of the monitoring sites, to measured total NO_x and shows the 1:1 relationship, as well as ±10% and ±25% of the 1:1 line.

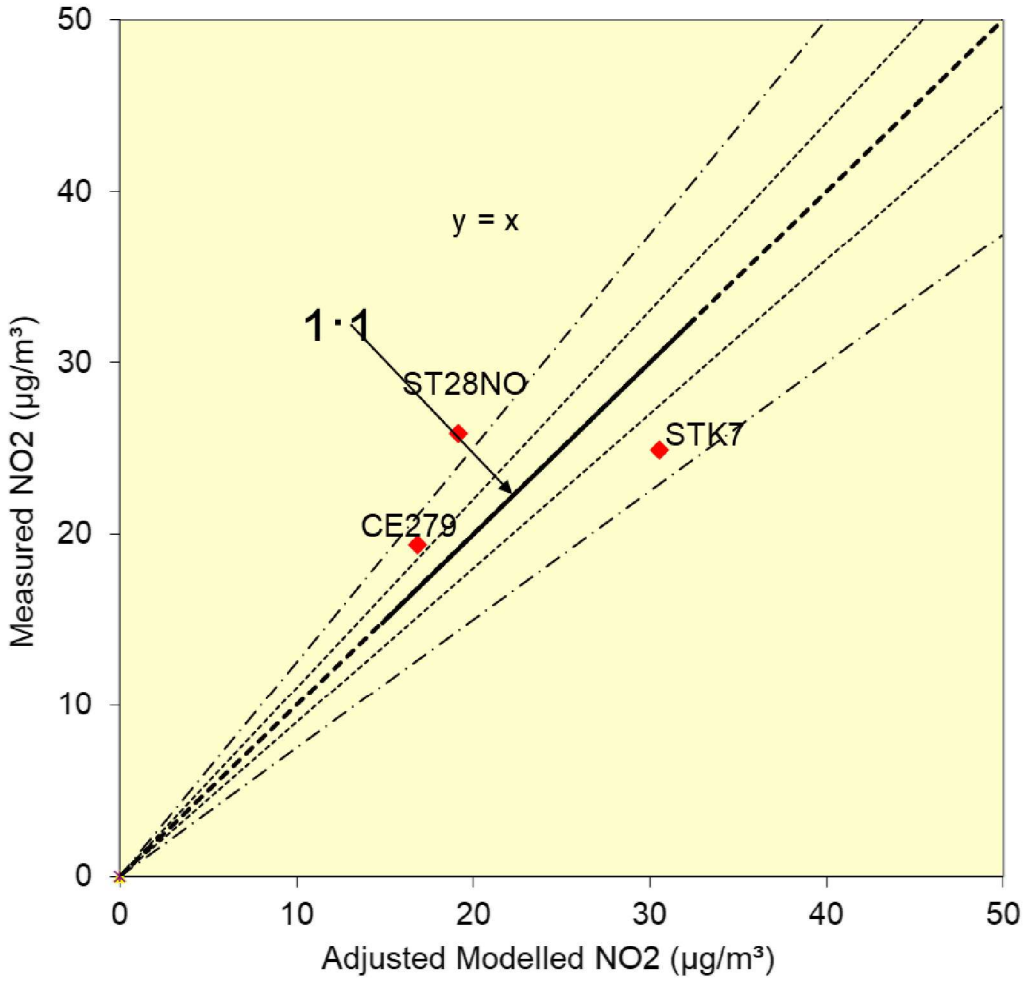


Figure E-3 Measured and Final Adjusted Modelled NO_2 Comparison

The calculated adjustment factors imply that overall, the model has under-predicted the road-NO_x contribution. This is a common experience with this and most other models. The calculated Root Mean Square Error (RMSE) for this verification (5.3 µg/m^3 or 13%) lies within the range considered to be acceptable by DEFRA (DEFRA, 2025a) (0 – 10 µg/m^3).

PM_{10} and $PM_{2.5}$

The STK7 monitoring site used for NO_2 verification has not been used to verify the predicted PM_{10} and $PM_{2.5}$ concentrations. This is because the DEFRA background concentrations at this location are considered to be overpredicting which results in a PM_{10} adjustment factor of 0.0343. Therefore, the adjustment factor calculated for NO_2 has therefore been applied to the modelled road-PM_{10} and road-$PM_{2.5}$ concentrations.

Appendix F Operational Phase Road Traffic Emission Modelling Results

Table F-1 Predicted Concentrations of NO_2 (µg/m³), % Change and Impact at each Receptor

Receptor		2029 Without Development	2029 With Development	Change (as % of NAQO)	Impact Descriptor
R01		12.3	12.4	0	Negligible
R02		13.8	13.9	0	Negligible
R03		13.8	13.9	0	Negligible
R04		13.6	13.6	0	Negligible
R05		16.1	16.2	0	Negligible
R06		12.6	12.6	0	Negligible
R07		13.7	13.8	0	Negligible
R08		15.7	15.8	0	Negligible
R09		21.1	21.1	0	Negligible
R10		22.5	22.5	0	Negligible
R11		21.8	21.8	0	Negligible
R12		13.2	13.2	0	Negligible
R13		12.1	12.1	0	Negligible
R14		13.5	13.5	0	Negligible
R15		15.6	15.6	0	Negligible
R16		20.9	20.9	0	Negligible
R17		18.6	18.7	0	Negligible
R18		22.7	22.7	0	Negligible
NAQO		**40**		-	

Table F-2 Predicted Concentrations of PM_{10} (µg/m³), % Change and Impact at each Receptor

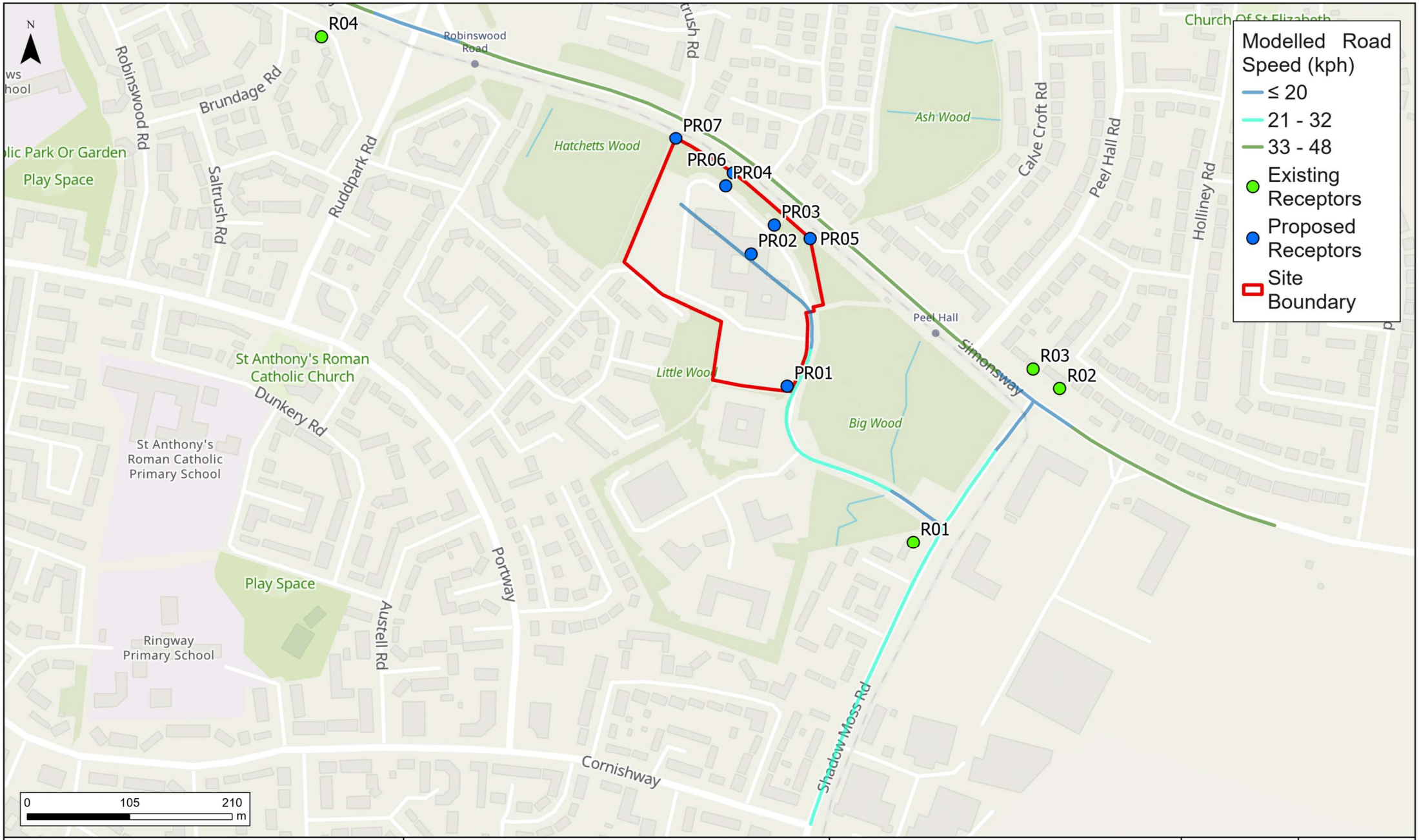
Receptor	2029 Without Development	2029 With Development	Change (as % of NAQO)	Impact Descriptor
R01	11.2	11.3	0	Negligible
R02	11.9	12.0	0	Negligible
R03	11.9	12.0	0	Negligible
R04	11.5	11.5	0	Negligible
R05	12.8	12.8	0	Negligible
R06	11.9	11.9	0	Negligible
R07	12.5	12.6	0	Negligible
R08	14.8	14.8	0	Negligible
R09	15.8	15.8	0	Negligible
R10	16.0	16.0	0	Negligible
R11	15.8	15.8	0	Negligible
R12	12.4	12.4	0	Negligible
R13	11.7	11.7	0	Negligible
R14	12.4	12.4	0	Negligible
R15	13.3	13.3	0	Negligible
R16	16.2	16.2	0	Negligible
R17	15.1	15.1	0	Negligible
R18	17.1	17.1	0	Negligible
NAQO	**40**		-	

Table F-3 Predicted Concentrations of $PM_{2.5}$ (µg/m³), % Change and Impact at each Receptor

Receptor	2029 Without Development	2029 With Development	Change (as % of NAQO)	Impact Descriptor
R01	6.8	6.8	0	Negligible
R02	7.2	7.2	0	Negligible
R03	7.2	7.2	0	Negligible
R04	6.9	6.9	0	Negligible
R05	7.6	7.6	0	Negligible
R06	7.1	7.1	0	Negligible
R07	7.4	7.4	0	Negligible
R08	7.8	7.8	0	Negligible
R09	8.5	8.5	0	Negligible
R10	8.6	8.6	0	Negligible
R11	8.5	8.5	0	Negligible
R12	7.4	7.4	0	Negligible
R13	7.0	7.0	0	Negligible
R14	7.4	7.4	0	Negligible
R15	7.9	7.9	0	Negligible
R16	9.3	9.3	0	Negligible
R17	8.6	8.6	0	Negligible
R18	9.7	9.7	0	Negligible
NAQO	**20**		-	

Appendix G Figures

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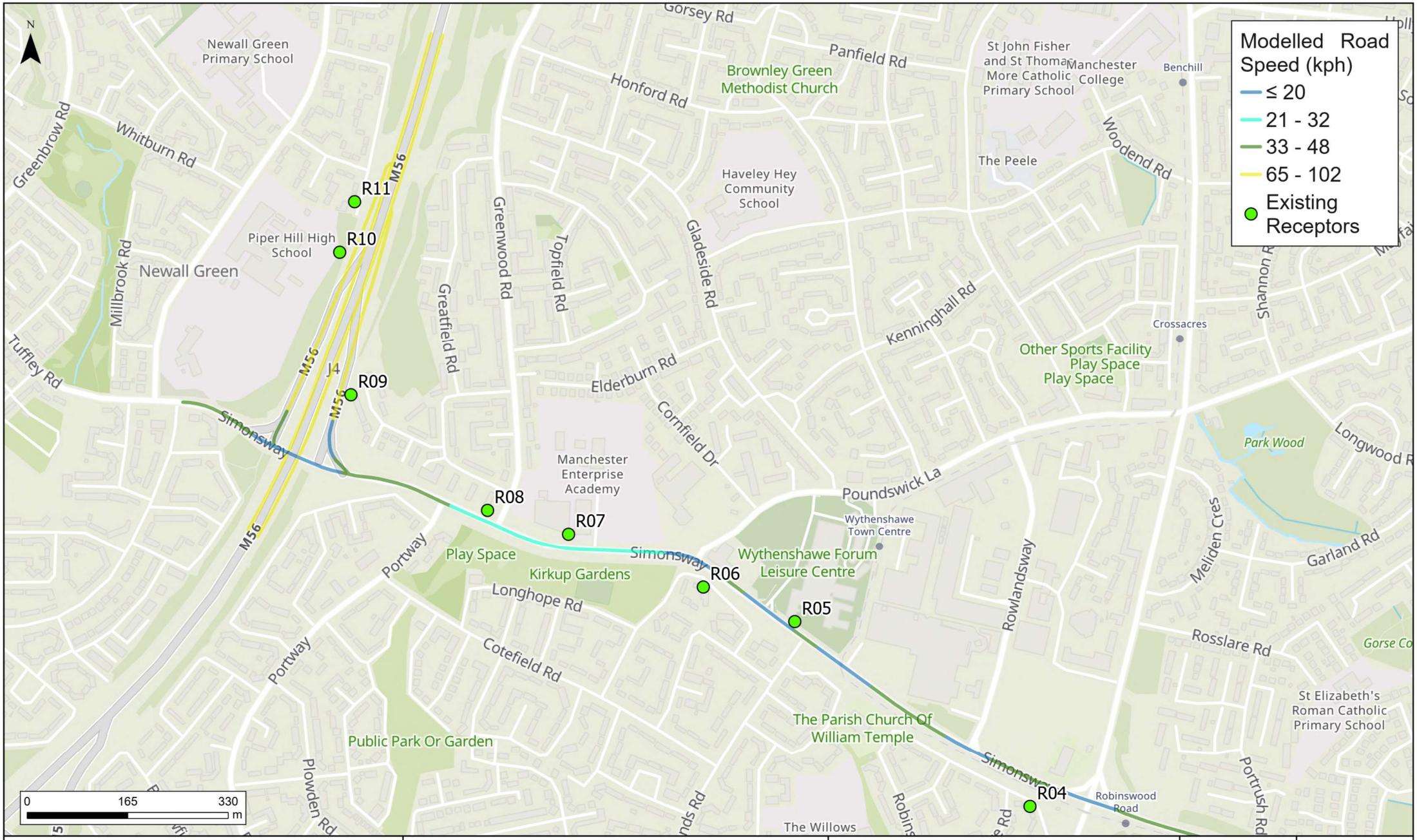
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Modelled Road Network, Receptors and Model Verification Monitoring Sites

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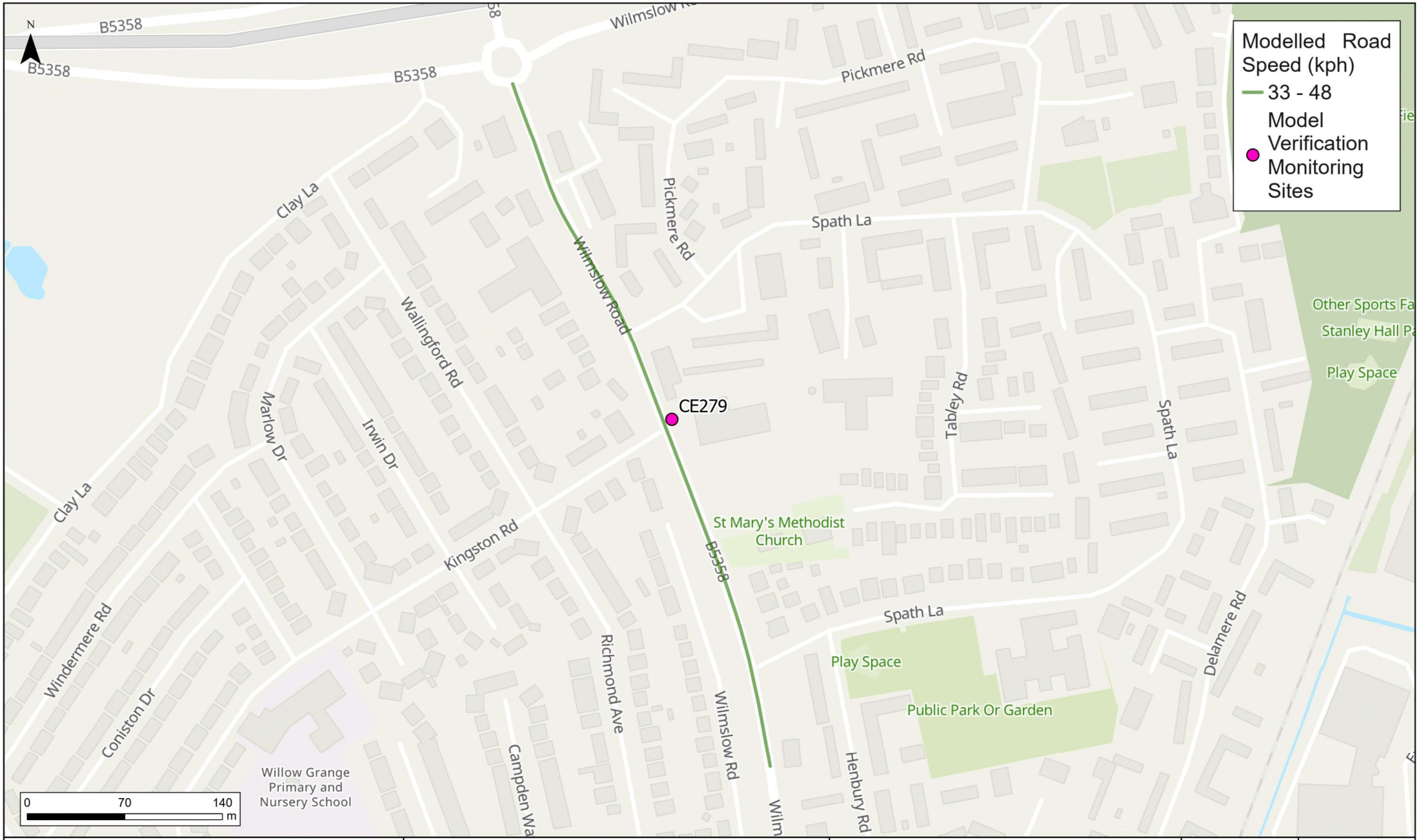
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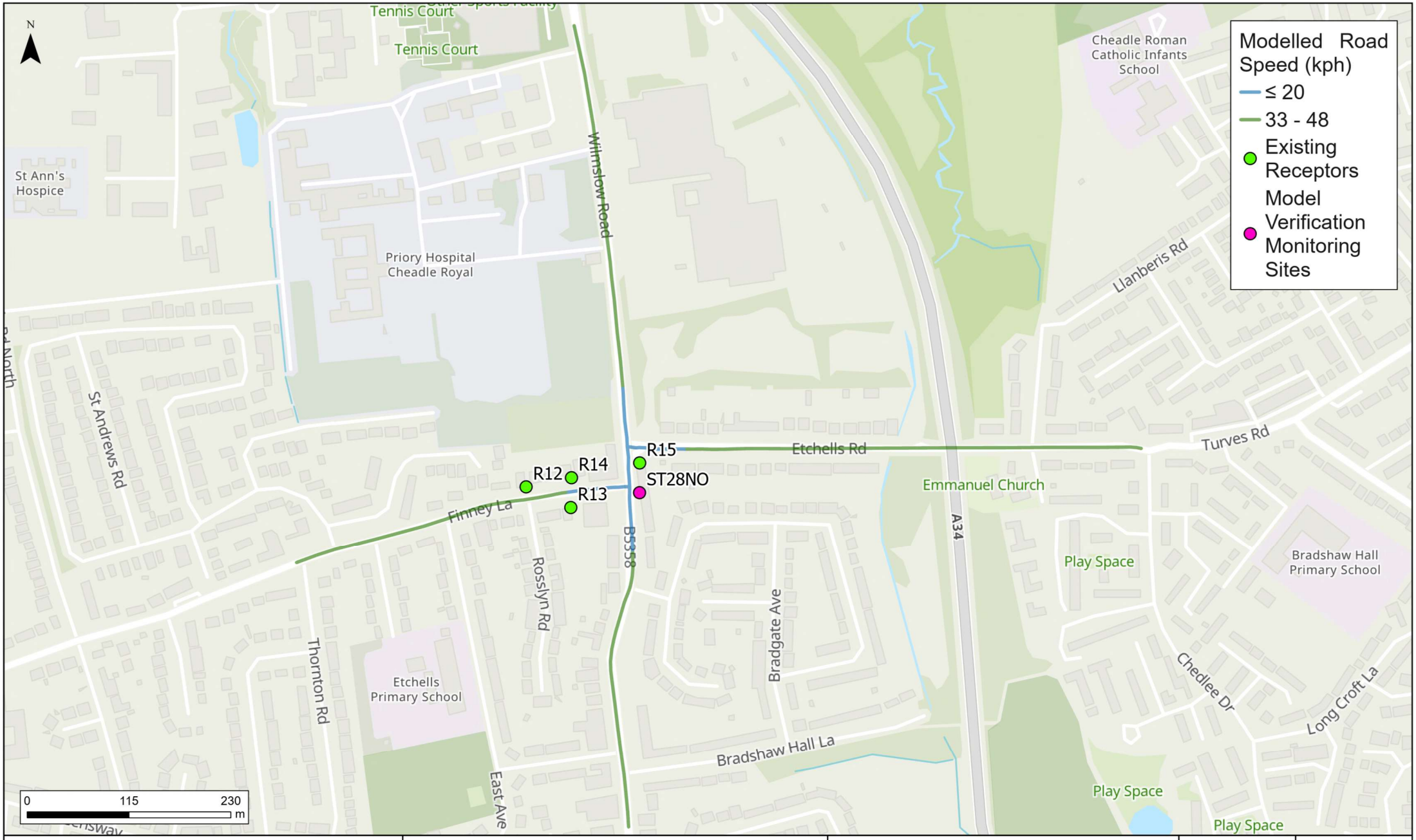
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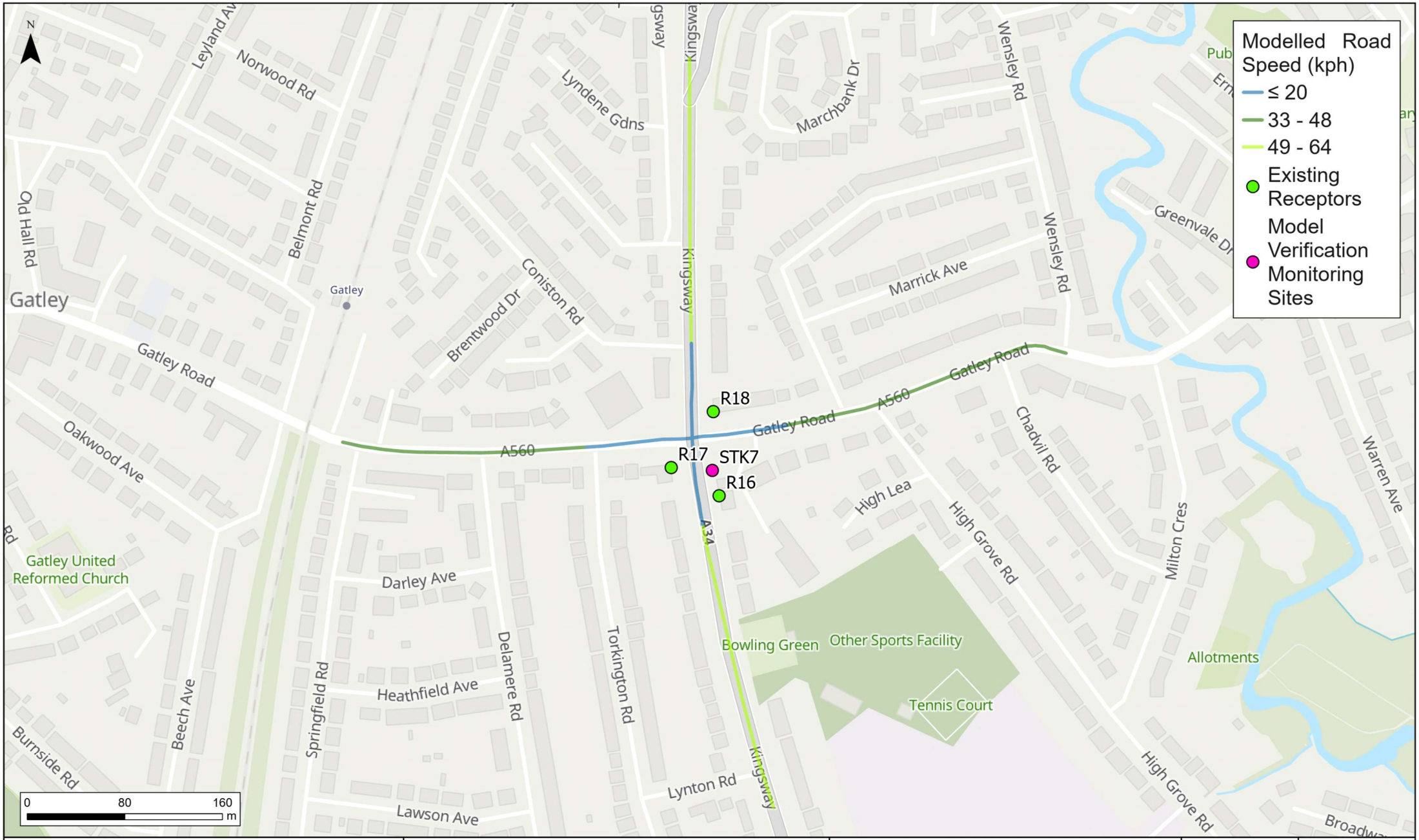
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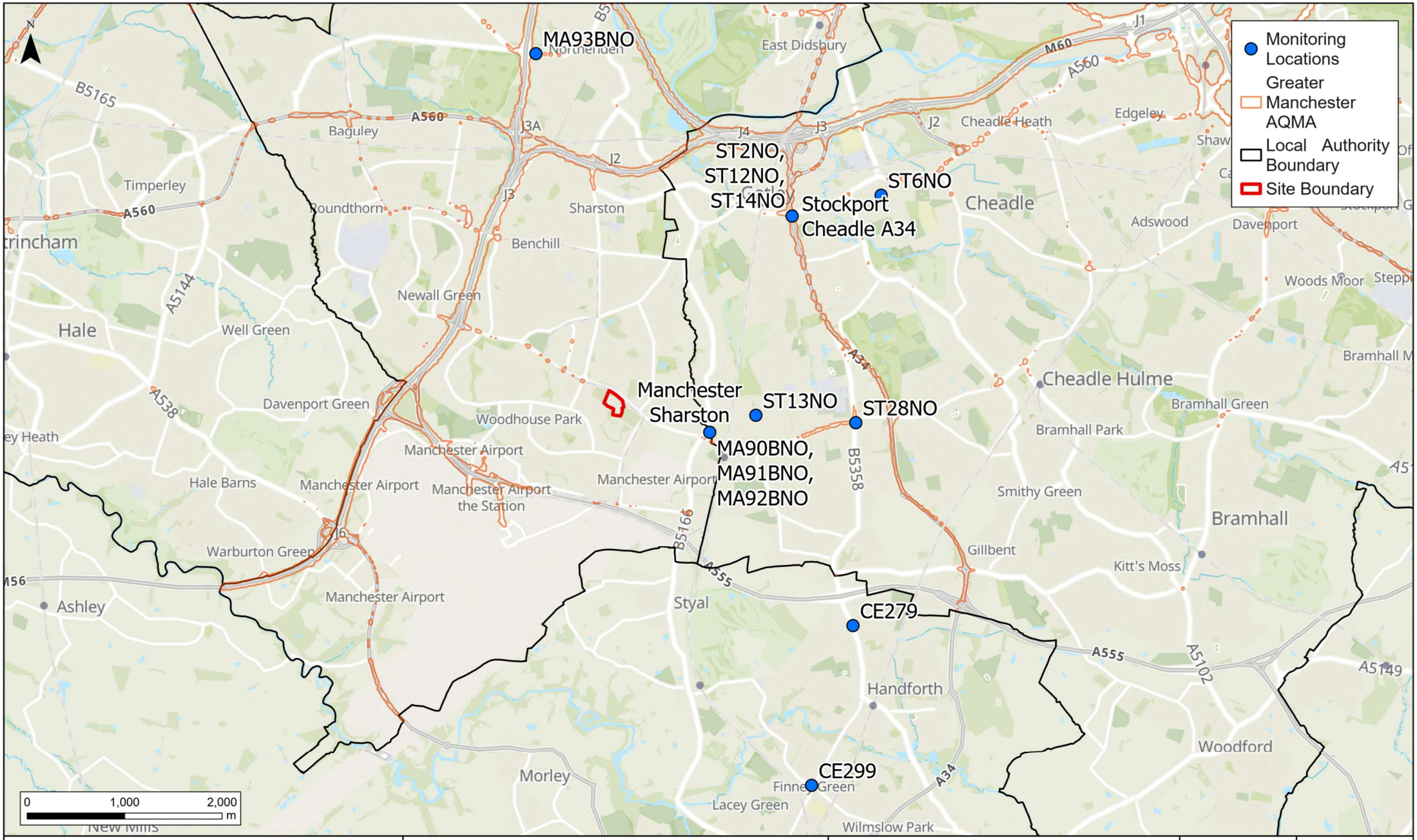
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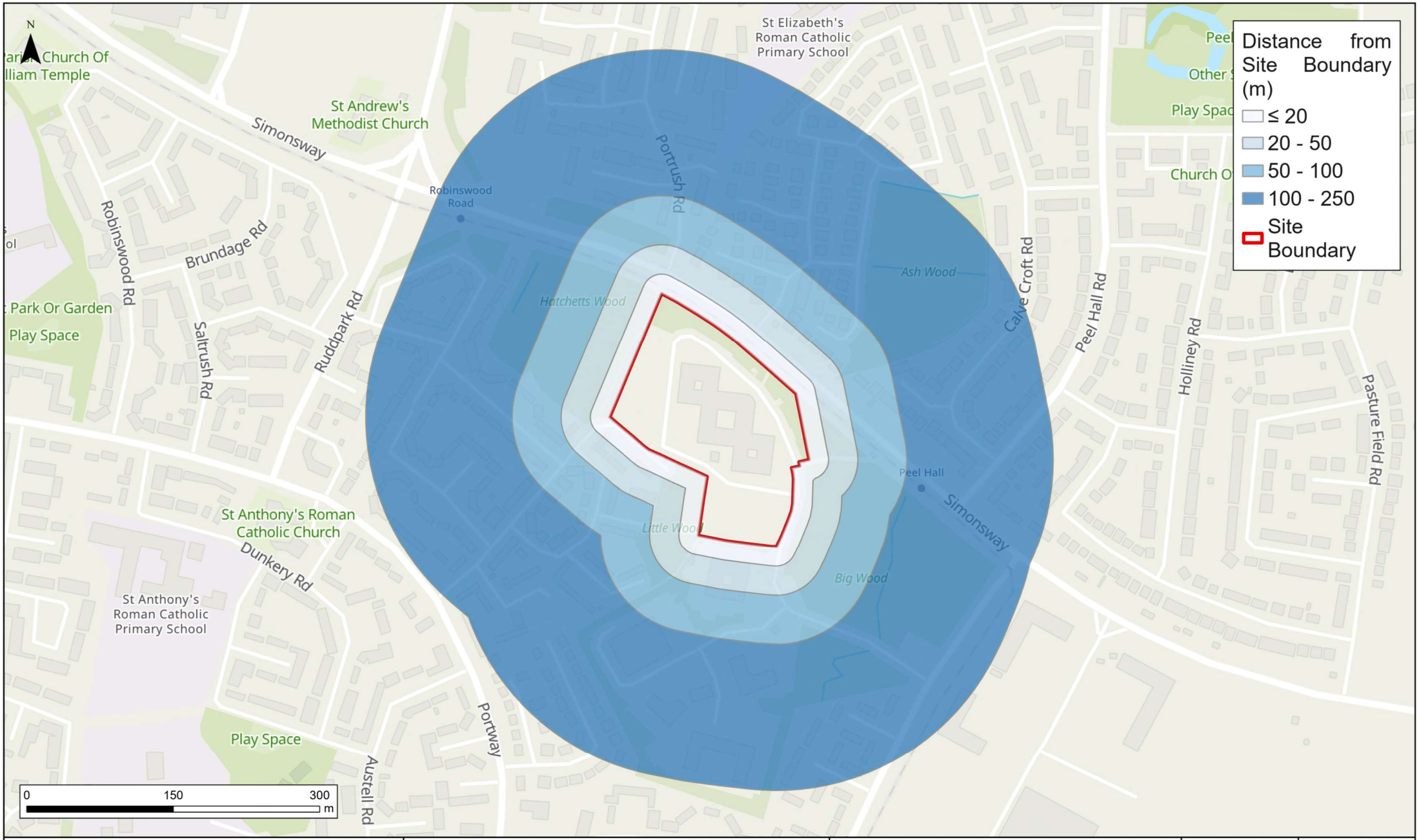
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