



West Drayton, Hillingdon
Air Quality Assessment



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Report

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Report

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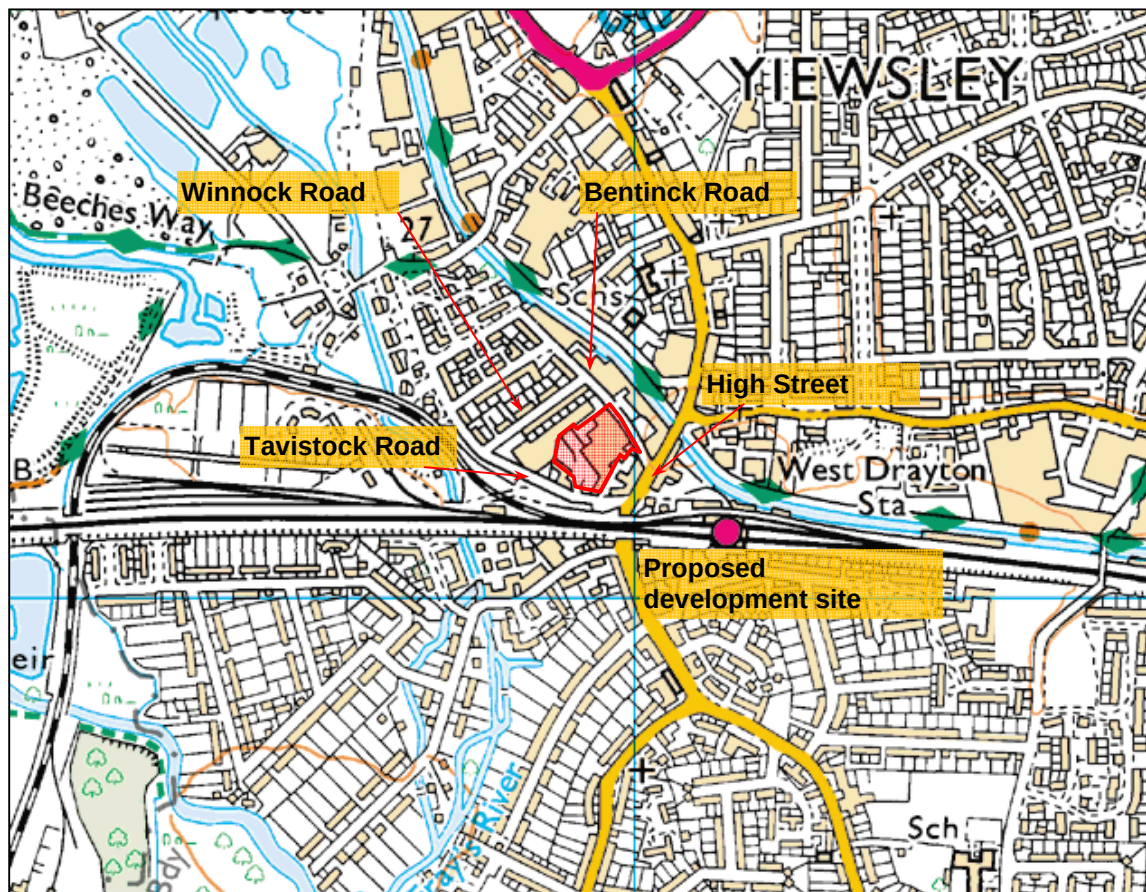
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1 Introduction

General

- 1.1 JMP Consultants Limited (JMP) has been commissioned by Kitewood to produce an Air Quality Assessment (AQA) for a proposed residential development located in Yiewsley, London.
- 1.2 JMP previously provided an Air Quality Assessment for an earlier Planning Application, which was granted planning consent by the London Borough Hillingdon Council, in 2012. The developer has recently acquired land adjoining the original site and now seeks to obtain planning approval for additional development, leaving the proposals for the original part of the site as consented.
- 1.3 The site is known as Tavistock Gardens, Yiewsley and is located in an urbanised environment, currently occupied by mainly vacant buildings. It is accessed from High Street to the west, whilst the local highways of Tavistock Road, Winnock Road and Bentinck Road form the immediate links to the site. A site location plan can be seen at **Figure 1.1**.

Figure 1.1 Site Location (Not to scale)



Source: Ordnance Survey Map with the sanction of the Controller of Her Majesty's Stationery Office. Crown Copyright reserved.

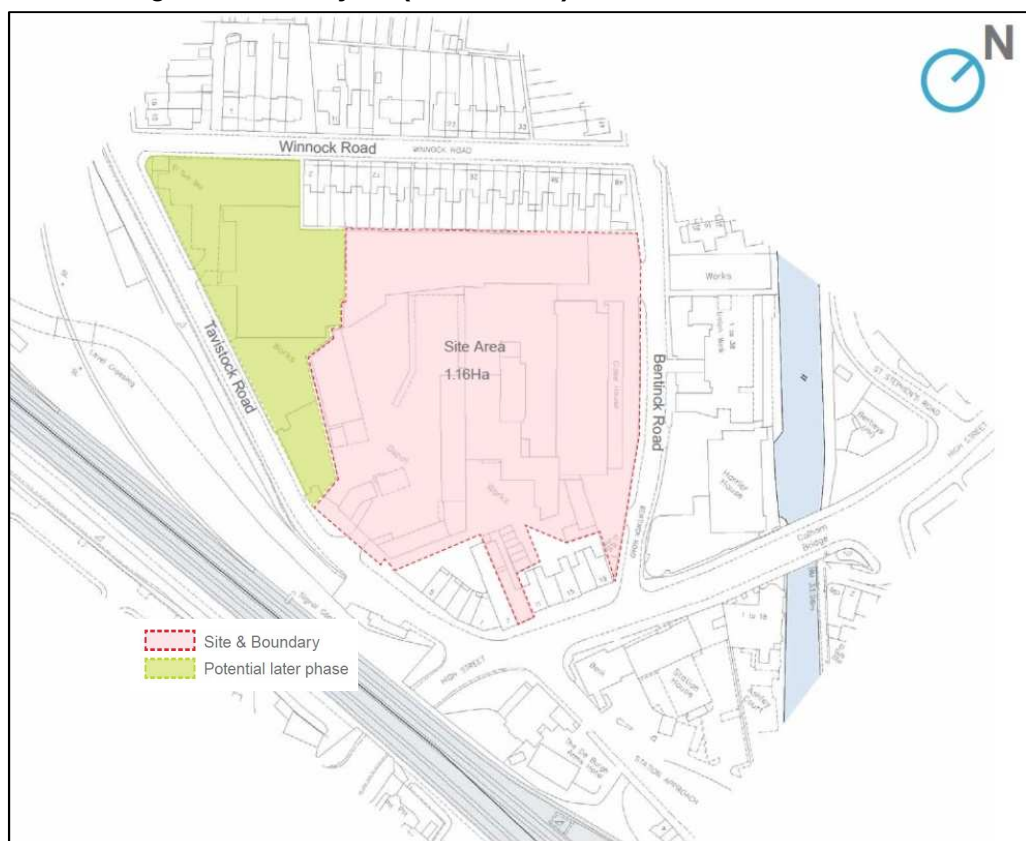
- 1.4 Specifically, this Air Quality Assessment focuses on:
 - The likely pollutant concentrations of key transport-related pollutants nitrogen dioxide (NO₂) and particulate matter (PM₁₀) that will be experienced by new sensitive Receptors (residents) introduced by the development proposals.

- The impact of development-related traffic on air quality in the wider area surrounding the site.

Development Proposals

- 1.5 The application involves the demolition of all existing buildings on the site enclosed by Bentinck Road and Tavistock Road and comprehensive redevelopment comprising 308 residential units (an increase from 208 residential units in the consented scheme).
- 1.6 The residential development is proposed in the following mix:
 - 76 x 1 bed apartments;
 - 176 x 2 bed apartments; and
 - 56 x 3 bed apartments.
- 1.7 The consented site area is known as the Tavistock site, with the extended site area known as the TIGI site – together the entire site covers an area of approximately 1.16 hectares. Site Layout and Development Layout plans are provided in **Figures 1.2** and **1.3** respectively.

Figure 1.2 Site layout (Not to scale)



Source: Tavistock Gardens, Yiewsley, Pre-Application Meeting No. 2 Report, 2014

Figure 1.3 Development Layout (Not to scale)



Source: Tavistock Gardens, Yiewsley, Pre-Application Meeting No. 2 Report, 2014

Report Scope

- 1.8 In order to confirm the scope of the AQA, JMP undertook Scoping Discussions during September 2014, with the relevant Environmental Protection Officer (Nayani Chandran) responsible for air quality at London Borough of Hillingdon (the Council).
- 1.9 The Environmental Protection Officer advised the requirement to consider the calculation of the Combined Heat and Power (CHP) at the site (see Section 10). Also that the future year scenario assessment should be undertaken on the basis of no reduction in NO₂ since 2014, as a worst case scenario.
- 1.10 A copy of the Scoping Discussions to date is included at **Appendix A** for information. The assessment acknowledges that the current Planning Application is for a wholly new scheme. The development changes from the earlier approved scheme have also been considered as an incremental change and can therefore be calculated separately and then compared to the findings of the assessment of air emission effects that were reported in 2012.

Report Structure

- 1.11 Following this introductory section the structure of this report is as follows:

- Section 2 – the air quality policy and legislative context at a national, regional and local level
- Section 3 – baseline air quality conditions prevailing throughout the local area
- Section 4 – assessment methodology
- Section 5 – assessment results
- Section 6 – discussion of the assessment results
- Section 7 – assessment of significance of air quality impacts
- Section 8 – construction air quality impacts
- Section 9 – potential mitigation measures
- Section 10 – Combined Heat Power Plant Assessment
- Section 11 – Summary of the assessment

2 Policy Context

General

- 2.1 This section of the report outlines the policy and legislative context of the proposed redevelopment with respect to local air quality.
- 2.2 Relevant national and local policies are described with respective legislation summarised at the end of each section together with a review of the air quality situation in the Council area and, specifically, within the locality of the proposed development.

National Policy

Environment Act 1995

- 2.3 Part IV of the Environment Act 1995 (the Act) requires UK government and devolved administrations to produce a national air quality strategy containing standards, objectives and measures for ameliorating poor ambient air quality and to continually review these policies.
- 2.4 The Act also provides a legislative framework for a system of Local Air Quality Management (LAQM). This system is an integral part of delivering the UK's air quality obligations.
- 2.5 Under the LAQM regime, 'responsible' authorities are required to carry out a regular review and assessment (R&A) of air quality in their area against defined national objectives, which have been prescribed in regulations for the purposes of LAQM. Where it is found these objectives are unlikely to be met, responsible authorities must designate Air Quality Management Areas (AQMA's) and implement Air Quality Action Plans (AQAP's) to tackle the problems.
- 2.6 Provisions in the Act are largely enabling and give responsible authorities the power to take forward local policies to suit their own needs. Local circumstance will also determine the content of the local air quality policy, designation of AQMA's and the content of AQAP's.

The National Air Quality Strategies

- 2.7 Due to the trans-boundary nature of air pollution, it is appropriate to have an overarching strategy with common aims covering all parts of the UK. For this reason, the National Air Quality Strategy (NAQS) is presented as a joint UK Government and devolved administrations document.
- 2.8 Air quality in the UK has generally continued to improve since the first NAQS, entitled 'The United Kingdom Air Quality Strategy', was adopted in 1997. This was later superseded by 'The Air Quality Strategy for England, Scotland, Wales and Northern Ireland' published in 2000.
- 2.9 The 2000 NAQS established a framework for further improvements in ambient air quality in the UK to 2003 and beyond. It identified actions at local, national and international levels to improve air quality. It was followed by an Addendum in February, 2003.
- 2.10 There are a wide range of terms and concepts used in international, national and local air quality policy and legislation and the NAQS discusses air quality in terms of Standards and Objectives. These terms are defined below:
- Standards are the concentrations of pollutants in the atmosphere which can be broadly taken to achieve a certain level of environmental quality. The standards are based on assessment of

the effects of each pollutant on human health including the effects on sensitive sub groups and ecosystems.

- Objectives are policy targets often expressed as a maximum ambient concentration not to be exceeded either without exception or with a permitted number of exceedences within a given timescale.

2.11 The main pollutants of concern in the UK and addressed in the NAQS are:

- Particulate Matter (PM₁₀ and PM_{2.5});
- Nitrogen Dioxide (NO₂);
- Ozone (O₃);
- Sulphur Dioxide (SO₂);
- Polycyclic Aromatic Hydrocarbons (PAH's);
- Benzene;
- 1,3-Butadiene;
- Carbon Monoxide;
- Lead (Pb); and
- Ammonia.

The National Air Quality Strategy 2007

2.12 The most recent National Air Quality Strategy (NAQS) was published in July, 2007 and established a framework for further air quality improvements across the UK. The NAQS sets out Standards and Objectives to help quantify the improvement in air quality.

2.13 The NAQS is a statement of Policy targets and as such there is no legal requirement to meet these Objectives except in so far as these mirror an equivalent legally binding 'limit value' in EU legislation.

2.14 This latest Strategy does not remove any of the Objectives set out in previous versions, apart from replacing the provisional 2010 PM₁₀ Objective in England, Wales and Northern Ireland with the exposure reduction approach for PM_{2.5}. In Scotland, the PM_{2.5} Objective is an addition to the retained 2010 PM₁₀ Objective.

2.15 The NAQS Objectives have generally been met across the UK for all pollutants except Particulate Matter (PM₁₀) and Nitrogen Dioxide (NO₂). These pollutants are directly related to road traffic pollution and many of the areas that breach the NAQS Objectives - designated Air Quality Management Areas (AQMA's) - are located close to major roads.

Air Quality (England) (Standards) Regulations 2010

2.16 The UK has a legislative requirement to meet air quality 'Limit Values' for key pollutants defined at a European level by European Council Directives:

- Directive 2008/50/EC on ambient air quality and cleaner air for Europe; and
- Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and PAH.

- 2.17 These Directives are transposed into UK legislation by the Air Quality (Standards) Regulations 2010.
- 2.18 **Table 2.1** below summarises the NAQS Objectives and European 'limit value' obligations for PM₁₀ and NO₂, the key transport-related pollutants of concern at the majority of UK AQMA's.

Table 2.1 Summary of NAQS and EU Obligations Applicable in England

Pollutant	Measured as	NAQS Objective	Achieved by	European Obligations	Achieved by
Nitrogen Dioxide (NO ₂)	Annual Mean	40µgm ⁻³	31-Dec-05	40µgm ⁻³	01-Jan-10
	1 hour Mean	200µgm ⁻³ not to be exceeded more than 18 times a year	31-Dec-05	200µgm ⁻³ not to be exceeded more than 18 times a year	01-Jan-10
Particles (PM ₁₀)	24 hour Mean	50µgm ⁻³ not to be exceeded more than 35 times a year	31-Dec-04	50µgm ⁻³ not to be exceeded more than 35 times a year	01-Jan-05
	Annual Mean	40µgm ⁻³	31-Dec-04	40µgm ⁻³	01-Jan-05

Development scale and sensitivity are the key components of the EIA Directive 2011/92/EU which has now been amended by Directive 2014/52/EU. The latest revisions amends the EIA screening process for housing developments and industrial estate proposals by,

- Increasing the threshold for housing projects from 0.5 ha to 5 ha, with up to 1 ha of commercial development
- Increasing the Industrial Estate threshold from 0.5 ha to 20 ha.

Whilst sensitive areas will continue to be rigorously assessed, the change in development at this site since the 2012 Consent merit an initial appraisal of the significance of a likely change in air quality based on the calculated difference on pollution at sensitive receptors. The method adopted follows this approach so that Officers can be made aware of the scale of change and the significance of any impacts.

National Planning Policy Framework (NPPF)

- 2.19 The NPPF is the 2012 Spatial Planning Policy guidance document which covers all areas of strategic and spatial planning. It states:

'The planning system should contribute to and enhance the natural and local environment by, preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability'

- 2.20 With regard to the development of planning policies, the NPPF suggests that policies should sustain compliance with and contribute towards EU limit values or National Objectives for pollutants, taking

into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions need to ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.

Planning Policy Guidance 13 (PPG 13) – Transport (Superseded)

- 2.21 The former PPG 13 dealt with air quality indirectly by advising that developments should be sustainable. For example, development that is likely to have significant transport implications should be accompanied by a Travel Plan, the typical measures of which should minimise the impact of a development upon air quality.

Local Policy

Local Air Quality Management Guidance

- 2.22 LAQM guidance requires Local Authorities to undertake a regular Review and Assessment (R&A) of air quality. Current guidance dictates that there are three types of assessment that a Local Authority can undertake.
- 2.23 The first is an Updating and Screening Assessment (U&SA), which is undertaken every three years. The U&SA considers the changes that have occurred in pollutant emissions and sources since the last round of R&A that may affect air quality. The U&SA is then followed by either a Detailed Assessment (DA) or a Progress Report (PR).
- 2.24 A Detailed Assessment is required when the U&SA identifies a risk of exceeding an air quality objective at a location of relevant public exposure and the objective is to determine whether it is necessary to declare an AQMA. If the U&SA does not identify any risk, then a Progress Report is prepared annually in the intervening years between U&SA's.

3 Baseline Conditions

Local Highway Network

- 3.1 The development site is located close to some heavily trafficked roads including High Street and Station Road.
- 3.2 The London Borough of Hillingdon has identified that the majority of the pollution within Hillingdon arises from road traffic and, in places, the operation of Heathrow Airport.
- 3.3 The following roads have been included in this assessment:
- Tavistock Road;
 - High Street;
 - Bentinck Road;
 - Winnock Road; and
 - Station Road.
- 3.4 The location of these roads in relation to the site is shown in **Figure 1.1 (Page 1)**.

Local Air Quality

- 3.5 Local authorities have a duty under the Environment Act 1995 to review and assess local air quality within their areas, against a set of health-based objectives for a number of specific air pollutants. Where exceedences of the objectives are identified, authorities are then required to declare an Air Quality Management Area (AQMA) and to prepare an Air Quality Action Plan (AQAP).

The London Borough of Hillingdon, Progress Report 2014

Area History

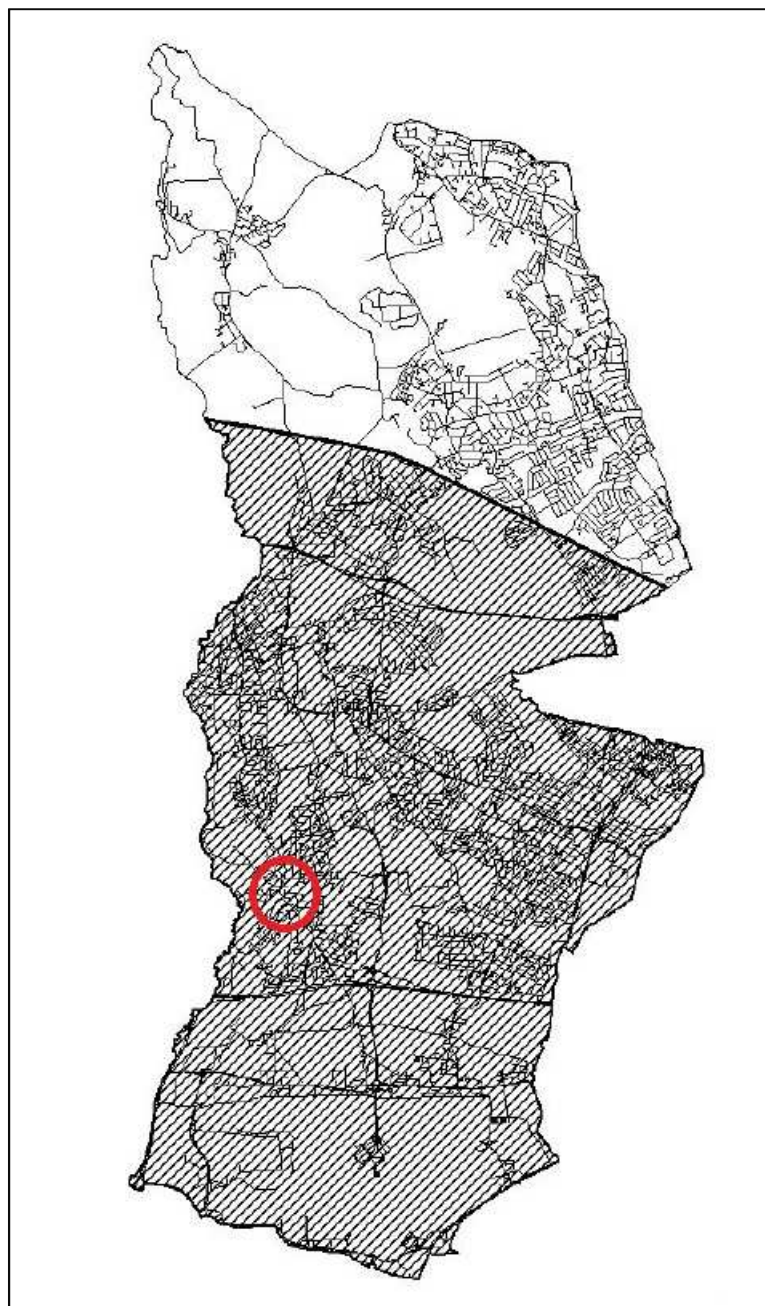
- 3.6 The London Borough of Hillingdon experiences air quality issues particularly around Heathrow Airport and its major road network, reflecting the largest sources of NO_x emissions within the AQMA. An Action Plan for the Borough was issued in 2004 to tackle this problem. This contains a series of eight packages that aim to address emissions from traffic, Heathrow Airport, industry, existing housing and new developments.

Report Findings

- 3.7 London Borough of Hillingdon has produced Progress Reports annually since 2005. Progress Reports fulfil the requirements of the LAQM process as set out in Part IV of the Environmental Act (1995), the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents.
- 3.8 The proposed redevelopment site is located within the designated AQMA area.
- 3.9 The geographic extent of the Air Quality Management Area, declared for NO₂, and the location of the proposed development site within it, can be seen on **Figure 3.1**.
- 3.10 Annual reviews of air quality have shown that the levels of NO₂ have not changed significantly over recent years. The latest Progress Report indicated that the 2012 USA concluded that exceedances

of the annual mean NO₂ AQS objectives were still occurring within the existing AQMA. The 2013 Progress Report suggested that outside the existing AQMA, air quality objectives at locations of relevant exposure were being met thus detailed assessment was not required.

Figure 3.1 London Borough of Hillingdon Air Quality Management Area and the Proposed Development Location

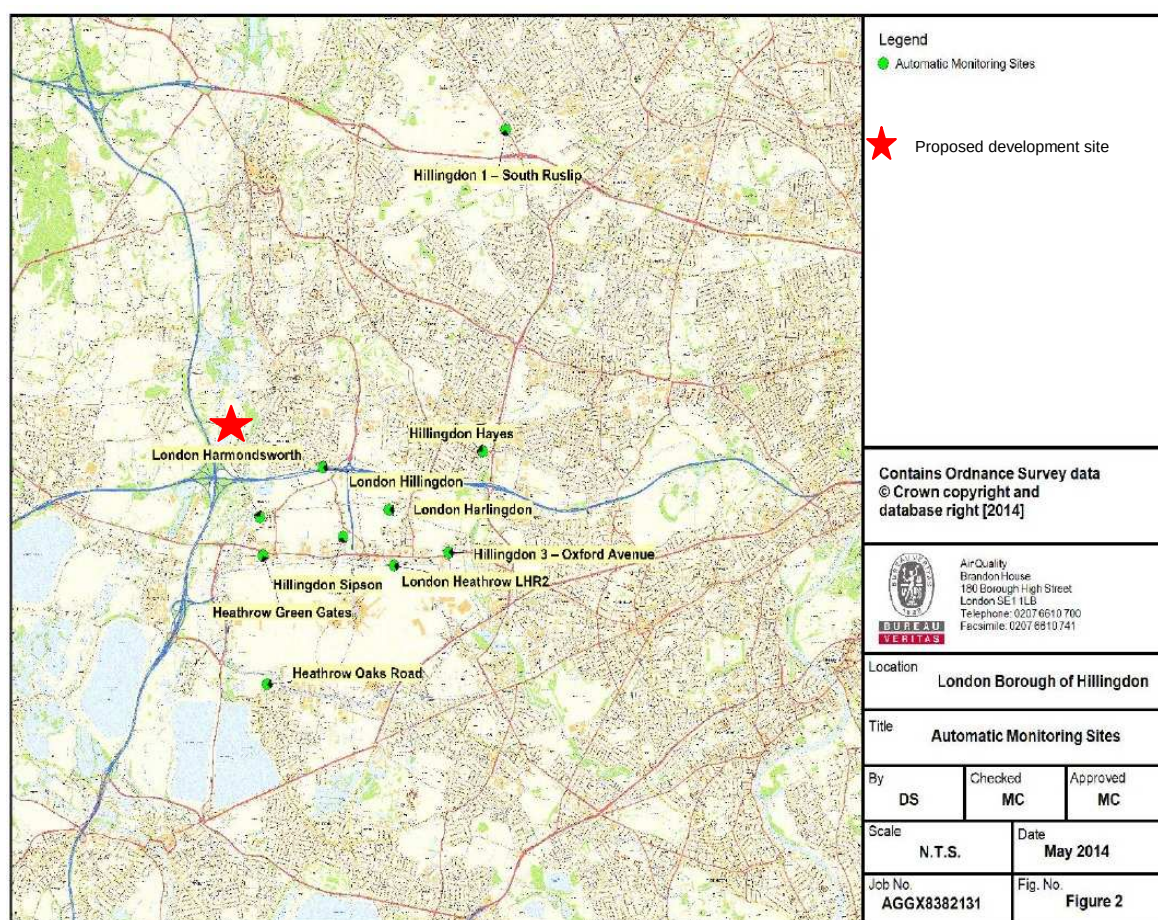


Source: 2014 Air Quality Progress Report for London Borough of Hillingdon

Air Quality in the Vicinity of the Site

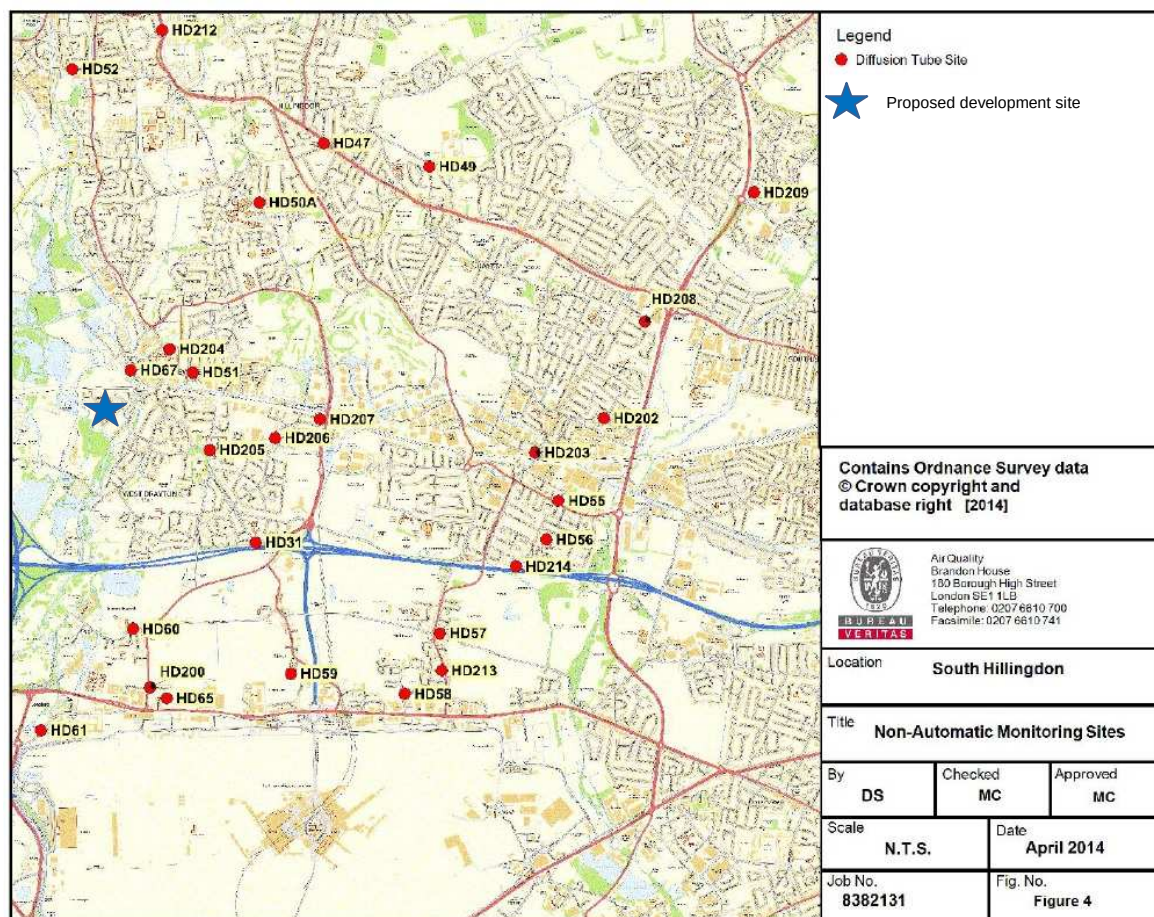
- 3.11 There were ten operational automatic continuous monitoring sites in the London Borough of Hillingdon in 2013, as shown in **Figure 3.2** - Hillingdon 1 (South Ruislip), Hillingdon 3 (Oxford Avenue), London Sipson, London Harmondsworth and Hillingdon Hayers are all part of the Borough monitoring network.
- 3.12 London Hillingdon is part of DEFRA-owned Automatic Urban and Rural Network (AURN). Whereas London Heathrow (LHR2), Heathrow Oaks Road, Heathrow Green Gates and London Harlington are all part of Heathrow Airport monitoring network.
- 3.13 Non-automatic monitoring is also carried out in the Borough using NO₂ passive diffusion tubes. In 2013, NO₂ monitoring was undertaken at 37 sites, one of which is co-located with the London Hillingdon automatic monitoring site. Diffusion tube locations are provided in **Figure 3.3**.

Figure 3.2 Map of Automatic Monitoring Sites



Source: 2014 Air Quality Progress Report for London Borough of Hillingdon

Figure 3.3 Map of Non-Automatic Sites South Hillingdon Borough



Source: 2014 Air Quality Progress Report for London Borough of Hillingdon

- 3.14 **Table 3.1** sets out the local air quality monitoring data for the four nearest monitoring locations. Three first sites (HD31, HD205 and HD67) present diffusion tube monitoring data. The London Hillingdon (HD31) site provides automatic monitoring data.

Table 3.1 Monitored Annual Mean NO₂ Concentrations at relevant Hillingdon Monitoring Sites (µgm⁻³)

Site ID	Site	2008	2009	2010	2011	2012	2013
HD31	AURN Monitoring Station, Sipson	45.0	45.9	44.9	44.7	46.3	43.0
HD205	1 Porters Way (corner with Kingston Lane)	-	-	-	-	41.9	39.6
HD67	31 Tavistock Road	31.8	29.8	31.6	30.1	29.2	29.5
N/A	London Hillingdon (Keats Way)	51	54.0	53.6	55	57.1	52.8

Source: 2014 Air Quality Progress Report for London Borough of Hillingdon

- 3.15 The table indicates that in some instances the NAQS Objective for NO₂ has been exceeded at some of the monitoring locations in recent years. Liaison with the Environmental Protection Officer at Hillingdon has indicated that the tube on Tavistock Road would make a more relevant and conservative background.

4 Assessment Methodology

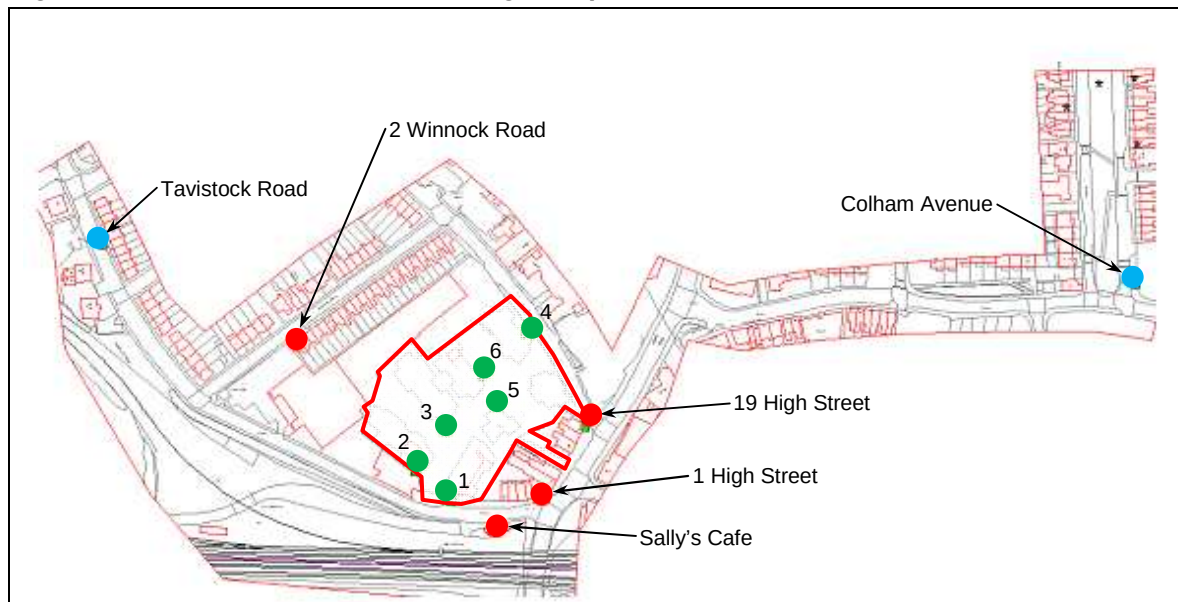
General

- 4.1 This section of the report describes, in detail, the methodology adopted to evaluate the air quality environment at the proposed residential development.

Consented Development Assessment Methodology

- 4.2 As part of the previous Air Quality Assessment undertaken in 2012 for the consented scheme, JMP undertook an assessment using the atmospheric dispersion modelling package *ADMS-Roads*, to establish both the prevailing air quality at key sensitive receptor locations and also the air quality impact arising from changes in traffic flow. Specifically, *ADMS-Roads* was used to disperse emissions of NO_x and PM_{10} from the roads within the study area. The Air Quality Assessment methodology was agreed through scoping with the Environmental Protection Officer (EPO) at the Council. The air quality was assessed at six Receptors within the site area, four Receptors outside the site area and at two existing diffusion tube sites, as indicated in **Figure 4.1**. A 2012 baseline assessment and 2022 future year assessment was undertaken at that time.

Figure 4.1 2012 ADMS-Roads Modelling Receptor locations



- 4.3 The Air Quality Assessment modelling results indicated that both under current and future conditions, the annual mean concentrations of NO_2 and PM_{10} within the proposed development site are below the objective level of $40\mu\text{g m}^{-3}$. Beyond the proposed development site, there is shown to be no adverse impact on either NO_2 or PM_{10} annual mean concentrations as a result of traffic generated by the proposed development.
- 4.4 These Air Quality measurements are considered to remain valid for the latest application at the site, given that they are still relatively recent. However, the increase in development size necessitates the requirement for an updated Air Quality Assessment that considers the full extent of development. JMP therefore considered it appropriate to undertake a DMRB assessment to determine the impact of the new larger development in total, in order to supplement and reinforce the findings of the previous detailed assessment. The results of the previous assessment have

therefore been included in this assessment, to enable a comparison with the impact of the new larger development along with the incremental change.

The DMRB Model Methodology

- 4.5 The assessment methodology is based on the Local Screening Method set out in DMRB Section 11.3.1, published in May, 2007 and guidance given in the Department for Environment, Food and Rural Affairs (DEFRA) Local Air Quality Management Technical Guidance, 2009 (LAQM.TG(09)).
- 4.6 For the modelling, the DMRB Local Screening Method spreadsheet, version 1.03c, published in July, 2007 (hereinafter referred to as 'the DMRB model') has been used. The DMRB model assesses the contribution of individual roads to the long-term (daily or annual average) pollutant concentrations at specified Receptor locations from the roadside.
- 4.7 The DMRB model requires the following input data:
- Background pollutant concentration data
 - Annual Average Daily Traffic (AADT) flows
 - Average vehicle speed
 - Vehicle classification by light and heavy duty vehicles (LDV/HDV)
 - Type of road
 - Distance from the centre of the road to the Receptor being assessed.
- 4.8 However, recent LAQM.TG(09) guidance has led to some changes in the way the DMRB model should be used from those set out in DMRB 11.3.1. Specifically, LAQM.TG(09) and the 'Guidance on Running the DMRB Screening Model' published in April, 2009 notes that the DMRB model is now known to underestimate the conversion of NO_x to NO₂.
- 4.9 In order to correct for this, current guidance requires that the DMRB model to be run without background concentrations of NO_x or NO₂, so that it is used solely to derive road-based concentrations of NO_x. These are then input into the 'NO_x to NO₂ Calculator' (version 3.2, released September, 2012), to convert the modelled, road-based NO_x to road-based NO₂. When added to the background concentrations, total NO_x and NO₂ concentrations can then be established.
- 4.10 This conversion calculator has therefore been applied to all the modelled results included in this assessment and a detailed explanation of the methodology follows.

DfT Updated Air Quality Advice on Assessment of Future NO_x and NO₂ projections using DMRB method (Interim Advice Note 170/12)

- 4.11 Recent DfT advice for users of the DMRB 11.3.1 air quality assessment method enables highway scheme assessments to take into account the impact of future alternative Nitrogen Dioxide projections. The advice is in relation to the report on long term NO_x and NO₂ trends issued by DEFRA in July, 2011 and their subsequent note dated April, 2012. A spreadsheet is provided to support the implementation of the guidance. The guidance is intended for relevant projects in England, where air quality assessments are undertaken and where such projects are yet to be submitted for statutory process, including Determination of the need for a statutory Environmental Impact Assessment.

- 4.12 The guidance has come about in relation to DEFRA's 2011 report assessing the long term trends in NO_x and NO₂ at roadside monitoring sites which clearly decreased between 1996 and 2002 and then stabilised, with minimal reduction from 2004 to 2010. The conclusion of the analysis of long term trends is that there is now a gap between current projected vehicle emission reductions and projections on the annual rate of improvements in ambient air quality (as previously published in DEFRA's technical guidance) and observed trends. Highways Agency (HA) analysis of long term monitored NO₂, between 2006 and 2010, investigated whether trends published in DEFRA's report were observed at monitoring sites in close proximity to HA schemes. The analysis indicates that the observed trends from monitoring data closely aligns with long term trends indicated in DEFRA's recent 2011 report.
- 4.13 The guidance stipulates that air quality modelling should continue to be completed in accordance with existing guidance but some additional steps should be undertaken to adjust the verified modelled NO₂ concentrations to account for the long term profiles through use of the DfT spreadsheet. An additional scenario (called the 'Projected Base Year') is required to enable the Gap Analysis to be completed.
- 4.14 In order to provide a robust assessment for the Old Trafford Community Hub redevelopment proposals, the additional Projected Base Year Scenario has been assessed in line with the new guidance within this report.

Model Inputs

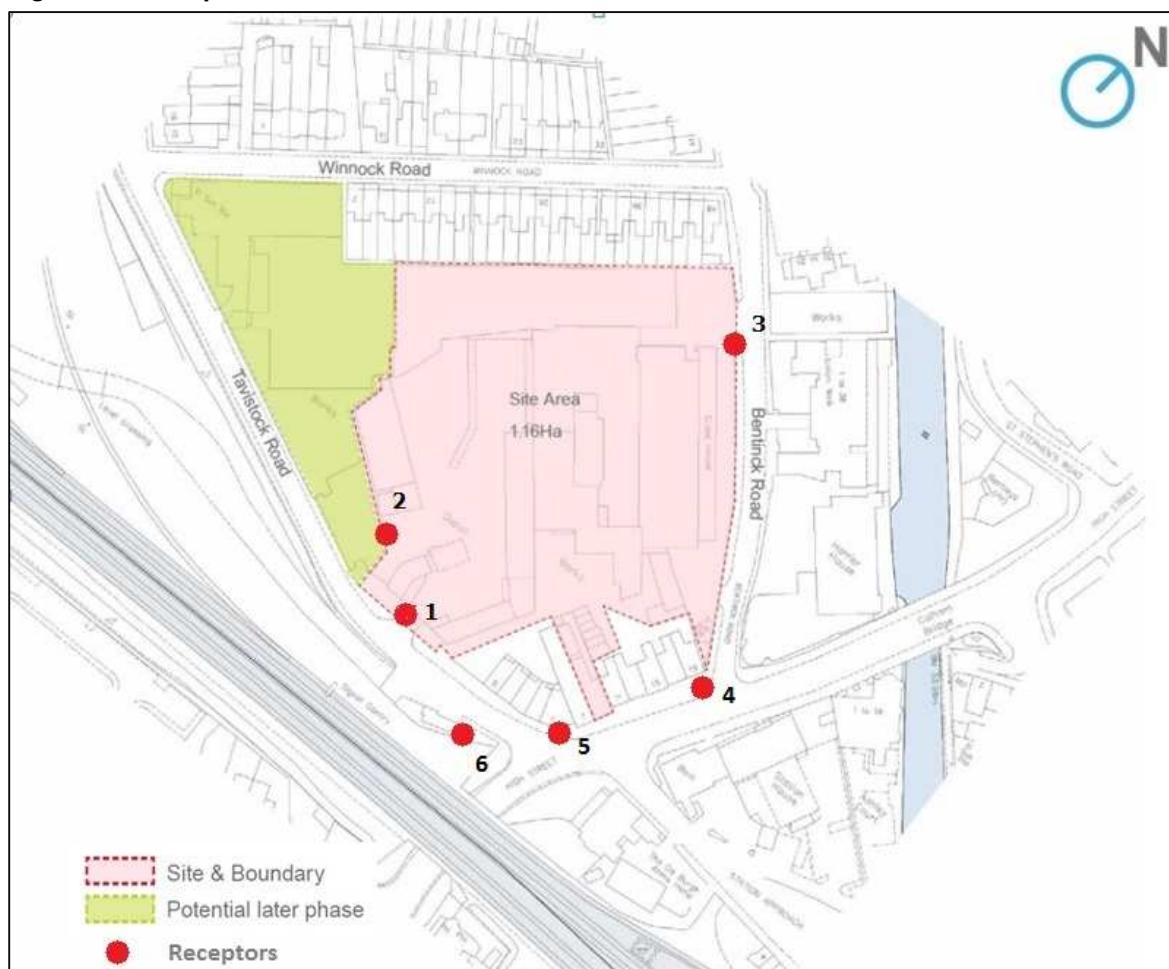
Assessment Scenarios

- 4.15 The following assessment scenarios have been considered in this Air Quality Assessment:
- Baseline 2014 (existing air quality baseline);
 - 2024 assessment year (with and without development).

Receptors

- 4.16 DMRB 11.3.1 notes that, for the purpose of an AQA, sensitive Receptors can be thought of as areas within 200m of the roadside where people may be subject to change in air quality. Beyond 200m from the roadside, atmospheric dispersion and chemistry render emissions from road traffic negligible.
- 4.17 Six of the previous receptor points (then known as Receptors 1, 2, and 4 within the site and Sally's Cafe, 1 High Street and 19 High Street outside the site) have been identified to allow a direct comparison with previous results and to take into account the geographic distribution of development traffic. The Receptor locations are shown in **Figure 4.1**. **Table 4.1** details the Receptor location together with the relative distances to the centre of the relevant highway link.

Figure 4.2 Receptor Locations



Source: Tavistock Gardens, Yiewsley, Pre-Application Meeting No. 2 Report, 2014

Table 4.1 Distances between Receptors and Highway Links

Link	Road name	Receptor 1 (previously Receptor 1)	Receptor 2 (previously Receptor 2)	Receptor 3 (previously Receptor 4)	Receptor 4 (previously 19 High Street)	Receptor 5 (previously 1 High Street)	Receptor 6 (previously Sally's Cafe)
1	Winnock Road	--	100m	--	--	--	--
2	Tavistock Road	5m	15m	--	--	20m	5m
3	High Street	100m	--	120m	5m	5m	--
4	Bentinck Road	--	--	10m	10m	--	--
5	Station Road	--	--	--	--	--	10m

Background Concentrations

- 4.18 Local background pollutant concentration data has been obtained from the DEFRA Background Air Quality Maps. The maps show estimated UK background concentrations of NO_x, NO₂, and PM₁₀ for each year from 2010 to 2030. However, due to recent guidance which requires the DMRB model to be run without background concentrations of NO_x or NO₂, so that it is used solely to derive road-based concentrations of NO_x, there is no longer a requirement to include NO_x background

concentrations. The road-based NO_x is used in the 'NO_x to NO₂ Calculator' (version 3.2, released September, 2012), with the background NO₂, to convert the modelled, road-based NO_x to road based NO₂ and Total NO₂. Data are available for each 1 km by 1 km grid square in each Local Authority area. The grid square with a centre point nearest to each Receptor has been used to obtain the background pollutant concentrations.

- 4.19 The maps for PM₁₀ provide the total background pollutant concentration as well as the contribution from individual emission sectors. This information enables the pollutant concentrations attributable to individual sectors to be subtracted from the total when detailed local modelling of that sector has been carried out. Therefore, as this assessment involves pollution from road sources using the DMRB screening model, the road emissions sectors within the background pollutant concentrations have been removed to avoid double counting.
- 4.20 For NO₂, total background concentrations are provided. However, the NO₂ levels must be calculated using the specific background NO_x to NO₂ calculator (version 3.2), which uses the modelled road-based NO_x concentration predicted by the DMRB model (run without any background concentrations) and the background NO₂ values to determine the total NO₂.
- 4.21 For the assessment, the 2014, and 2024 background concentration maps have been extracted. The derived background concentrations for each assessment year are shown in **Table 4.2**. As requested by the Environmental Protection Officer, in order to provide a robust assessment, the future year background for NO₂ has been assumed to have no reduction from 2014 background levels, hence the 2014 background has been used in the future year assessments.

Table 4.2 Background Pollutant Concentrations at Receptors

Year Scenario	Background pollutant concentration (µgm ⁻³)	
	NO ₂	PM ₁₀
Receptor 1 (505935, 180140)		
2014 Base	27.24	20.09
2024	20.92	18.75
Receptor 2 (505913, 180165)		
2014 Base	27.24	20.09
2024	20.92	18.75
Receptor 3 (505966, 180266)		
2014 Base	27.24	20.09
2024	20.92	18.75
Receptor 4 (506017, 180186)		
2014 Base	29.73	20.45
2024	23.62	18.16
Receptor 5 (505993, 180140)		
2014 Base	27.24	20.09
2024	20.92	18.75
Receptor 6 (505970, 180132)		
2014 Base	27.24	20.09
2024	20.92	18.75

Traffic Data

- 4.22 The assessment of air impacts requires the use of Annual Average Daily Traffic (AADT) flows. To generate these for each assessed scenario, the methodology provided in *DMRB Volume 13 – Section 1 – Part 4* has been referred to.
- 4.23 In order to derive AADT flows, peak hour traffic scenarios were provided from the Transport Assessment associated with the application. These scenarios included the following:
- 2014 Base;
 - 2024 'Without' Development;
 - 2024 'With' Development
- 4.24 For the purposes of assessing air quality impacts at the site, traffic flows associated with the above scenarios have been converted to AADT flows based on the following DMRB methodology.

Annual Average Daily Traffic (AADT)

- 4.25 The assessment of air impacts requires the use of AADT flows. To generate these, the methodology provided in *DMRB Volume 13 – Section 1 – Part 4* has been referred to. This uses the following principles:
- An 'M' Factor was derived using the formula $M = a + (b \times SI)$, whereby 'a' and 'b' apply to the month in which the traffic survey was undertaken (March) and represent the regression slope between neutral and non-neutral months. The Seasonality Index (SI) enables seasonal variation to be taken into account and is "the ratio of the average August weekday flow to the average weekday flow in a neutral month (April, May, June, September and October – excluding Bank Holidays)." Based on the DMRB method, the SI value of 1.0 was selected as this aligns with the seasonality for the month of March when the traffic surveys were undertaken.
 - The 'M' factor was therefore calculated as the following based on Table 9/2 of *DMRB Volume 13 – Section 1 – Part 4*:
 - $M = 149 + (244 \times 1.0)$
 - 'M' Factor = 394
 - The next stage is to convert the 'M' Factor value to an AAHT (Annual Average Hourly Traffic) flow. This was achieved using the following formulae:
$$AAHT = 'M' \text{ Factor flow} / 8,760 \text{ (number of hours in a year)}$$
 - To attain an AADT traffic flow the AAHT was multiplied by the number of hours required:
$$AADT = AAHT \times 24 \text{ (number of hours required for the assessment of air)}$$

Assessment Scenarios

- 4.26 As part of this Air Quality Assessment, the following scenarios have been assessed:

- 2014 Base;
- 2024 'Without' Development;
- 2024 'With' Development

4.27 The definitive AADT flows for the above scenarios are provided in **Table 4.3**.

Table 4.3 Traffic Flow Data

	Speed Limit (kph)	AADT Base 2014	AADT 2024		Distance to Centre of link from receptor	% HDV's
			Without development	With development		
RECEPTOR 1	Tavistock Road (Next to Tavistock Works)					
Tavistock Road	30	2,557	2,930	3,228	5m	4%
High Street	30	19,638	23,065	23,201	100m	2%
RECEPTOR 2	Tavistock Road (Next to COMAG)					
Tavistock Road	30	2,793	2,793	2,470	100m	4%
Winnock Road	30	410	410	335	15m	1%
RECEPTOR 3	Bentinck Road (Next to Dhanju Solicitors)					
Bentinck Road	30	720	745	720	5m	1%
High Street	30	20,520	23,574	23,710	120m	2%
RECEPTOR 4	19 High Street (Opposite Quinn Edwards Hairdressing)					
High Street	30	20,296	23,288	23,425	5m	2%
Bentinck Road	30	745	745	720	10m	1%
RECEPTOR 5	1 High Street (Opposite GKS)					
High Street	30	19,638	23,065	23,201	5m	2%
Tavistock Road	30	2,557	2,930	3,228	20m	4%
RECEPTOR 6	Tavistock Road (Sally's Cafe)					
Tavistock Road	30	2,557	2,930	3,228	5m	4%
Station Road	30	20,358	23,859	24,070	10m	2%

Model Verification

- 4.28 LAQM.TG(09) identifies a clear 'local' verification process that should be applied to the DMRB model. Modelled results should be compared with monitored data at relevant locations and that, 'For the verification and adjustment of NO_x/NO₂, a combination of continuous monitoring and diffusion tubes is recommended' (Annex 3, page A3-42).
- 4.29 The location and data available for all monitoring sites in the area has been reviewed and agreed with the Environmental Protection Officer at London Borough of Hillingdon it has been established that the most appropriate sites for verification purposes is Tavistock Road diffusion tube site.
- 4.30 **Table 4.3** shows the monitoring data used for the verification of modelled results.

Table 4.3 Council Monitoring Data used in Verification

Monitoring Site	Type	Distance from Kerb (m)	Grid Reference	Annual Mean NO ₂ (µgm ⁻³) 2013
Tavistock Road HD67	Background (Non-Automatic Monitoring Site)	1m	505729, 180290	29.5

Source: 2014 Air Quality Progress Report for London Borough of Hillingdon

- 4.31 As this is the most representative location (in terms of distance and monitor type) to the site for which air quality data is available, it has been used to verify the modelled results. The NO₂ concentration at the verification sites is very similar to that in the modelled calculated assessment results (baseline 2014 results representing approximately 28µgm⁻³ at all Receptors within the development site, rising to above 30µgm⁻³ at the Receptors outside the site). The available existing monitoring data therefore verifies that the air quality assessment provides a representative assessment of local air quality at the Receptor points located within the development site.

5 Assessment Results

Modelled Impact

5.1 The findings of the assessment of pollutant concentrations at the Receptor locations for the assessment scenarios are discussed below. These results should be compared with the NAQS Objectives listed in **Table 2.1** and summarised as follows:

- NO₂ average Annual Mean not to exceed 40µgm⁻³ by 31st December, 2005;
- PM₁₀ average annual concentrations not to exceed 40µgm⁻³ by 31st December, 2004; and
- PM₁₀ average daily concentrations not to exceed 50µgm⁻³ more than 35 times per year by 31st December, 2004.

Nitrogen Dioxide (NO₂) DMRB Assessment

5.2 The adjusted, modelled NO₂ concentration at the Receptors for the assessment scenarios are shown in **Table 5.1**. The 2012 results for the consented site are also indicated for comparison.

Table 5.1 Adjusted Modelled Annual Mean NO₂ Concentrations

Receptor	NO ₂ concentration (µg/m ³) 2014 Assessment			NO ₂ concentration (µg/m ³) 2012 Assessment		
	2014 Baseline	2024 Do Nothing	2024 Do Something	2012 Baseline	2022 Do Nothing	2022 Do Something
1 (previously Receptor 1)	28.78	22.40	22.50	33.27	29.85	29.92
2 (previously Receptor 2)	27.44	21.10	21.07	30.36	28.49	28.52
3 (previously Receptor 4)	27.78	21.42	21.42	29.99	28.41	28.31
4 (previously 19 High Street)	35.08	28.47	28.73	50.29	39.25	38.00
5 (previously 1 High Street)	33.71	26.60	26.64	54.12	41.44	40.11
6 (previously Sally's Cafe)	30.13	26.45	26.60	41.26	33.85	33.82

Nitrogen Dioxide (NO₂) DMRB Assessment – Updated NO₂ Projections Through Gap Analysis

5.3 The gap analysis adjusted, modelled NO₂ concentration at the Receptors for the assessment scenarios are shown in **Table 5.2**

Table 5.2 Gap Analysis Adjusted Modelled Mean NO₂ Concentrations

Receptor	NO ₂ concentration (µg/m ³) 2014 Assessment		
	2014 Baseline	2024 Do Nothing	2024 Do Something
1 (previously Receptor 1)	28.78	26.47	26.58
2 (previously Receptor 2)	27.44	26.35	26.31
3 (previously Receptor 4)	27.78	26.35	26.35
4 (previously 19 High Street)	35.08	27.62	27.87
5 (previously 1 High Street)	33.71	26.90	26.94

6 (previously Sally's Cafe)	30.13	26.11	31.86
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Particulate Matter (PM₁₀) DMRB Assessment

- 5.4 The adjusted, modelled Annual Mean PM₁₀ concentrations at the Receptors for the assessment scenarios are shown in **Table 5.3**. The 2012 results for the consented scheme are also included for comparison.

Table 5.3 Adjusted Modelled Annual Mean PM₁₀ Concentrations

Receptor	PM ₁₀ concentration (µg/m ³) 2014 Assessment			PM ₁₀ concentration (µg/m ³) 2012 Assessment		
	2014 Baseline	2024 Do Nothing	2024 Do Something	2012 Baseline	2022 Do Nothing	2022 Do Something
1 (previously Receptor 1)	20.50	19.16	19.19	19.51	19.29	19.50
2 (previously Receptor 2)	20.15	18.80	18.79	18.79	18.67	18.78
3 (previously Receptor 4)	20.25	18.90	18.90	18.76	18.64	18.66
4 (previously 19 High Street)	21.68	20.27	20.35	24.32	23.11	23.18
5 (previously 1 High Street)	21.83	20.47	20.49	25.29	23.81	24.00
6 (previously Sally's Cafe)	21.78	20.83	20.86	21.40	20.77	21.11

6 Assessment Discussion

Nitrogen Dioxide (NO₂)

Baseline Scenarios

- 6.1 The results from the **2012 baseline** scenario, indicated that across the majority of the study area the National Air Quality Strategy Objective annual mean NO₂ concentration of 40µg/m³ is met with the exception of areas immediately adjacent to High Street. For the individual receptor points, as shown in Table 5.1, all the points within the proposed development site (previous Receptors 1, 2 and 4) experience an annual mean NO₂ concentration of less than 40µg/m³. Beyond the site, those Receptors on High Street exceed the objective level by at least 10µg/m³. Sally's Cafe is located a short distance along Tavistock Road from the junction with High Street and experiences an annual mean NO₂ concentration slightly exceeding the objective level.
- 6.2 The 2012 results show that greatest contributor to NO₂ concentrations in the area is traffic on High Street and Station Road. Tavistock Road is also a contributor; however, traffic levels are substantially lower and insufficient to generate NO₂ concentrations sufficient to exceed annual mean objective levels.
- 6.3 The **updated 2014 DMRB assessment** continues to indicate that the individual Receptor points located within the development site i.e. Receptors 1, 2 and 3 will experience an annual mean NO₂ concentration of less than 40µgm⁻³. Beyond the site area, the Receptors on High Street and Sally's Cafe are also within objective levels – and are therefore somewhat lower than the 2012 results which revealed these three Receptors to experience levels above the objective levels. The difference in results may be due to the different modelling processes used, but most likely updated input data and the fact that the initial use of the ADMS-Roads modelling covered a wider network area and therefore contained a greater volume of pollution generating vehicle emissions. The most important consideration is the fact that the results continue to indicate that the NO₂ levels within the development site are within objective levels and hence are appropriate for the new sensitive receptors (residents) at the site.
- 6.4 The **updated 2014 DBRB assessment** modelled results for the Receptors within the development site are very similar to the Tavistock Road verification monitoring site, indicating that the air quality assessment provides a representative assessment of local air quality.

Future Scenarios

- 6.5 The results from the analysis of the **2022 Do Nothing / 2022 Do Something** and **2024 Do Nothing / 2024 Do Something** scenarios show a general reduction in annual mean NO₂ concentrations across the whole area from 2012/2014 despite an increase in traffic flows. This is attributable to improvements in engine efficiency and tighter emission controls that are incorporated into the modelling.
- 6.6 In **2022 and 2024**, the proposed development site continues to experience annual mean NO₂ concentrations of less than 40µg/m³ across its entire area i.e. Receptors 1, 2 and 3. Beyond the site boundary, on High Street, annual mean NO₂ concentrations in 2022 exceed objective levels (but to a lesser degree than in 2012); whilst in 2024, the reassessment indicates no exceedance of objective levels at the Receptors outside the development site. As indicated above, this is most likely due to the difference in modelling processes used, updated input data and the fact that ADMS-Roads included a wider network with more pollution generating vehicle trips.

- 6.7 Notably, for all receptor locations, as in the 2022 assessment, the difference in the annual mean NO₂ concentrations generated by the **2024 Do Nothing** and **2024 Do Something** scenarios is again considered *negligible*, with a difference typically less than 0.1µg/m³ within the site and 0.3 µg/m³ outside the site.

Particulate Matter (PM₁₀)

- 6.8 The updated assessment results show a similar pattern to the 2012 results.
- 6.9 As in 2012/2022, in the 2014 base year and 2024 future assessment year the NAQS Annual Mean Objective concentration for PM₁₀ is not forecast to be exceeded at all Receptor locations.
- 6.10 The 2024 PM₁₀ concentrations are forecast to be slightly lower than those calculated for 2014 for all Receptors.
- 6.11 The development will not cause PM₁₀ concentrations greater than 50µgm⁻³. The following formula (taken from the DMRB) was used to consider the scale and frequency of exceedences.

$$N = -18.5 + 0.00145a^3 + \left(\frac{206}{a}\right)$$

where a = Annual Mean

- 6.12 The maximum number of days per year where PM₁₀ concentrations are forecast to exceed 50µgm⁻³ is six days for all assessment scenarios (with and without development). As such the assessment scenarios comply with the NAQS Objective.

Development Impact

- 6.13 The Air Quality Assessment modelling results indicate, in terms of the 2014 baseline and 2024 future year assessments, the NO₂ and PM₁₀ concentrations are at similar levels both with and without the proposed development at all Receptors. Under current and future conditions, the annual mean concentrations of NO₂ and PM₁₀ within the proposed development site are below the objective level of 40µg/m³.
- 6.14 Beyond the proposed development site, there is shown to be no adverse impact on either NO₂ or PM₁₀ annual mean concentrations as a result of traffic generated by the proposed development.
- 6.15 The similarities in NO₂ and PM₁₀ concentrations as a result of development are due to the fact that the redevelopment of the site will result in a minimal overall increase in daily traffic levels. In real terms, the development impact on key air quality pollutants is therefore negligible. It can be concluded that the proposed extension to the consented development is not considered to initiate any detriment the NO₂ levels in the site area.

7 Assessment of Significance of Air Quality Impacts

- 7.1 An assessment of the significance of change in NO₂ and PM₁₀ as a result of the residential proposals has been assessed using the 'Significance in air quality' LAQM guidance (2009), specifically with reference to its Tables 1 and 2.

Magnitude of Change

- 7.2 To assess the impact, the magnitude of change in pollutants as a result of development has been assessed for each Receptor in each assessment year. The assessment for each pollutant is based on a percentage impact scale in relation to its Objective level. The potential magnitude of impact ranges from large (>10% of the Objective level) to imperceptible (>1% of the objective level). Medium Impact is classified as a 5% to 10% increase/decrease of the Objective level and Small Impact as a 1% to 5% increase/decrease. The difference in pollutant levels with and without development in µgm⁻³ has been calculated to establish the appropriate impact scale. The results in terms of the magnitude of change when comparing the 'with' and 'without' development scenarios are provided in **Table 7.1**.

Table 7.1 Impact Magnitude of Change in Ambient Pollutants

Pollutant and Impact Levels Impact Scale: Large >10% i.e. >4 µgm ⁻³ Medium 5-10% i.e. 2-4 µgm ⁻³ Small 1-5% i.e. 0.5-2 µgm ⁻³ Imperceptible <1% i.e. <0.4 µgm ⁻³	Receptor	2020 Future Year Magnitude of Change (With Development) in relation to the Objective Level
Adjusted, modelled Annual Mean Nitrogen Dioxide (NO ₂): Objective level 40µgm ⁻³	1	Imperceptible
	2	Imperceptible
	3	Imperceptible
	4	Imperceptible
	5	Imperceptible
	6	Imperceptible
Gap Analysis Adjusted, modelled Annual Mean Nitrogen Dioxide (NO ₂): Objective level 40µgm ⁻³	1	Imperceptible
	2	Imperceptible
	3	Imperceptible
	4	Imperceptible
	5	Imperceptible
	6	Imperceptible
Adjusted, modelled Annual Mean Particles (PM ₁₀): Objective level 40µgm ⁻³	1	Imperceptible
	2	Imperceptible
	3	Imperceptible
	4	Imperceptible
	5	Imperceptible
	6	Imperceptible

- 7.3 The magnitude of change of NO₂ and PM₁₀ in the 2024 assessment year as a result of the proposed redevelopment is considered imperceptible at all Receptors.

Description of Impact

- 7.4 The air quality assessment results have been assessed against Tables 1 and 2 of the LAQM Significance in Air Quality Guidance (2009). The absolute concentration of both NO₂ and PM₁₀ concentrations is below the Objective Value both with and without the development scheme (<40µgm⁻³) at all Receptors.
- 7.5 In determining the air quality impact, there is no real change in pollutant concentration as a result of development for both NO₂ and PM₁₀ at both Receptor points.

8 Construction Impacts

- 8.1 In terms of construction, the main air quality impacts that are required to be considered are the generation of dust and an increase in NO₂ and PM₁₀ arising from construction plant use.
- 8.2 It is not possible to quantify dust emissions within the AQA as these depend on a variety of factors including the likelihood of dust being raised, the duration of works, distance of Receptors from sources and the frequency of weather conditions that are likely to exacerbate dust conditions. It is also anticipated that the construction of the proposed development will be supported by a detailed Construction Management Plan (CMP) which will ensure dust is kept to a minimum.
- 8.3 For plant generated NO₂ and PM₁₀, paragraphs 3.12 and 3.20 of DMRB 11.3.1 advise that a change in traffic flow of 10%, or a change in Heavy Duty Vehicles (HDV) flow of at least 200 AADT, is typically required for a measurable change in local air quality. For this development, it is expected that construction traffic will increase flows by less than 10% or 200 AADT; therefore, the effect of construction vehicles and plant upon air quality is considered to be of negligible significance.

9 Mitigation

- 9.1 This AQA has shown that concentrations of NO₂ and PM₁₀ will not exceed the NAQS Annual Mean Objectives at the proposed redevelopment site. Therefore, it is anticipated that no development specific mitigation will be required.
- 9.2 The construction phase of the proposed redevelopment has the potential to generate nuisance dust which could affect adjacent properties. A Construction Management Plan (CMP) may need to be prepared in accordance with best practice, to minimise this impact.

10 Combined Heat and Power Plant

- 10.1 The development proposals include a Combined Heat and Power facility.
- 10.2 The Air Quality Assessment has focused on traffic related impacts due to the fact that the impact of the CHP plant is considered negligible in terms of future emissions. However, an assessment of the CHP emissions has been undertaken to verify this and ensure completeness in this assessment.

CHP Emissions Screening

- 10.3 The Environmental Protection UK screening tool has been used to assess the likely impact of the CHP unit on the production of NO₂. The details of the plant are assumed to mirror those in the Energy Statement for the site produced by Hoare Lea in October 2012, following liaison with officers at the Local Authority.

CHP Plant Details:

<u>Description.</u>	
Type:	Gas Turbine
Form:	Natural Gas
Power	Output (range): up to 100 kWe
Power Output (actual):	50 kWe
this is calculated as,	
NO _x Emission Factor:	0.5 g/kWh
NO _x Emission rate:	0.00014 g/s/kWe output
NO _x emission rate:	0.01 g/s
Annual Emissions NO _x :	0.22 t/yr
CHP dimensions,	
Stack Height: 24m	
Stack Diameter: 0.5m max (proposed CHP is 0.15m)	
<u>Results.</u>	
CHP NO _x :	0.22 tonnes/yr
Estimated Maximum Annual Mean NO ₂ :	0.01 µg/m ³

- 10.4 The proposed CHP plant would be expected to contribute an addition of a maximum 0.01µg/m³ to background Annual Mean NO₂ levels. This renders the CHP operation of insignificant impact and therefore this does not require any mitigation.
- 10.5 It should also be noted that the proximity of Heathrow Airport and the current potential for a third runway will have an inevitable significant impact on air quality in the area. This further renders the CHP operation at the proposed development site an insignificant source of emissions in the area.

11 Conclusions

- 11.1 JMP has been commissioned by Kitewood to undertake an updated Air Quality Assessment to support a proposed residential development in Hillingdon, London.
- 11.2 JMP previously provided an Air Quality Assessment for an original application, which was granted planning consent by the London Borough Hillingdon Council, in 2012. The developer has recently acquired land adjoining the original site and now seeks to obtain planning approval for additional development, leaving the proposals for the original part of the site as consented.
- 11.3 As part of the previous Air Quality Assessment undertaken in 2012 for the consented scheme, JMP undertook an assessment using the atmospheric dispersion modelling package *ADMS-Roads*, to establish both the prevailing air quality at key sensitive receptor and also the air quality impact arising from changes in traffic flow. This Air Quality Assessment is intended to supplement and reinforce the findings of the previous assessment which are still considered to remain valid. The key findings of the previous assessment have therefore been included in this assessment.
- 11.4 This Air Quality Assessment focuses on key transport-related pollutants nitrogen dioxide (NO₂) and particulate matter (PM₁₀).
- 11.5 The London Borough of Hillingdon has declared the area in which the site is located an Air Quality Management Area for both NO₂ and PM₁₀. These pollutants in this area are primarily associated with heavily trafficked roads together with a contribution from Heathrow Airport nearby.
- 11.6 This Air Quality Assessment considers three assessment scenarios: Baseline 2014, 2024 Do Nothing and 2024 Do Something (similar to the previous assessment which considered Baseline 2012, Do Nothing 2024 and Do Something 2024).
- 11.7 The assessment methodology has been based on the Local Screening Method set out in the DfT DMRB Section 11.3.1 for two Receptors located in close proximity to the proposed redevelopment site, using traffic data obtained by JMP as part of the Transport Assessment for the site. In addition, following recent DfT advice for users of DMRB Section 11.3.1, a 'Gap Analysis' assessment has been undertaken to take into account the impact of future Nitrogen Dioxide projections.
- 11.8 Background pollutant concentrations have been obtained from DEFRA background concentration maps. Similar to the previous assessment, the modelling results show that both under current and future conditions, the annual mean concentrations of NO₂ and PM₁₀ within the proposed development site are below the objective level of 40µgm⁻³. In addition, beyond the proposed development site, there is shown to be no adverse impact on either NO₂ or PM₁₀ annual mean concentrations as a result of traffic generated by the proposed development. The results show a reduction between the current and future scenarios attributable to improvements to engine efficiency and tighter emission controls.
- 11.9 The impact of construction activities on air quality is considered to be negligible.
- 11.10 The impact of the CHP Plant is considered insignificant in terms of NO₂ emission levels.
- 11.11 As the proposed development will not be exposed to pollutant concentrations exceeding the objective level, it is concluded that no specific mitigation measures are required to limit the impact on future residents of the site. Similarly, no mitigation measures are required to control pollutant levels beyond the site boundary.

Appendix A

Scoping Discussions (Changes to the Scope reflected by the additional text in *italics*)

Job No	Report No	Issue no	Report Name	Page
NW91113	001	001	West Drayton, Hillingdon	1

From: Helen Cumiskey
Sent: 22 September 2014 14:43
To: 'Nayani Chandran'
Cc: Monika Jankowska; Ian Turvey
Subject: FW: Receptor location

Dear Nayani,

Thanks for your assistance in agreeing the proposed scope of works for the residential proposals at Tavistock Road, West Drayton.

I have combined all previous points in order to move forward with agreeing our approach.

Application Details

The site itself is known as Tavistock Gardens, Yiewsley and is situated in a relatively urbanised environment, currently occupied by mainly vacant buildings. It is accessed from High Street to the west, whilst the local highways of Tavistock Road, Winnock Road and Bentinck Road form the immediate links to the site.

JMP previously provided Noise and Air Quality Assessments for an original application at part of the site, which was granted planning consent by the London Borough of Hillingdon Council in 2012. *As this is a consented development we considered that the previously submitted Air Quality Assessment was considered valid and thus approved as part of the application?*

The developer has recently acquired land adjoining to the original site and now seeks to obtain planning approval for additional development, leaving the proposals for the original part of the site as consented. *The increase in development size is fairly minimal with 308 proposed units, compared to 241 previous.*

Proposed Scope – AQA

As part of the previous Air Quality Assessment undertaken in 2012 for the consented scheme, JMP undertook an assessment using the atmospheric dispersion modelling package *ADMS-Roads*, to establish both the prevailing air quality at key sensitive receptor locations and also the air quality impact arising from changes in traffic flow. Specifically, *ADMS-Roads* was used to disperse emissions of NO_x and PM₁₀ from the roads within the study area. The air quality was assessed at six receptors within the site area, four receptors outside the site area and at two existing diffusion tube sites. A 2012 Baseline Assessment and 2022 Future Year Assessment was undertaken at that time.

The Air Quality Assessment modelling results indicated that both under current and future conditions, the annual mean concentrations of NO₂ and PM₁₀ within the proposed development site are below the objective level of 40µg/m³. Beyond the proposed development site, there was shown to be no adverse impact on either NO₂ or PM₁₀ annual mean concentrations as a result of traffic generated by the proposed development.

We anticipate that the Council will consider these Air Quality measurements to remain valid for the latest application at the site, given that they are still relatively recent. However, the increase in development size necessitates the requirement for an updated Air Quality Assessment that considers the full extent of development. We consider it appropriate that an additional assessment is undertaken to determine the impact of the new larger development, in order to supplement and reinforce the findings of the previous detailed assessment.

For the updated assessment of transport related emissions JMP will make use of the Local Screening Method set out in the Design Manual for Roads and Bridges [DMRB] 11.3.1 published in May 2007. This method adopts the use of a spreadsheet model, DMRB Local Screening Method spreadsheet 1.03c, which

assesses the contribution of individual roads to the long term (daily or annual average) pollutant concentrations at specified receptor points. This method will be supplemented by the use of the 'NOx to NO2 converter' (version 2.1, January 2010) to establish roadside NO2 levels in the vicinity of the site. *Given the increase in development size is fairly minimal, and the previous assessment indicated no real development impact in air quality terms, we consider that a DMRB assessment of the extended development is appropriate in this instance – it is assumed that the increase in development size will not initiate any significant increase in emissions compared to the previous assessment. If however, the results do not indicate this anticipated result, then JMP will reconsider the required approach to the work.*

Approximately six of the previous ten receptor locations (including at least four within the site area) will be selected to determine the pollutant concentrations in the vicinity of the site. The results of which will aim to supplement and support the previous conclusions of the detailed dispersion modelling and are likely to indicate that the increase in development size will not have any impact on traffic related emissions. *You requested that a receptor point will be selected to indicate the worst case at the outer facade of the development. As indicated in the attached plans, existing Receptors 1, 2 and 3 are located on the outer facades of the development and represent a worst case for development users. Please let me know if you wish us to add another receptor?*

The previous assessment utilised monitoring data provided by the council to determine the background air quality levels. However, in this instance we will make use of the DEFRA Background Air Quality Mapping for the Hillingdon area which provides local pollutant data for NOx, NO2, and PM10 between the years 2008 and 2020. *As requested, the future years scenario will consider no drop off in NO2 as a worst case scenario.*

Based on the selected receptors, as a minimum, the following highways will be assessed as part of the updated Air Quality Assessment to determine any changes to emissions on the surrounding road network:

- Winnock Road
- Tavistock Road
- High Street
- Bentinck Road
- Station Road

In order to complement the existing Air Quality Assessment, the following scenarios will be assessed to take account of any changes in air quality resulting from the extended scheme:

- 2014 Base Year
- 2024 Future Year

We will utilise existing AADT traffic data available from the updated Transport Assessment.

Our method therefore is using the DMRB methodology as a sensitivity test of the increased development size in order to reinforce the existing 2012 results.

We will use the nearest automatic and non-automatic (nitrogen dioxide diffusion data) sites for verification purposes. *As requested we will use the monitoring site at Tavistock Road in addition to other relevant local monitoring sites set out in the 2014 Progress Report.*

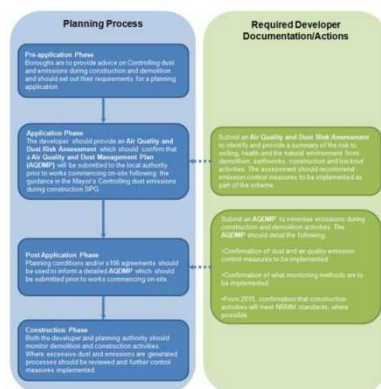
We anticipate that the AQA will include the following sections;

- * Introduction - including development proposals and scope of the report
- * Policy Context
- * Baseline Conditions - including both local highway network and local air quality – the report will include a description of input data used, assessment years and location of receptors

- * Review of 2012 assessment.
- * Assessment Methodology - DMRB (we will also undertake a gap analysis assessment as required by the Highways Agency for large developments)
- * Assessment Results - including NO2 and PM10
- * Assessment Discussion (including determination of significance)
- * Construction Impacts
- * Mitigation
- * Conclusions

Other Impacts / Requests

- We will calculate the impact of the CHP using the current CHP Calculator tool.
- In terms of the GLA SPG on 'The Control of Dust and Emissions during Construction and Demolition' – I understand your point regarding that any assessment should consider the building and transport emissions from the development against the benchmarks in the SPG. However, this SPG relates to the assessment of the construction phase emissions – our assessment is concerned with the traffic emissions as a result of the development itself – rather than the construction phase - this aspect of the work should be supported by a separate detailed Construction Management Plan, as set out in the SPG summary of requirements below i.e. the application phase should include an Air Quality and Dust Risk Assessment (from the Developer) which should confirm that a Air Quality and Dust Management Plan will be submitted **prior to works starting on site**. This is therefore not considered a requirement for our work at this stage of the application.



Can I suggest that we complete our work on the basis of the above in the anticipation that the impact of development on air quality emissions will remain negligible? If the results are not as anticipated then we could then review our approach accordingly?

I look forward to hearing from you.

Kind regards,
Helen Cumiskey

Principal Transport Planner

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From: Nayani Chandran [mailto:nchandran@hillingdon.gov.uk]

Sent: Friday, September 19, 2014 01:33 PM

To: Helen Cumiskey

Subject: Re: FW: Air Quality Assessment - Tavistock Gardens, Yiewsley

Hi Helen,

Just to cut through the confusion, your colleague set out the proposed assessment, but I didn't agree to it.

I said what needed further consideration from before (wasn't adequately addressed or was not conservative enough in the previous assessment, and I think the emission factors used were overly optimistic, so worst case scenario wasn't represented). This isn't something we got to the bottom of.

Looking back at the email I didn't take on board the scope was being provided as a fait accompli, so when I didn't expressly say 'I broadly agreed with what was proposed' or 'what is proposed is broadly ok' which would be my response if it had been, I didn't anticipate it would be taken as acceptance. I am confused as why it would be.

I think your colleague also assumed the previous assessment was considered 'valid'.

If you want to run the proposed assessment by me again, with the points raised to date, I'd be happy to take a look. I really need some detail on why DMRB is considered an appropriate approach this time around.

Kind Regards,
Nayani

On 19 September 2014 12:05, Helen Cumiskey <Helen.Cumiskey@jmp.co.uk> wrote:

Nayani,

Yes I have copies of your requirements to my colleague as set out in a copy of the email trail below.

We set out that we would address your comments to include a CHP calculation and noted your points re the NO2 drop off and the appropriate monitoring site. I then set out that – we will now proceed with the DMRB approach for Air Quality Assessment at six receptor points for the extended development, and will include a summary of the 2012 dispersion model assessment within our report.

I am somewhat confused. You did not disagree to this approach you said that you would be happy to address any further queries. From your responses it was therefore apparent that our approach to assess the extension to the consented development by supporting the valid 2012 dispersion model AQA with an additional DMRB assessment was acceptable – as our scope made it clear we would not be using a dispersion model again?

Given the extended development is not anticipated to have any significant impact on previous results, the addition of a DMRB assessment to supplement the existing AQA is considered to provide a robust approach in our opinion. I suggest we proceed with our intended method on the basis that we envisage the results to change negligibly as a result of the extension?

Kind regards,

Helen.

From: Helen Cumiskey
Sent: 17 September 2014 09:15
To: 'Nayani Chandran'
Cc: Monika Jankowska
Subject: RE: Air Quality Assessment - Tavistock Gardens, Yiewsley

Thanks Nayani!

Kind regards,

Helen.

From: Nayani Chandran [mailto:nchandran@hillingdon.gov.uk]
Sent: 17 September 2014 08:37
To: Helen Cumiskey
Subject: Re: Air Quality Assessment - Tavistock Gardens, Yiewsley

Happy to address any queries.

Kind Regards,

Nayani

On 16 September 2014 12:28, Helen Cumiskey <Helen.Cumiskey@jmp.co.uk> wrote:

Dear Nayani,

Further to your email below to my colleague Richard, thank you for your comments. We will take these on board. Just to clarify – we will now proceed with the DMRB approach for Air Quality Assessment at six receptor points for the extended development, and will include a summary of the 2012 dispersion model assessment within our report.

If I have any further queries I assume it is ok to come back to you?

Kindest regards,
Helen.

Regards
Helen Cumiskey
Principal Transport Planner
JMP Consultants Ltd, 3rd Floor, Cotton Exchange, Bixteth Street, Liverpool, L3 9LQ

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From: Nayani Chandran [<mailto:nchandran@hillingdon.gov.uk>]

Sent: 05 September 2014 10:01

To: Richard Parker

Cc: Val Beale

Subject: Re: Noise and Air Quality Assessments - Tavistock Gardens, Yiewsley

Dear Richard,

Thank you for the air quality scoping.

I had look at the comments I had sent to planning for this site previously and would advise the following is considered in any assessment:

- The emissions from the CHP be considered as part of the assessment. Relevant locations with regard to this needs to be considered alongside the roadside receptors
- Future years scenario needs to consider no drop off in NO2 as a worst case scenario
- The tube on Tavistock Road would make a more relevant and conservative background.

We have new tubes in the area worth considering. The most recent monitoring data is available in the attached report.

If you have any queries, please let me know.

Kind Regards,

Nayani

On 4 September 2014 17:50, Richard Parker <Richard.Parker@jmp.co.uk> wrote:

Dear Nayani,

I am writing to inform you of Noise and Air Quality work we are currently undertaking in your Borough as part of a new planning application for a proposed residential development.

JMP previously provided Noise and Air Quality Assessments for an original application at part of the site, which was granted planning consent by the London Borough of Hillingdon Council in 2012. The developer has recently acquired land adjoining to the original site and now seeks to obtain planning approval for additional development, leaving the proposals for the original part of the site as consented.

The site itself is known as Tavistock Gardens, Yiewsley and is situated in a relatively urbanised environment, currently occupied by mainly vacant buildings. It is accessed from High Street to the west, whilst the local highways of Tavistock Road, Winnock Road and Bentinck Road form the immediate links to the site.

Transport Related Emissions

Methodology

As part of the previous Air Quality Assessment undertaken in 2012 for the consented scheme, JMP undertook an assessment using the atmospheric dispersion modelling package *ADMS-Roads*, to establish both the prevailing air quality at key sensitive receptor locations and also the air quality impact arising from changes in traffic flow. Specifically, *ADMS-Roads* was used to disperse emissions of NO_x and PM₁₀ from the roads within the study area. The Air Quality Assessment methodology was agreed through scoping with you. The air quality was assessed at six receptors within the site area, four receptors outside the site area and at two existing diffusion tube sites. A 2012 Baseline Assessment and 2022 Future Year Assessment was undertaken at that time.

The Air Quality Assessment modelling results indicated that both under current and future conditions, the annual mean concentrations of NO₂ and PM₁₀ within the proposed development site are below the objective level of 40µg/m³. Beyond the proposed development site, there was shown to be no adverse impact on either NO₂ or PM₁₀ annual mean concentrations as a result of traffic generated by the proposed development.

We anticipate that the Council will consider these Air Quality measurements to remain valid for the latest application at the site, given that they are still relatively recent. However, the increase in development size necessitates the requirement for an updated Air Quality Assessment that considers the full extent of development. We consider it appropriate that an additional assessment is undertaken to determine the impact of the new larger development, in order to supplement and reinforce the findings of the previous detailed assessment.

For the updated assessment of transport related emissions JMP will make use of the Local Screening Method set out in the Design Manual for Roads and Bridges [DMRB] 11.3.1 published in May 2007. This method adopts the use of a spreadsheet model, DMRB Local Screening Method spreadsheet 1.03c, which assesses the contribution of individual roads to the long term (daily or annual average) pollutant concentrations at specified receptor points. This method will be supplemented by the use of the 'NO_x to NO₂ converter' (version 2.1, January 2010) to establish roadside NO₂ levels in the vicinity of the site.

Approximately six of the previous ten receptor locations (including at least four within the site area) will be selected to determine the pollutant concentrations in the vicinity of the site. The results of which will aim to supplement and support the previous conclusions of the detailed dispersion modelling and are likely to indicate that the increase in development size will not have any impact on traffic related emissions.

The previous assessment utilised monitoring data provided by the council to determine the background air quality levels. However, in this instance we will make use of the DEFRA Background Air Quality Mapping for the Hillingdon area which provides local pollutant data for NO_x, NO₂, and PM₁₀ between the years 2008 and 2020.

Based on the selected receptors, as a minimum, the following highways will be assessed as part of the updated Air Quality Assessment to determine any changes to emissions on the surrounding road network:

- Winnock Road
- Tavistock Road
- High Street
- Bentinck Road
- Station Road

In order to complement the existing Air Quality Assessment, the following scenarios will be assessed to take account of any changes in air quality resulting from the extended scheme:

- 2012 Base Year
- 2022 Future Year

We would utilise existing AADT traffic data available in the previous Air Quality Assessment report. However, we would utilise new development traffic data from the associated Transport Assessment.

Our method therefore is using the DMRB methodology as a sensitivity test of the increased development size in order to reinforce the existing 2012 results.

We will use the nearest automatic and non-automatic (nitrogen dioxide diffusion data) sites for verification purposes, these will mirror those used in the previous assessment.

We anticipate that the AQA will include the following sections;

- * Introduction - including development proposals and scope of the report
- * Policy Context
- * Baseline Conditions - including both local highway network and local air quality – the report will include a description of input data used, assessment years and location of receptors
- * Assessment Methodology - DMRB (we will also undertake a gap analysis assessment as required by the Highways Agency for large developments)
- * Assessment Results - including NO₂ and PM₁₀
- * Assessment Discussion (including determination of significance)
- * Construction Impacts
- * Mitigation
- * Conclusions

Traffic Noise

Methodology

JMP previously undertook a Noise Assessment for the consented scheme in 2012. To support the assessment a period of noise monitoring was undertaken at two sites within the site boundary during February 2012 in which both external and internal noise levels were recorded for a continuous 24-hour period. To reflect noise conditions with the proposals in place, the recorded noise levels were adjusted using the Calculation of Road Traffic Noise (CRTN) to adjust for distance, screening and reflection, and facade height at the development. As agreed as part of the scoping process with you, the London Borough of Hillingdon Noise Supplementary Guidance (Noise SPG) was used as the basis for assessment using the Noise Exposure Categories (NEC's) to plot noise exposure across the site. The Noise Assessment established that the majority of the site would be exposed to NEC A and B levels during the daytime and night-time and therefore external noise levels could be deemed acceptable. The internal noise assessment was undertaken using BS8223 where it was determined that double glazed windows would enable 'reasonable' daytime and night-time internal levels to be met in accordance with BS8223.

For the updated assessment, JMP will retain consistency with the original methodology as agreed with the Council by using the Noise SPG criteria and BS8223 to assess the additional proposals. JMP will utilise 18-hour traffic data obtained for the previous assessment and use the CRTN methodology to determine traffic noise exposure at the new part of the site.

Should the latest Noise Assessment identify any parts of the site to be exposed to noise levels which exceed the recommended levels by a significant margin in accordance with the guidance, suitable mitigation will be included in the assessment in order to ensure acceptable living conditions at the site.

If you have any comments on our air quality or noise approaches please let me know as soon as convenient. I look forward to hearing from you.

Many thanks for your anticipated assistance.

Regards

Richard Parker

Transport Planner

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