



Background Paper

West of Borough and Site Allocations (including 'Rest of Borough' Sites)

Noise and Air Quality

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1. Introduction

The evidence within this document has been prepared in light of the following identified draft policies below which relate to noise and air quality within the Regulation 19 Consultation Draft Volume 3: West of Borough (WoB) Local Plan Review (dated July 2019) inclusive of Draft Policy WOB 6 due to the relationship between areas of transport and air quality. Proposed minor amendments to policy WOB3: Health and Wellbeing as part of the Draft Submission version of the WoB Local Plan Review are also set out here.

The document also looks at Site Allocations set out in the Draft Volume 2: Site Allocations Local Plan review document within both the WoB plan area and the Rest of the Borough (RoB) area, providing detailed assessment of associated Noise and Air Quality impacts that may be present, and appropriate guidance on any suitable mitigation measures to address these (please see Appendix A and C).

It seeks to provide evidence and observation regarding the challenges faced in the Borough in terms of planning for Noise and Air Quality and as a basis to secure 15 year goals, policies and strategies to provide ongoing improvements and benefits and provide high quality developments.

Draft Regulation 19 Policy WOB3: Health and Wellbeing

The Council will seek to create communities that are healthy, happy, well connected and enabled to realise their full potential through the development of high-quality accessible places with local services to support health, social and cultural wellbeing and reduce inequalities. The Council will also work with partners and key stakeholders to secure a quality of life fund (a package of mitigation and compensation measures) that addresses any negative impacts Heathrow Airport may have on surrounding communities. We will achieve this by:

- (a) Working with strategic partners to minimise and mitigate the negative impacts caused by poor air quality and high levels of noise, and maximise opportunities for compensatory environmental, social and economic benefits from partners such as Heathrow Airport, in order for residents in the West of Borough area to lead happier and healthier lives.*
- (b) Working with stakeholders to become Air Quality Positive by implementing measures across the area that will actively reduce air pollution, in order to improve the environmental quality of the area.*

[c-i not relevant to noise or air quality]

The Council will expect development proposals to:

- (j) Ensure that the health of residents is not jeopardised through exposure to pollutants or their quality of*



life is not degraded through exposure to excessive noise by locating sensitive uses away from existing or planned sources of air and noise pollution, unless appropriate mitigation is provided to reduce such pollution to acceptable levels.

(k) Demonstrate that health and wellbeing has been considered during the design stages using best available techniques (BATs) to mitigate and minimise any adverse effects on health and quality of life (e.g. soil, noise, water, air or light pollution, etc.). Proposals for major development schemes should also include a Health Impact Assessment (HIA).

[l not relevant to noise or air quality]

(m) Minimise air pollution by making new developments 'air quality positive' in accordance with the Mayor's SPG on sustainable design.

Proposed Policy Amendments – Draft Submission Policy WoB3: Health and Wellbeing

The Council will seek to create communities that are healthy, happy, well connected and enabled to realise their full potential through the development of high-quality accessible places with local services to support health, social and cultural wellbeing and reduce inequalities. The Council will also work with partners and key stakeholders to secure a quality of life fund (a package of mitigation and compensation measures) that addresses any negative impacts Heathrow Airport may have on surrounding communities.

We will achieve this by:

(a) Working with strategic partners and stakeholders to maximise opportunities for compensatory environmental, social and economic benefits from partners such as Heathrow Airport, in order for residents in the West of Borough area to lead happier and healthier lives.

(b) Working with partners and stakeholders to implement measures across the area that will ensure that health and wellbeing and the natural environment are not adversely affected by harmful pollution in accordance with the London Plan policy SI1 and the Mayor's SPG on Sustainable Design and Construction (or any relevant superseding guidance).

[c-i not relevant to noise or air quality]

The Council will expect development proposals to:

(j) Ensure that the health of residents is not jeopardised through exposure to pollutants or their quality of life is not degraded through exposure to excessive noise by locating sensitive uses away from existing or



planned sources of air and noise pollution, unless appropriate mitigation is provided to reduce such pollution to acceptable levels.

(k) Demonstrate that health and wellbeing has been considered during the design stages using best available techniques (BATs) to mitigate and minimise any adverse effects on health and quality of life (e.g. soil, noise, water, air or light pollution, etc.). Proposals for major development schemes should also include a Health Impact Assessment (HIA).

[I not relevant to noise or air quality]

(m) Contribute to and/or deliver measures to minimise and mitigate air pollution on large scale development subject to Environmental Impact Assessment demonstrating how they could become 'air quality positive' in accordance with London Plan policy SI1 and the Mayor's SPG on Sustainable Design and Construction (or any relevant superseding guidance).

Draft Regulation 19 Policy WOB6: Connecting People and Places

The Council is committed to working with strategic partners, stakeholders and developers to expand and enhance the West of Borough transport infrastructure and implement measures that will provide attractive alternatives to the private car in order to reduce car dependency in-turn helping to mitigate the impacts of growth on the environment.

[a-e not relevant to noise or air quality]

(f) Working with key stakeholders to reduce traffic congestion and improve air quality, noise pollution and pedestrian and cycle safety in traffic hotspots. This is especially relevant in existing traffic hotspots such as Feltham Town Centre

The Council will expect development proposals to:

(i) Reduce Air Quality impacts by providing infrastructure for electric vehicles and car sharing programmes.

Draft Regulation 19 Policy West of Borough West Policy: P1

Proposals should plan positively to deliver the place vision by WoB – Feltham Town Centre Place Policy P1;

"(j) Supporting health and well-being by ensuring sensitive uses are located away from pollution sources and that new development mitigates the impacts of noise and air pollution.

Draft Regulation 19 Policy West of Borough West Policy: P2

No relevant proposals to air quality and noise are required to deliver the place vision of WoB – Bedfont Lakes Neighbourhoods Place Policy P2.



Draft Regulation 19 West of Borough Central Policy: P3

No relevant proposals to air quality and noise are required to deliver the place vision of WoB – Heathrow Gateway Place Policy P3.

Draft Regulation 19 West of Borough Central Policy: P4

No relevant proposals to air quality and noise are required to deliver the place vision of WoB – Airport Business Park Place Policy P4.

Draft Regulation 19 Policy West of Borough West Policy: P5

Proposals should plan positively to deliver the place vision by WoB – Cranford and Heston Neighbourhoods Place Policy P5.

"(e) Working with partners and key stakeholders to mitigate the impact of pollution caused by Heathrow Airport, and provide compensatory environmental, social and economic benefits for the residents and workers in this area.

[...]

(o) Supporting development densities of 4-6 residential storeys where appropriate along the Great West Road and Bath Road and in Heston Neighbourhood Centre. Development will need to demonstrate that they contribute positively to their context and have no negative impact on existing residential uses.

[...]

(z) Improving the local road network to encourage the safe, reliable, and efficient movement of freight and to minimise its impact on congestion, road safety, and air quality.

Issues relevant to achieving the above are primarily associated with air quality and noise. These issues are discussed in the following sections.

1.1 Study Overview

Purpose of the Study

Review of the above Draft WoB Local Plan Review policies and Draft Site Allocations within the WoB and RoB areas. This will set out recommendations for mitigation and measures to ensure that the policies and allocations are appropriate, in line with latest best practice guidance and allows for appropriate development within the WoB plan area and on sites in the RoB.

Key Outputs

- Review of relevant international, national, regional and local policy context and legislation;



- Air quality mapping and identification of high concentrations of pollutants within the WoB and RoB study areas;
- Summary of Air Quality and Noise constraints and opportunities at allocated sites;
- Noise modelling for the allocated sites within WoB and RoB to consider the effects of different interpretations of the draft policy;
- Proposed Interpretation of Draft Policy to identify implications of the policy on development within the allocated sites and to feed into emerging supplementary planning guidance.

Report Structure

The report is divided into sections reviewing the above for Air Quality and Noise and each section is set out as below:

- An introduction to why noise and air quality are issues which are relevant for consideration within the context of this Local Plan.
- A review of extant policies, guidance and baseline within the study area.
- Discussion of the effectiveness of each of the proposed policies.
- Examination of the potential effects of air quality/noise at allocated sites within the WoB study area and RoB site allocations.
- Conclusions and further recommendations.



2. Air Quality

2.1 Introduction to Air Quality

Review of the Local Plan in the West of Borough (WoB) and Rest of Borough (RoB) requires the Local Authority (LA) to manage risks associated with mixed use developments that may be either in close proximity or front onto the congested roads across Hounslow such as A315 Staines Road, A3006 Bath Road and A244 Feltham, High Street, particularly if development proposals are within an area of one or more of exceedances of air quality objectives or are within Air Quality Focus Areas (AQFA).

Air quality management is important for improving the existing condition of the WoB and RoB study areas and ensuring future occupiers of any development are not exposed to poor air quality.

The WoB and RoB study areas largely serve the needs of mainly residential use with some retail and commercial. It should therefore be recognised that residential dwellings with front facades along Staines Road, Bath Road and Feltham High Street should be carefully considered and suitable, robust mitigation measures should be put in place to protect any future occupiers. Evidence will be required to demonstrate that any proposed developer mitigation measures will be effective.

Residential development to the rear of buildings and where they are set back from major roads are preferable, particularly as the majority of areas within the WoB and RoB study areas will be able to mitigate Air Quality exceedances using design mitigation such as shielding by existing buildings, setbacks and the use of greenery to act as a buffer. The reliance on regression in pollutant levels with height (not having residential use on the lower floors of a development) is not considered to be as likely in the WoB and RoB study areas as many developments will not be elevated above these heights.

2.1.1 Effects of Air Quality on Health

This sub-section outlines why air quality is an important consideration given the effect of poor air quality within the borough on vulnerable groups of people and public health.

Air Quality is a significant issue within the UK. A lobby group, Client Earth, through the High Court, have taken successful action against the British Government for not meeting air quality limits. Local authorities are therefore under significant pressure to reduce pollution. However, it is acknowledged that it is not a simple problem and will require a combination of policy, technology and social change.

Exposure to Nitrogen Dioxide (NO₂) (the key traffic derived pollutant) has been attributed to 23,500 premature



deaths per year¹ in the UK. The limits of 40µg/m³ for long-term (annual exposure) and 200µg/m³ for short-term (hourly) exposure have been set as the level where there are observable health effects in the general population. Exposure to high levels of NO₂ have been linked to both respiratory problems and shown to affect brain function.

The limits for NO₂ are based on empirical studies and have been set based on the studies of the onset of health conditions. The following is from the World Health Organisation (WHO) "*Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide - Global update 2005*"²:

"Epidemiological studies have shown that bronchitic symptoms of asthmatic children increase in association with annual NO₂ concentration, and that reduced lung function growth in children is linked to elevated NO₂ concentrations within communities already at current North American and European urban ambient air levels. These studies also found adverse effects on the health of children living in metropolitan areas characterized by higher levels of NO₂ even in cases where the overall city-wide NO₂ level was fairly low."

Whilst the UK annual average limit for PM_{2.5} is 25µg/m³, the WHO has a lower limit of 10µg/m³ as there is no identified 'safe' level of exposure to particulate matter.

The WHO guidance states that recent indoor studies have provided evidence of effects on respiratory symptoms among infants at NO₂ concentrations below 40 µg/m³.

A number of short-term experimental human toxicology studies have reported acute health effects following exposure to 1-hour NO₂ concentrations in excess of 500 µg/m³. Although the lowest level of NO₂ exposure to show a direct effect on pulmonary function in asthmatics in more than one laboratory is 560 µg/m³, studies of bronchial responsiveness among asthmatics suggest an increase in responsiveness at levels upwards from 200µg/m³.

Evidence from a report commissioned by the British Heart Foundation suggests that both the short-term and long-term exposure to particulate matter (PM) may be associated with cardiovascular disease (CVD)³.

"In 2014, the European Study of Cohorts for Air Pollution Effects (ESCAPE) found that long-term exposure to PM_{2.5} is strongly linked to heart attacks and angina."

Researchers found that a 5µg/m³ increase in PM_{2.5} was associated with a 13 per cent increase in relative risk of coronary events and a 10µg/m³ increase in PM₁₀ was associated with a 12 per cent increased risk of coronary events. The study involved over 100,000 participants with no prior history of heart disease over a ten-year

¹ Air Pollution in the UK 2015, Defra, September 2016 https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2015_issue_1.pdf

² http://www.euro.who.int/_data/assets/pdf_file/0005/78638/E90038.pdf?ua=1

³ [Every breath we take: the lifelong impact of air pollution | RCP London 2016](#)



period (1997-2007). This study found that the risk of heart attack and angina increased at levels of PM_{2.5} exposure below current EU limit thresholds⁴.

This mirrors findings from a study conducted in Italy, which found that long-term exposure to both PM_{2.5} and NO₂ had a negative association on mortality from coronary heart disease.

Levels of NO₂ in the WoB and RoB study areas, is currently, and has been in breach of the EU directive 2008/50/EC and the national Air Quality Standards Regulations (amended) 2016 and subsequent amendments, in some locations, for over ten years.

As levels of NO₂ and particulate matter are both traffic derived and correlate with each other, within this context, it is considered that a nominal value of **38µg/m³** of Nitrogen Dioxide as an annual mean, should be used within the London Borough of Hounslow as a trigger level for identifying 'poor' air quality, thus allowing for variation and error. Going forward, this level of **38µg/m³** (as a more stringent level compared to the National Limit of 40µg/m³) should be used in the emerging supplementary planning guidance, as the basis for a borough-wide target, trigger for and the maximum design target for mitigation, and the maximum headroom limit for all nitrogen dioxide emissions (notwithstanding the requirement for all new developments to be Air Quality Neutral and take an Air Quality Positive approach).

⁴Peters A et al (2014) „Long-term exposure to ambient air pollution and incidence of acute coronary events: perspective cohort study and meta-analysis in 11 European cohorts from the ESCAPE project.“ *British Medical Journal*/<http://www.bmj.com/content/348/bmj.f7412>



2.2 Plans, Policies and Programmes

This section covers the following:

- National planning policy/Clean Air Strategy;
- London specific guidance and policies;
- Existing baseline information to identify areas which are of known poor air quality;
- Specific measures which are to be implemented, which will affect air quality within the Great West Corridor, e.g. the Ultra-Low Emission Zone (ULEZ).

The above have all been reviewed within the context of the draft policies.

2.2.1 National Policy

Levels of Nitrogen Dioxide (NO₂) in the West of Borough (WoB) and Rest of Borough (RoB) study areas is currently and has been in breach of the EU directive 2008/50/EC and the national Air Quality Standards Regulations (amended) 2016 and subsequent amendments, in some locations, for over ten years. The introduction of the National Planning Policy Framework (NPPF)⁵ and the update to the supplementary Planning Policy Guidance (PPG), places certain obligations on LPAs where planning policies and decisions should contribute to and enhance the natural and local environment by "*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 instability, Development should, wherever possible, help to improve local environmental conditions such as air quality and water quality, taking into account relevant information such as river basin management plans*"⁶. The PPG states "*Where air quality is a relevant consideration, the local planning authority may need to establish whether occupiers or users of the development could experience poor living conditions or health due to poor air quality*".

The key pollutant of concern is NO₂ for which the borough wide Air Quality Management Area (AQMA) has been declared as it is above the annual average legal limit of 40µg/m³. A major source of NO₂ is emissions from road traffic. Particulate Matter is also of concern as another traffic derived pollutant.

The overriding priority is to devise suitable policies that satisfy the above requirements for WoB and RoB sites.

2.2.2 London Policy

2.2.2.1 'Air Quality Neutral' and 'Air Quality Positive' in the London Plan

The adopted London Plan (2016) addresses the improvement of air quality. Policy 7.14 within the London Plan

⁵ [National Planning Policy Framework.pdf](#)

⁶ [National Planning Policy Framework.pdf](#) Paragraph 170 (e)

⁷ <https://www.gov.uk/guidance/air-quality--3> Paragraph 005 Reference ID: 32-005-20191101



(2016)⁸ specifically relates to 'air quality neutral':

'Policy 7.14 Improving Air Quality

Strategic

A. The Mayor recognises the importance of tackling air pollution and improving air quality to London's development and the health and well-being of its people. He will work with strategic partners to ensure that the spatial, climate change, transport and design policies of this plan support implementation of his Air Quality and Transport strategies to achieve reductions in pollutant emissions and minimise public exposure to pollution.

Planning Decisions

B. be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs))

The GLA is currently in the process of updating the London Plan, with the Intend to Publish Draft London Plan published in December 2019. Since then, the Secretary of State has written to the Mayor setting out his consideration of the Plan (13th March 2020) and the Mayor has issued a response (24th April 2020), neither of which directly address any polices relating to air quality. The Draft New London Plan (2019) addresses the improvement of air quality in proposed policy SI1:

Policy SI 1 Improving air quality

A Development Plans, through relevant strategic, site-specific and area-based policies, should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

- 1 Development proposals should not:
 - a) lead to further deterioration of existing poor air quality*
 - b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*
 - c) create unacceptable risk of high levels of exposure to poor air quality.**
- 2 In order to meet the requirements in Part 1, as a minimum:
 - a) development proposals must be at least Air Quality Neutral*
 - b) development proposals should use **design solutions** to prevent or minimise increased**

⁸ https://www.london.gov.uk/sites/default/files/the_london_plan_2016_jan_2017_fix.pdf



exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retrofitted mitigation measures

c) major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1

d) development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.

C Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

a) how proposals have considered ways to maximise benefits to local air quality, and

b) what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.

D In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development.

In addition to the above details from the current and Draft London Plan, to support the policies in the London Plan, the 'Sustainable Design and Construction Supplementary Planning Guidance (SPG) provides guidance on air quality neutral assessments. The relevant section is copied below.

4.3.12 The NPPF states that planning policies should sustain compliance with and contribute towards meeting EU limits 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 should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.

4.3.14 The London Plan and the Mayor's Air quality Strategy set out that developments are to be at least 'air quality neutral'. To enable the implementation of this policy emission benchmarks have been produced for buildings' operation and transport across London based



on the latest technology (including its effectiveness and viability). Developments that do not exceed these benchmarks will be considered to avoid any increase in NO_x and PM emissions across London as a whole and therefore be 'air quality neutral'. These are to be considered minimum benchmarks and will be kept under review and will be updated in line with technological and commercial advances.

4.3.15 This policy applies to all major developments⁹ in Greater London. Developers will have to calculate the NO_x and/or PM₁₀ emissions from the buildings and transport elements of their developments and compare them to the benchmarks set out in Appendix 5 and 6. For smaller developments paragraphs 4.3.23 – 4.3.25 set out emissions standards for combustion plant. Where schemes do not meet the 'air quality neutral' benchmarks, after mitigation measures have been implemented onsite, the developer will be required to off-set emissions off-site. Further information on off-setting requirements is included below.

4.3.16 To complement this policy emission standards have been recommended for combustion plant that provide heat and power to developments. These are outlined in paragraphs 4.3.20 – 4.3.25.

Emissions from buildings

4.3.17 Two Building Emission Benchmarks (BEBs) have been defined; one for NO_x and one for PM₁₀, for a series of land-use classes. The benchmarks are provided in Appendix 5. Section 4 of The Air quality neutral report provides further details on how to apply these benchmarks.

Transport emissions

4.3.18 Developments should be designed to encourage and facilitate walking and cycling and the use of public transport. This will enable air pollutants deriving from a particular development to be minimised. To further support this policy, boroughs should also ensure developments do not exceed local car parking standards⁹. 'Air Quality Neutral' Guidance

2.2.2.2 'Air Quality Neutral' Guidance

While the above London Plan extracts show that developments need to demonstrate their status as 'air quality neutral', no methodology on completing an appropriate assessment is prescribed within the guidance beyond the benchmarks given in Appendix 5 of the SPG.

Best practice guidance has been produced by Air Quality Consultants¹⁰ for completing AQ Neutral assessments

⁹ [Sustainable Design and Construction Supplementary Planning Guidance](#) April 2014

¹⁰ <https://www.aqconsultants.co.uk/CMSPages/GetFile.aspx?guid=226d8d5e-d7e9-40e1-bf0d-85c4554496da>



along with typical trip lengths and emissions factors to assist in calculating emissions from developments and comparing them against the benchmarks.

The current assessment methodology determines that the test of whether a development is 'neutral' is passed if a development's emissions are below the relevant benchmark commensurate to the scale of the development.

2.2.2.3 'Air Quality Positive'

Policy WOB3 reflects Policy SI 1 (c) within the Mayor of London's London Plan: Intend to Publish, wherein large scale development proposals subject to Environmental Impact Assessment (EIA) should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. The Mayor of London's Intend to Publish version of the Draft New London Plan¹¹ states the following with regards to an air quality positive approach:

9.1.11 An air quality positive approach is linked to other policies in the London Plan, such as Healthy Streets, energy masterplanning and green infrastructure. One of the keys to delivering this will be to draw existing good practice together in a holistic fashion, at an early stage in the process, to ensure that the development team can identify which options deliver the most improvement to air quality. Large schemes, subject to Environmental Impact Assessments, commonly have project and design teams representing a range of expertise, that can feed in to the development of a statement to set out how air quality can be improved across the proposed area of the development.

9.1.12 Single-site schemes, including referable schemes, are often constrained by pre-existing urban form and structure, transport and heat networks. These constraints may limit their ability to consider how to actively improve local air quality. By contrast, large schemes, particularly masterplans, usually have more flexibility to consider how new buildings, amenity and public spaces, transport and heat networks are deployed across the area and will therefore have greater opportunities to improve air quality and reduce exposure through the careful choice of design and infrastructure solutions. Delivery of an air quality positive approach will be project specific and will rely on the opportunities on site or in the surrounding area to improve air quality.

9.1.13 Statements for large-scale development proposals, prepared in response to Part C of this policy, should set out:

- *How air quality is intended to be analysed and opportunities for its improvement*

¹¹ [London Plan: Intend to Publish.pdf](#)



identified as part of the design process.

- *How air quality improvements have informed the design choices made about layout and distribution of buildings, amenity spaces and infrastructure.*
- *What steps will be taken to promote the uptake and use of sustainable and zero-emission modes of transport beyond minimum requirements. This may include specific measures in transport plans or delivery against Healthy Streets indicators.*
- *How air pollutant emissions from the buildings or associated energy centres can be reduced beyond the minimum requirements set out in Part B of this policy. This may include specific measures in heating masterplans or working with existing heat network providers to reduce or eliminate energy centre emissions.*
- *How specific measures that are identified to deliver air quality improvements will be evaluated and secured, including whether more detailed design specifications will be required so that the final development meets the desired performance.*

9.1.14 The GLA will produce guidance in order to assist developers and boroughs in identifying measures and best practice to inform the preparation of statements for developments taking an air quality positive approach.

9.1.15 Where the Air Quality Assessment or the air quality positive approach assumes that specific measures are put in place to improve air quality, prevent or mitigate air quality impacts, these should be secured through the use of planning conditions or s106 agreements. For instance, if ultralow NOx boilers are assumed in the assessment, conditions should require the provision of details of the installed plant prior to the occupation of the building, or where larger plant is used for heating, post installation emissions tests should be required to ensure that the modelled emission parameters are achieved.

The London Environment Strategy¹² states the following with regards to providing guidance for developers.

Proposal 4.3.3.a The London Plan includes policies so that all new large-scale developments in London are 'Air Quality Positive' and maintain Air Quality Neutral requirements for all other developments. London's growth and redevelopment should contribute to delivering improvements in air quality now and into the future. All major developments are already, and will continue to be, required to be Air Quality Neutral.

¹² https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf, p113.



Emission benchmarks for Air Quality Neutral Developments are set out in planning guidance for building operations and transport emissions based on the latest technology (including its effectiveness and viability).

Developments that meet or improve on these benchmarks are considered to avoid any increase in NO_x and PM emissions across London as a whole and are therefore 'Air Quality Neutral'. By ensuring all developments meet this minimum requirement London's growth can be accommodated without undoing other improvements in air quality. The Mayor will continue to keep these benchmarks under review to ensure that they remain fit for purpose. Implementation of the Air Quality Neutral policy will be monitored through the LLAQM process and in the London Plan monitoring report to ensure the requirements are met.

Larger developments have the potential to go further and boost local air quality by effective design and integration into the surrounding area. For instance, by the provision of low or zero emission heating and energy, green infrastructure, or improvements to public transport, walking and cycling infrastructure, Air Quality Positive developments will make sure that emissions and exposure to pollution are reduced.

The Mayor will provide guidance for developers on the most effective approach to take to ensure a development is Air Quality Positive and will review and update the guidance as required. This will ensure the best approaches to Air Quality Positive development are used in London.

Developments will need to go beyond demonstrating that they meet the benchmarks in the air quality neutral guidance but must go further and show that they will actively improve air quality through active measures on site.

2.2.3 London Borough of Hounslow - Air Quality Action Plan Objectives

All stakeholders, including developers and their agents, recognise the fact that many London Boroughs are failing to meet their air quality obligations. There are a number of reasons that have contributed to this outcome, which includes growth in uptake of diesel vehicles, lack of performance in emissions reduction from modern engine technology and impact of growth in developments that led to emissions increases from buildings and transport elements. These reasons have collectively led to the failure in meeting the air quality objectives. Therefore, in this context of emissions from developments (buildings & transport, including servicing/deliveries), any development proposals should be congruent to the objectives of the London Borough of Hounslow's Air Quality Action Plan (AQAP)¹³, with a view to delivering measurable emissions reductions and improvements in

¹³ [Hounslow Air Quality Action Plan - 2018.pdf](#)



local air quality.

The latest version of the AQAP was published in September 2018 and contains measures to reduce pollutant concentrations and increase awareness of the issue of air quality throughout the borough. The AQAP was published prior to 'The London Plan: Intend to Publish', and does not contain reference to air quality positive measures. Of all of the proposed actions, perhaps the most relevant action in the context of the WoB and RoB study areas is Action 40:

The council will continue to work in partnership with Highways England (HE), seeking clear strategy and framework to: (i) reducing current (and future – Smart Motorway) exceedances of NO₂/PM AQO and mitigate adverse effects, including health impacts of harmful emissions associated with road/routes within their jurisdiction; (ii) Seek contributions for implementing mitigation measures locally, aimed at reducing exposure to harmful emissions NO₂/PM (all sensitive receptors), resulting from their roads/routes; and improving air quality in nearby areas.

The proposed draft policies do not conflict with the AQAP actions.

2.2.4 Ultra-Low Emissions Zone

London's Low Emission Zone (LEZ) currently includes the WoB and RoB. The WoB is not covered by the existing Ultra-Low Emissions Zone (ULEZ) as it is around 15km to the east of the area. However, some RoB areas, including Chiswick, are within the ULEZ. The proposed extension from 25th October 2021 brings the ULEZ closer to the WoB areas as shown in Figure 2.1 below, and will cover other areas within the RoB.

How will the Ultra Low Emission Zone or Low Emission Zone affect you?

Operating 24/7

ULEZ central London from 8 April 2019

In the same area as the Congestion Charge

ULEZ extension to inner London from 25 Oct 2021

up to North and South Circular roads, including existing central London zone (all vehicles)



LEZ London-wide from 26 Oct 2020

(lorries and other vehicles more than 3.5 tonnes)



Greater London Authority Boundary



For a full list of affected vehicles see tfl.gov.uk/ulez

Figure 2.1 Map of Ultra Low Emission Zone (ULEZ) and Low Emission Zone (LEZ)

The ULEZ has proved to be an effective driver of behaviour change and there are typically 13,500 fewer of the worst polluting vehicles in Central London when comparing with the situation before the introduction of the ULEZ¹⁴.

Original understandings of the ULEZ were that there was a potential impact on the border of Hounslow, the edge of the ULEZ. A recent Mayor of London study has demonstrated the initial impacts of the ULEZ and shows that there has been a reduction of NO₂ emissions on boundary roads since the introduction of the ULEZ, providing a strong indication of the positive impact the scheme has on air pollution in boundary areas¹⁵. Ongoing monitoring will continue to be assessed, however initial results indicate that the ULEZ is having a positive impact on air quality within Hounslow and will continue to have an overall positive impact on the Borough.

¹⁴ <https://www.london.gov.uk/press-releases/mayoral/ulez-reduces-polluting-cars-by-13500-every-day>

¹⁵ Central London Ultra Low Emission Zone Six Month Report (2019)
https://www.london.gov.uk/sites/default/files/ulez_six_month_evaluation_report_final_oct.pdf



2.2.5 Nitrogen Dioxide (NO₂) Modelling and Monitoring

A review of the monitoring undertaken by the London Borough of Hounslow (LBH) within 2018 has been undertaken. Monitoring within LBH is undertaken through both continuous and non-continuous methods. Table 2.1 and 2.2 below indicate the continuous and non-continuous monitoring within the WoB and the RoB.

Monitoring

Continuous Monitoring

LBH operates six automatic monitoring stations within WoB and RoB. This offers continuous records of NO₂ and PM₁₀ concentrations within the area. The most recently available monitored NO₂ and PM₁₀ concentration data is from 2018 at the locations shown in the table below.

Table 2.1 Monitored Annual Mean NO₂ Concentrations at Automatic Monitoring Stations

Site ID	X	Y	Location	Site Type	NO ₂ Annual Mean Concentration 2018 (µg/m ³)	PM ₁₀ Annual Mean Concentration 2018 (µg/m ³)
HS2	510370	177195	Cranford	Background	26.0	15.0
HS4	521070	178480	Chiswick	Roadside	47.0	20.0
HS6	513656	176843	Heston	Roadside	40.0	22.0
HS7	509355	174989	Hatton Cross	Urban Background	28.0	21.0
HS8	519184	179369	Gunnersbury	Roadside	45.0	22.0
HS9	510683	173259	Feltham	Roadside	27.0	20.0

The automatic monitoring stations that exceed the AQO for NO₂ are HS4, HS6 and HS7 (40 µg/m³ annual mean) but are below for the remaining monitoring locations and below the AQO for PM₁₀ at all automatic monitoring locations within WoB and RoB. It should be noted that HS4 and HS7 are located within the RoB on the east side of LBH.

Non - Continuous Monitoring

LBH operates a network of around 46 diffusion tubes within WoB and RoB. Diffusion tubes within the WoB and RoB study area are given below.

Table 2.2 Monitored Annual Mean NO₂ Concentrations at Diffusion Tubes

Site ID	X	Y	Location	Site Type	2018 Annual Mean NO ₂ Concentration (µg/m ³)
HS41	512107	172502	Hanworth Library	Roadside	41.7
HS42	513986	175761	High Street, Hounslow	Background	28.3
HS51	509127	174568	Marjory Kinnon School	Roadside	25.5
HS52	508873	173722	Bedfont Library	Roadside	23.3



Site ID	X	Y	Location	Site Type	2018 Annual Mean NO ₂ Concentration (µg/m ³)
HS53	510986	176032	Church of the good shepherd	Intermediate	25.6
HS54	510810	177667	Cranford lane / High St. Cranford Jct	Roadside	35.0
HS55	510747	176687	Cranford Library	Roadside	33.7
HS61	516203	175863	Twickenham Road	Roadside	32.1
HS62	513630	176938	Sutton Rd & Heston Rd Jct	Roadside	33.5
HS63	513538	175828	Lampton Road	Roadside	34.1
HS64	512860	175013	Junction of Roseheath Road	Roadside	28.7
HS65	511840	172745	Eastbourne Road at	Roadside	25.0
HS66	510975	173646	Brainton Avenue	Roadside	37.9
HS67	516525	176846	Busch Corner	Roadside	48.4
HS68	517282	177296	Junction of Commerce Road	Roadside	36.5
HS72	513063	177552	Heston Crossroads	Roadside	36.1
HS73	510578	172857	Browells Lane, Feltham	Roadside	25.3
HS74	512040	171808	Swift Road, Hanworth	Roadside	30.9
HS76	511570	175015	Clements Court, Hounslow	Background	27.0
HS77	511990	175973	Beaversfield Park	Background	21.8
HS78	512762	175310	Staines / Wellington Road	Roadside	42.7
HS79	513384	175482	Whitton Road	Roadside	30.1
HS80	514442	175950	Hounslow East	Roadside	58.7
HS81	515045	175934	Woodlands	Background	22.0
HS82	516594	175880	Church Street	Roadside	22.2
HS83	514721	177976	Osterley Park	Background	19.9
HS84	512781	172132	Apex Corner	Roadside	31.6
HS85	513213	175655	Hospital Road	Roadside	37.9
HS86	510955	176567	Jolly Waggoners	Roadside	41.3
HS87A	511545	176430	Henleys Roundabout	Roadside	44.7
HS89	515424	174719	Mogden Sewage Works Gate	Roadside	28.8
CRAN A	510370	178198	Cranford Avenue Park	Background	24.3
CRAN B	510370	178198	Cranford Avenue Park	Background	24.3
CRAN C	510370	178198	Cranford Avenue Park	Background	24.3
FELT A	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
FELT B	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
FELT C	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
HEST A	513676	176844	Heston Road	Roadside	44.2

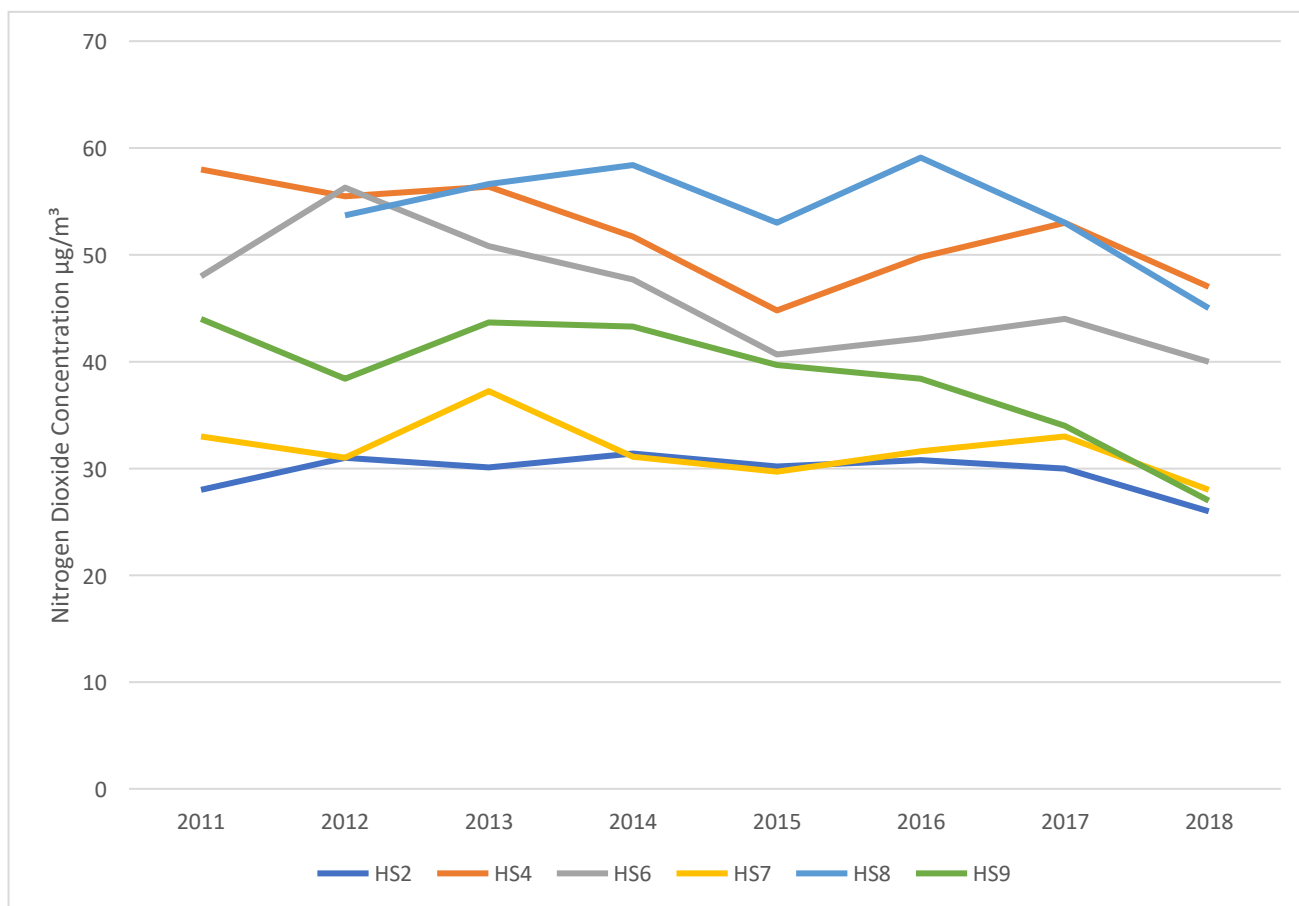


Site ID	X	Y	Location	Site Type	2018 Annual Mean NO ₂ Concentration (µg/m ³)
HEST B	513676	176844	Heston Road	Roadside	44.2
HEST C	513676	176844	Heston Road	Roadside	44.2
MYR A	509334	174997	Myrtle Avenue	Background	29.2
MYR B	509334	174997	Myrtle Avenue	Background	29.2
MYR C	509334	174997	Myrtle Avenue	Background	29.2
CHIS A	521085	178499	Chiswick High Road	Roadside	43.8
CHIS B	521085	178499	Chiswick High Road	Roadside	43.8
CHIS C	521085	178499	Chiswick High Road	Roadside	43.8

Diffusion tubes, HS41, HS78, HS80, HS86, HS87A, CHIS A, B, C and HEST A,B,C exceed the Air Quality Objective (AQO) for NO₂(40 µg/m³ annual mean). Monitoring trends have been reviewed within both the WoB and RoB for the past 8 years of available data. This data shows that only in recent years is any kind of downward trend observable. This shows that there are likely issues with the canyon effects around the monitoring, which are presenting issues with improvements in NO₂ concentrations.



Figure 2.2 Trend of Automatic Station NO₂ Concentration within the WoB and RoB area (2011-2018)



Air quality modelling of the baseline levels of NO₂ and in the area has been completed. See the below contour plots for an illustration of 'hot spots' around the WoB and RoB study areas showing areas above 38 µg/m³. Full details of the modelling are included in Appendix C.

Figure 2.3 Areas within WoB above $38\mu\text{g}/\text{m}^3$ for Long Term Annual Average 2018 NO_2 at 2m height

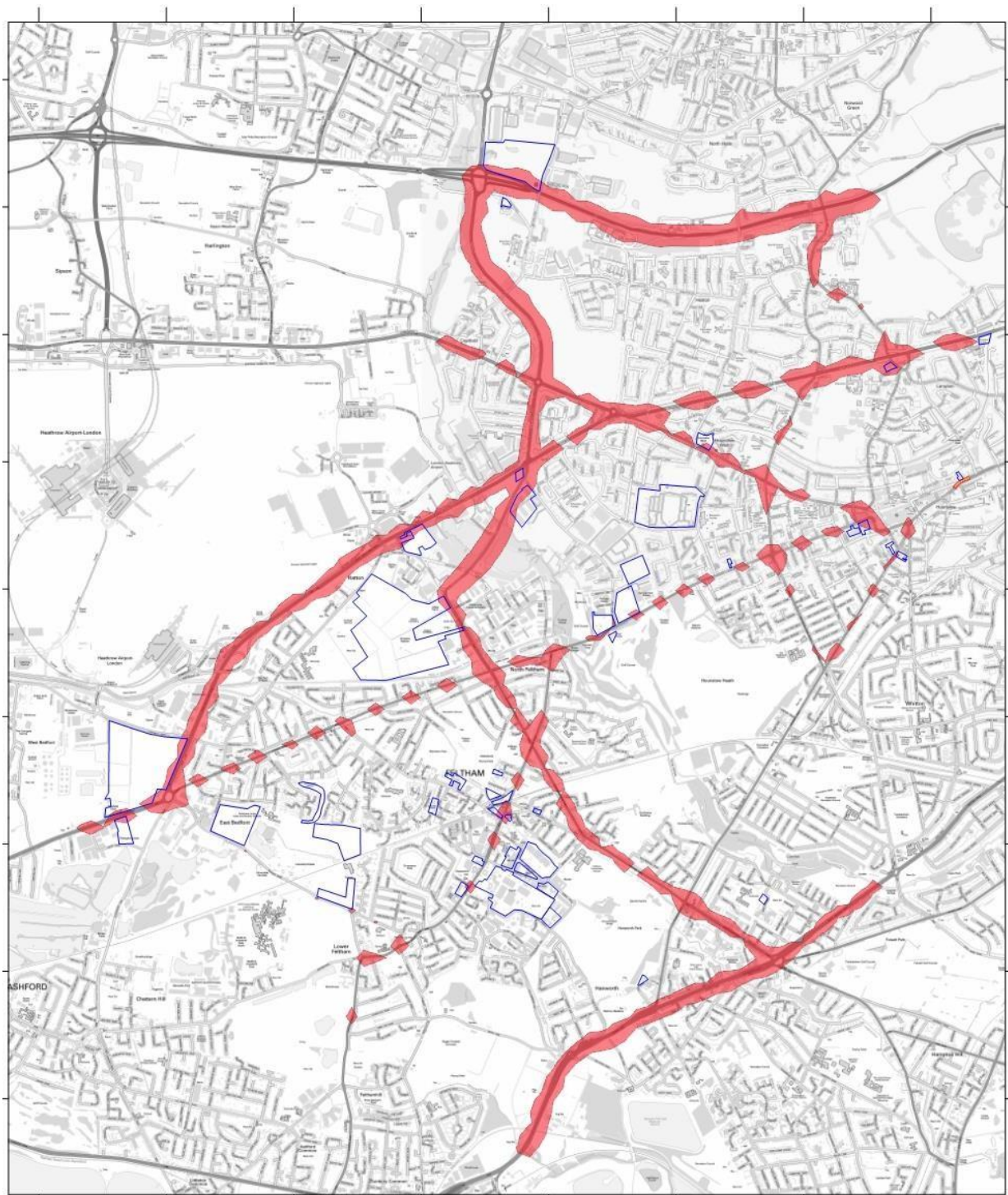


Figure 2.4 Areas within RoB (East) above $38\mu\text{g}/\text{m}^3$ for Long Term Annual Average 2018 NO_2 at 2m height

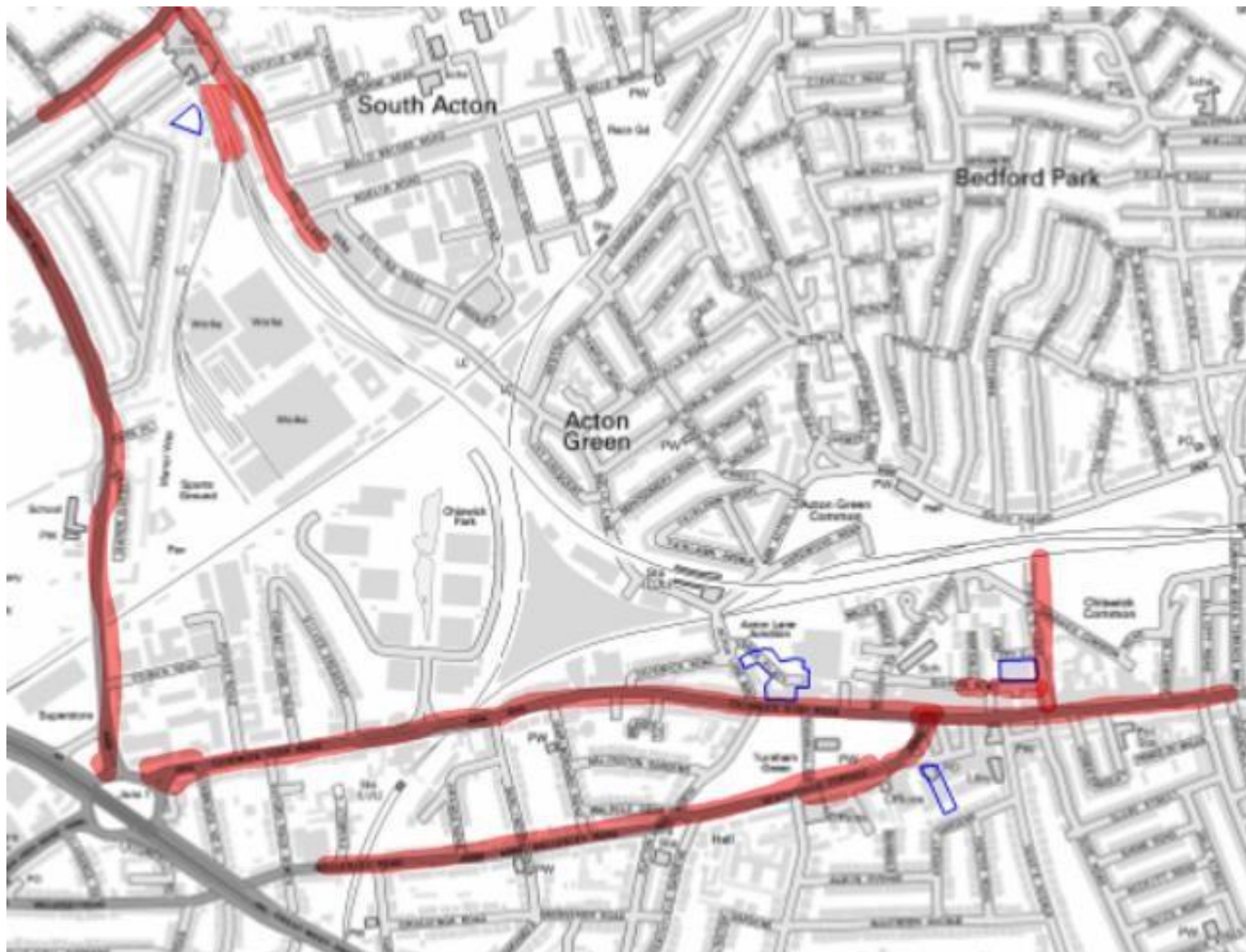
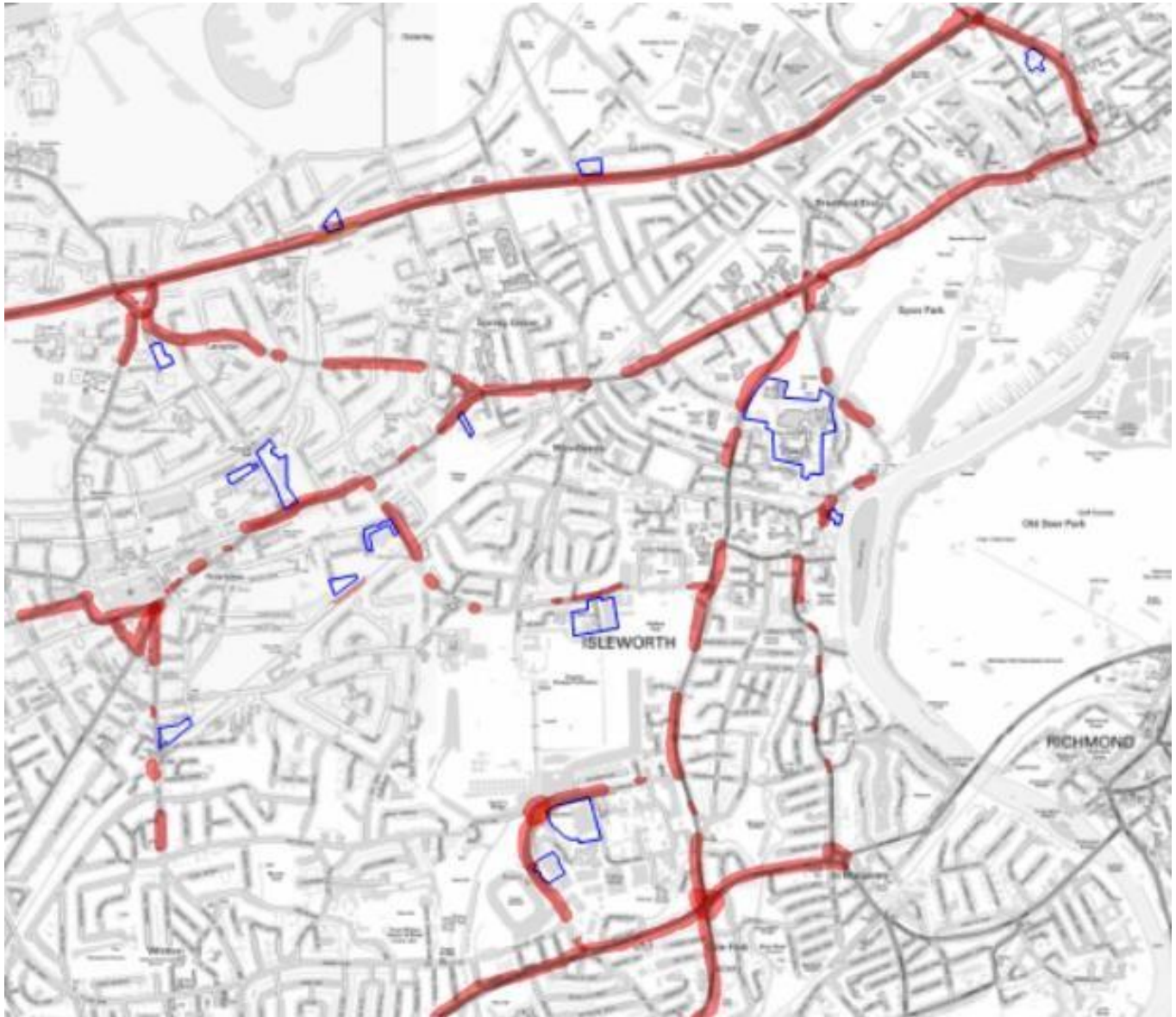


Figure 2.5 Areas within RoB (West) above $38\mu\text{g}/\text{m}^3$ for Long Term Annual Average 2018 NO_2 at 2m height





2.3 Design Mitigation

Mitigation measures that help to limit or reduce exposure to pollutants will need to be incorporated into the design of developments. Preference should be given to preventing or avoiding exposure to the pollutants by eliminating or isolating potential sources of emissions, or by replacing sources or activities with alternatives. To best achieve this, consideration should be given to the potential effect a development may have on air quality at the early design stage of a scheme. Mitigation measures which have been considered in relation to the WoB and RoB study areas are described below.

2.3.1 Green Walls

A review has been undertaken to assess the use of greenery to act as a “buffer” along streets within the WoB and RoB areas.

Some studies have shown that, subject to other specific local conditions, vegetation has the potential to act as a barrier which provides mitigation against poor air quality.

A variety of factors which can affect air quality need to be taken into account if green walls or barriers are to be implemented within the WoB and RoB study areas. It should be noted that it has been demonstrated that the use of high-level green infrastructure has the potential to have a negative impact on air quality as a result of high-level greenery acting as a canyon, trapping the air within it and restricting air flow. However, low-level dense vegetation, such as hedges, can hinder air flow underneath and have positive impact on street canyon environments, although these are not observed as predominantly in the WoB or RoB areas.¹⁶

Vegetation has the potential to act as a barrier which screens against poor air quality and disturbs air flow when at suitable density, as well as the ability to absorb pollutants to different extents dependent on the vegetation type. Studies undertaken on green walls have shown that the effectiveness of green infrastructure in improving air quality is a result of pollutants being more likely to be deposited onto vegetation than other smoother, impervious artificial surfaces¹⁷. Trees, bushes and other vegetation have been shown to reduce regional air pollution levels through the interception of airborne particles or through the uptake of gaseous air pollution throughout the plant surface.

In local air quality terms. The use of vegetation to improve air quality acts more as a barrier than the uptake of air pollution through the leaf stoma, by predominantly altering air flow. Vegetation type, height, and thickness can all influence the extent of mixing and pollutant deposition experienced at the site.

A report by Jeanjean found that trees are beneficial from a purely dynamic point of view. The study examined

¹⁶ Baldauf, 2017, Roadside Vegetation Design Characteristics that can improve local, near road air quality.

¹⁷ (Neft et al 2016) Simulations of aerosol filtration by vegetation: validation of existing models with available lab data and application to near-roadway scenario.



the benefits of trees in a neighbourhood in Leicester (UK) and the results showed decreased concentration of traffic emissions by 7% on average at pedestrian height.¹⁸

A study by Gromke et al has shown that a reduction of up to 60% at pedestrian level can be achieved in the presence of continuous hedgerows. These results show that the effects of trees and urban vegetation in general are strictly dependent on their interaction with geometry and meteorological conditions.¹⁹

Exposure to vegetation has also been shown to provide benefits to human health in terms of encouraging increased levels of physical activity leading to lower levels of obesity and improved mental health.^{20 21}

A study in Marylebone^{20a} demonstrated that the meteorological conditions including wind speed and direction, have a greater influence on the local air quality when combined with the canyon effect produced by vegetative barriers, than the ability of the barrier to reduce air pollution.

¹⁸ (Jeanjean, 2015) A CFD study on the effectiveness of trees to disperse road traffic emissions at a city scale.

^{18a} (Jeanjean 2017) Air quality affected by trees in real street canyons: the case of Marylebone neighbourhood in central London.

¹⁹ (Gromke et al, 2016) Influence of roadside hedgerows on air quality in urban street canyons

²⁰ (Jeanjean, 2015) A CFD study on the effectiveness of trees to disperse road traffic emissions at a city scale.

^{20a} (Jeanjean 2017) Air quality affected by trees in real street canyons: the case of Marylebone neighbourhood in central London.

²¹ (James et al, 2015) A review of the health benefits of greenness

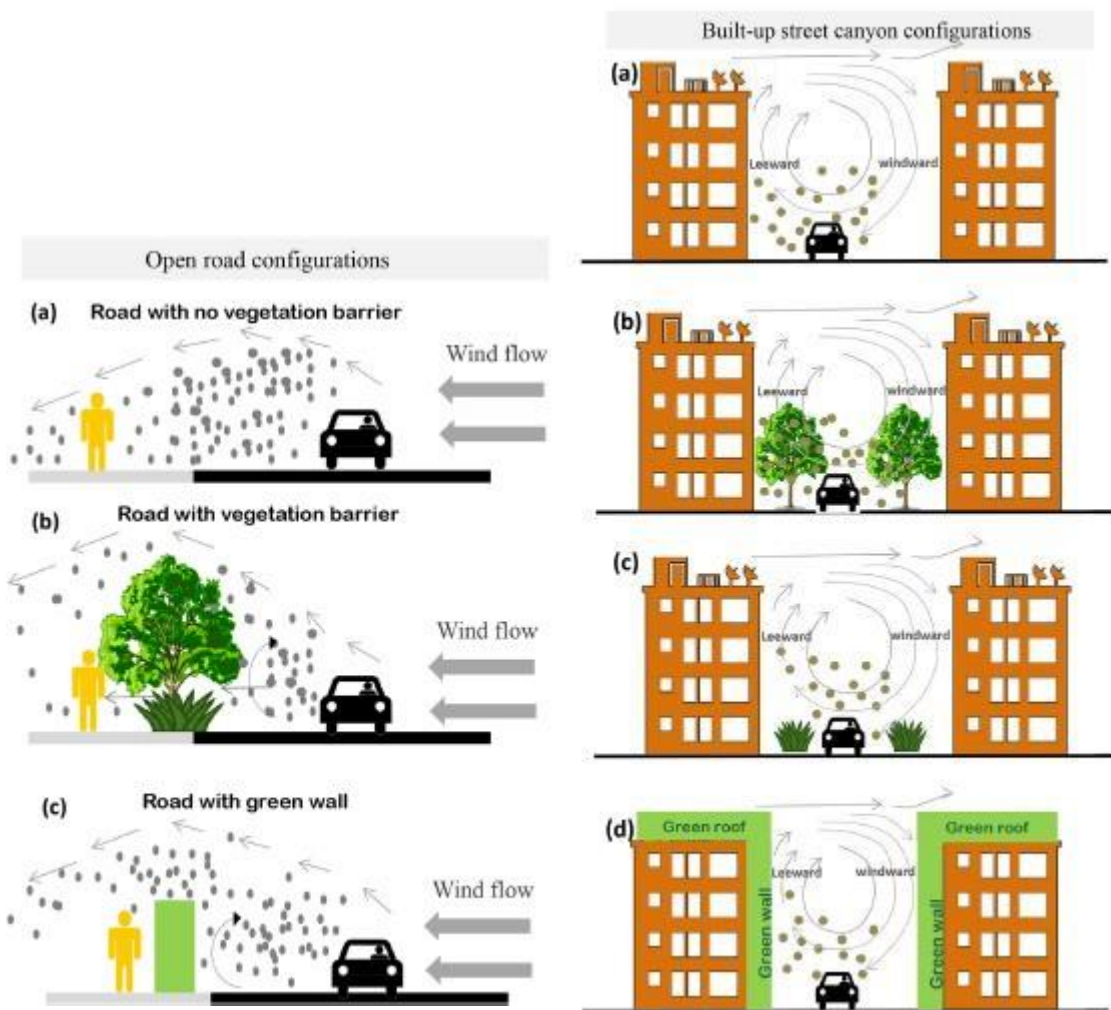


Figure 2.6 Examples of Effects of Micrositing from Vegetation

Overall, it can be demonstrated that green walls and vegetation are more likely to be effective in improving urban air quality when acting as a barrier, rather than through the chemical process of the leaf stoma. Many factors including type of vegetation, size, density and meteorological conditions have an impact on the ability of a green wall barrier to improve air quality. Any green wall to be installed within the WoB and RoB study areas will require assessment and approval by the local planning authority.

2.3.2 External Amenity Areas

It has been recognised within national standards that the provision of external areas is an important feature of residential dwellings. If external amenity cannot be provided on-site, national standards (NPPF/NPPG) refer to external amenity off-site within a five-minutes' walk. Therefore, access to external amenity, such as at Osterley Park and House and Hounslow Heath both located within the WoB, or other alternative spaces will be a requirement.

Typically, amenity areas are only occupied for short periods and so it is appropriate to assess them against the



'short-term' air quality objectives. This is supported by Box 1.1 of Defra's TG16²² which states: *24-hour mean and 8-hour mean [apply] at Gardens of residential properties.*

These limits are outlined below for reference for the key traffic derived pollutants of concern.

Table 2.3 Short-term Pollutant limits

Pollutant	Averaged over	Short-term limit
NO ₂	1 hour	200µg/m ³ not more than 18 times per year
PM ₁₀	24 hours	50µg/m ³ not more than 35 times per year

Paragraph 7.91 of TG(16) states: *Previous research carried out on behalf of Defra and the Devolved Administrations identified that exceedances of the NO₂ 1-hour mean are unlikely to occur where the annual mean is below 60µg/m³.* This has been used to compare the modelling by both WYG and from the LAEI maps show for likely indications of where the short term NO₂ is exceeded.

Whilst this annual 60µg/m³ limit is stated in TG(16), it does not represent the actual hourly limit of 200µg/m³ of NO₂ and as such and in order to provide 'high-quality' design and minimise exposure, a value of 50µg/m³/as an annual limit is used as an additional trigger level to protect short-term exposure.

In these locations or locations close to this annual limit of 50µg/m³ it may not be appropriate to have balconies on air quality grounds and winter gardens could be a more appropriate design choice. There is evidence that winter gardens are capable of controlling pollutant concentrations²³ by regulation of air currents. Publicly accessible areas where the short-term value is above the trigger level are highlighted in pink in Figures 2.7-2.11 below. These areas include parks, public footpaths and other amenity areas.

²² <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

²³ Gaseous and thermal analysis of winter garden used for air regeneration throughout office buildings, https://www.researchgate.net/publication/327646588_Gaseous_and_thermal_analysis_of_winter_garden_used_for_air_regeneration_throughout_office_buildings/link/5b9b97f892851ca9ed07cdbe/download

Figure 2.7 Areas above Short-Term Trigger Level (WoB Southern Section)



Figure 2.8 Areas above Short-Term Trigger Level (WoB Central Section)



Figure 2.9 Areas above Short-Term Trigger Level (WoB Northern Section)

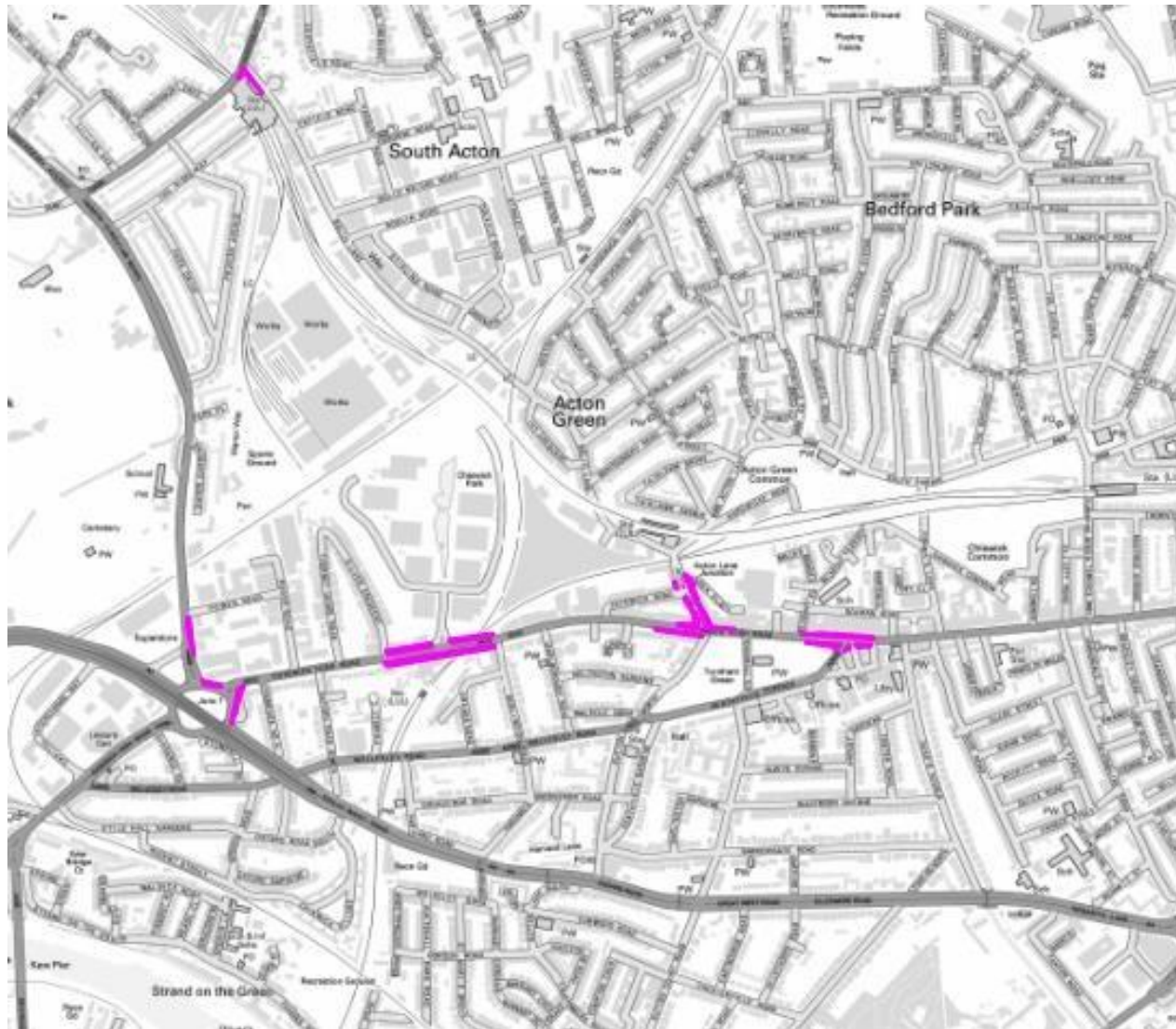


Figure 2.10 Areas above Short-Term Trigger Level (RoB East Section)





Figure 2.11 Areas above Short-Term Trigger Level (RoB West Section)





2.3.3 NO₂ Shielding

Massing, building forms and topography affect the dispersion of pollutants and concentrations will generally be lower on the side of a building away from the main source of pollution. Within the context of the WoB and RoB study areas this is the more heavily trafficked roads.

While this effect can be modelled, the following is taken from 7.462 of TG(16)

Most dispersion models include options to take into account the effects of nearby tall buildings and topography on the dispersion of stack plumes, which can be significant. However, model uncertainty using these options is generally considered greater and it is always recommended to carry out sensitivity tests (particularly when modelling buildings) as part of the assessment.

Based on the above, it is not considered that using models to determine the effect of dispersion of pollutants should be used to inform the policy and determine the effect of shielding.

Monitoring evidence shows that there is a typical reduction factor of around 0.4 µg/m³ in the leeward side of a busy road from monitoring completed in Leicester City Centre where the building height and density and volumes of traffic are similar to those close to the busiest roads within the WoB and RoB study areas.

Similarly, LBH measured data suggests that the buffer offered by 4-story buildings which are offset by eight to ten metres, can offer a reduction of around 25% in NO₂ concentration level as evidenced by monitoring in Brentford.

Table 2.4 Comparison between Kerbside Diffusion tubes at Brentford AQM vs Glenhurst Road (HS43)

Location	NO ₂ Concentration (µg/m ³)					Average Reduction
	2014	2015	2016	2017	2018	
Brentford	52.6	53.3	56.9	54.0	48	
HS43	43.9	41.2	43.1	35.4	33.2	
Difference	-17%	-23%	-24%	-34%	-31%	- 26%

Note that ground absorption conditions between different kerbside locations may have varying impact on pollutant concentration level.

The effects of shielding through tall story buildings is not observed as often across most of the WoB and RoB, compared to the Great West Corridor. Effects of design mitigation will be more focused through the impacts of setbacks from major roads across the WoB and RoB rather than screening through tall buildings. The impacts of regression with distance can be seen below. Automatic monitoring location Heston (HS6) is stated within the 2019 Annual Status Report to be 4m from Heston Road. Whereas 'HESTA' is located 1m from Heston Road. This comparison will provide an example of the effect setbacks of similar distances within the WoB and RoB



study areas have.

Table 2.5 Comparison between Roadside Diffusion tubes at Heston AQM vs Heston A

Location	NO ₂ Concentration (µg/m ³)					Average Reduction
	2014	2015	2016	2017	2018	
Heston	47.7	40.7	42.2	44	40	
HEST A	56.3	49.2	55.9	56.3	44.2	
Difference %	-15	-17	-25	-22	-10	-18%

2.3.4 NO₂ Regression with Height

In order to justify if residential developments are feasible on front facades of heavily polluted transport corridors and at height (6th floor upwards), we have researched several scholarly papers on the likely reductions of pollutants, both with and without the canyon effect. We have reviewed NO₂ fall-off with height for both measured and modelled NO₂ concentration levels, without the Canyon effect, which is more appropriate in outer London conurbations such as Hounslow. Looking at results from the 2015 Investigation of Air Pollution Standing Conference (IAPSC, 9th June 2015, by Ricky Gellatly²⁴), it is reasonable to suggest that the rate of NO₂ fall-off with height as follows.

The rate of NO₂ fall-off was measured at height intervals of 3m, which broadly represents one storey. It can be seen that the rate of NO₂ fall-off at or above 4th storey becomes negligible, meaning that NO₂ concentration level tends towards background concentration level, aided by dispersion in the absence of any canyon.

This may appear to suggest that residential dwellings may be placed at 6th storey upwards with minimal impact to residents, however there remain other challenges. One of those challenges is how to deal with particulates and fine particulates, for which there is no safe threshold limit, since long-term exposure to even moderately high concentration levels of fine particulates can lead to cardiovascular disease and even dementia in vulnerable people and exacerbate such conditions²⁵. Therefore, in the context of sustainability, development design proposals should aim to eliminate exposure to such harmful pollutants, to deliver the necessary safeguards and protection for public health and quality of life (QoL).

Table 2.6 – Nitrogen Dioxide (NO₂) Fall-off with height

Height (m)	3	6	9	12	15	18
Meas. NO ₂ Conc. Level (µg/m)	5.0	3.2	1.5	0.3	0.0	0.6

²⁴ http://www.iapsc.org.uk/assets/document/0615_R_Gellatly.pdf

²⁵ [Association Between Cardiovascular Disease and Long-term Exposure to Air Pollution with the Risk of Dementia](#) March 2020

City Air Quality at Heights

WSP and Parsons Brinkerhoff²⁶ have in 2017 completed air quality monitoring at different heights at several locations including within city canyons. The figure below shows the monitored trends and a summary of the conclusions are given below.

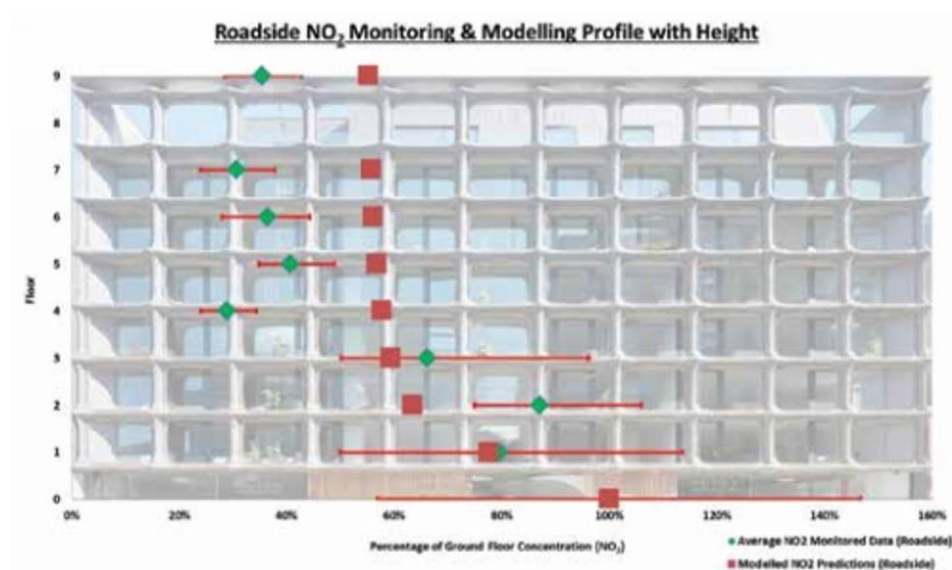


Figure 2.12 Roadside NO₂ Monitoring and Modelling Profile with Height

Summary: Between the ground and third floor the modelled concentration profile slightly under-predicts NO₂ concentrations by approximately 5-15% compared to the monitoring data. From the fourth to ninth floor the modelled concentration profile over-predicts NO₂ concentrations by approximately 20-30% compared to the monitoring data. The graph highlights that air quality dispersion in urban environments is complex and variable. These complexities are evident from the differences between the modelled and monitored NO₂ concentration profiles. The modelled profile is based on formulated simplistic parameters and therefore the reduction in NO₂ concentrations with height may not necessarily be realistic. Monitoring provides a more specific and accurate understanding of variations in concentrations with height at a particular location.

WYG Monitoring

WYG has completed several studies testing the trends in NO₂ and the regression with height through the UK including in London. The table and figure below show the result of NO₂ diffusion tube monitoring at a high-rise

²⁶ <https://www.camden.gov.uk/documents/20142/18667687/8-1+City+Air+Quality+at+Height.pdf/5cfb1877-c72c-869b-23e1-32f06a3cd642>



residential block adjacent to the A1 in Tottenham.

Figure 2.13 Monitored Regression with Height

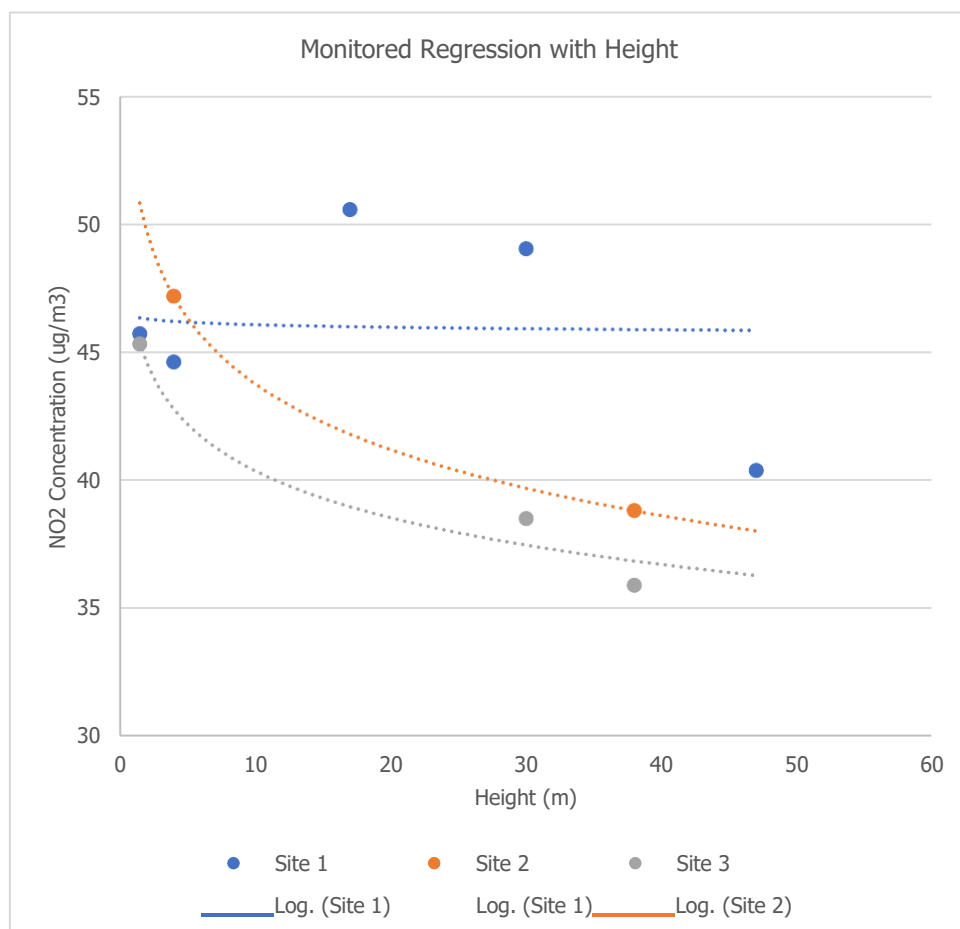


Table 2.7 Monitored Concentrations at Heights ($\mu\text{g}/\text{m}^3$)

	Ground	First	4th	7th	9th	11th
Site 1	45.72	44.62	50.56	49.03	-	40.38
Site 2	-	47.18	-	-	38.81	-
Site 3	45.31	-	-	38.5	35.89	-

The above results support the assertion that NO₂ regresses with height and sites' 2 and 3 showed similar trends. Site 1 shows that there can be variations as a result of micro-siting but still show an overall downward trend. For example, at Site 1 there was interference from CHP emissions.



2.3.5 Direct Control of Emissions at Future Residents (Filtered Mechanical Ventilation)

The Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) document²⁷ states that *"the presence of an AQMA should not halt all development, but where development is permitted, the planning system should ensure that any impacts are minimised as far as is practicable."* And (4.14)

"Air quality (and other) impacts can be controlled through the application of planning conditions or through planning obligations (often known as 'section 106 agreements'). Conditions are specific to the development, while planning obligations can have a wider remit. For instance, a planning condition might be used to require the installation of a suitable ventilation system."

There are suitable filtration products available for developers which are capable of reducing external to internal NO₂ concentrations by around 75% and should be promoted. However, this form of mitigation should only be considered as a last resort once all other design phase mitigation measures have been fully explored as it only protects residents from poor air quality, rather than reducing the overall exposure.

2.3.6 IGCB (Defra : Interdepartmental Group on Costs and Benefits) Damage Costs

Many local authorities outside London have included the use of 'Damage Costs' within their air quality planning guidance. This has been incorporated as part of assessing the effect of a development with regards to air quality.

Regarding the general structure of the planning guidance they follow the same trend of classifying a site, determining the extent of an air quality assessment, assessing and quantifying the potential impacts from a proposed development and establishing the level of mitigation that would be required. The planning guidance documents all provide details regarding the classification of a proposed development, with specific details on the land-use of the proposal and size of the development. The guidance then places a development in a category of 'minor', 'medium' or 'major'.

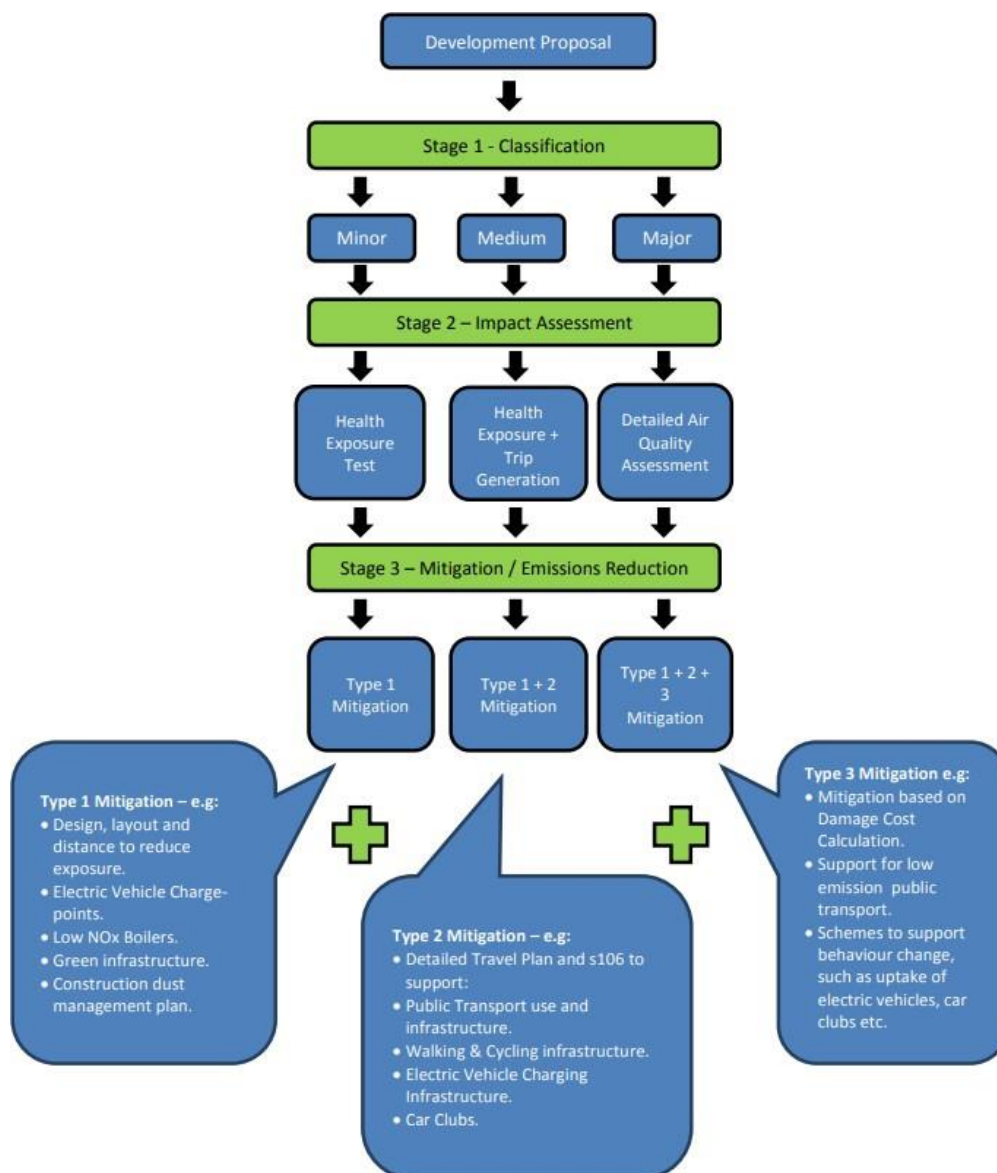
Damage costs assessments are included as a requirement for all developments that are not considered minor developments. Most damage costs assessments use the latest Defra guidance for completion. A damage costs assessment provides a monetary value based on the emissions associated with any additional traffic. This monetary value is then used to determine the extent of mitigation required.

Based on the category of a proposed development, appropriate mitigation is recommended. As many of the recommended mitigation measures pertain to the design phase of the development, mitigation is required to be set out at the early phase of the planning of the development to determine the level of mitigation that would

²⁷ <http://www.iaqm.co.uk/text/quidance/air-quality-planning-guidance.pdf>

be required at a proposed development.

The example from the West Yorkshire Low Emissions Strategy is shown below in Figure 2.14.



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Figure 2.14 West Yorkshire Low Emissions Strategy Guidance for Assessment

Damage costs have been a requirement for developments to ensure that mitigation for the proposed development is implemented, and in other cases, for example Cannock Chase District Council, any excess funds from the damage costs assessment that has not gone towards mitigation measures for the proposed development goes towards measures within the air quality action plan. This is shown in the above diagram.

Conclusion

²⁸ [Figure 9: Air Quality & Planning Technical Guide – How it Works.](#) West Yorkshire



Overall it can be determined that mitigation incorporated into design work can help limit or reduce exposure to pollutants and should be the preferred choice when developing within an area of poor air quality, with consideration to options being given at the design stage. Post design stage, additional consideration can be given to other mitigation options such as ventilation filtration to ensure people are not exposed to poor air quality above the air quality objectives.



2.4 Requirement for Health Impact Assessment

Policy WOB3 (Section 1) states that any major development should be accompanied by a 'Health Impact Assessment' (HIA). Some legislative and guidance context is provided below including standard practices and typical content for HIAs.

Definition of Health

The World Health Organisation (WHO) defines health as not only the absence of disease or infirmity, but also as '*a state of complete physical, mental and social wellbeing.*' It emphasises that all people have the right to the highest attainable standard of health and wellbeing, stating that health is 'one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.'

It is now accepted that an individual or community's health is determined not only by the availability and quality of healthcare services, but that a range of economic, social, psychological and environmental influences play an equally important role.

London Plan

The adopted London Plan (2016) Chapter Three: London's People has the following relevant policy:

Policy 3.2 Improving Health and addressing health inequalities

A. The Mayor will take account of the potential impact of development proposals on health and health inequalities within London. The Mayor will work in partnership with the NHS in London, boroughs and the voluntary and community sector as appropriate to reduce health inequalities and improve the health of all Londoners, supporting the spatial implications of the Mayor's Health Inequalities Strategy.

B. The Mayor will promote London as a healthy place for all – from homes to neighbourhoods and across the city as a whole – by:

a. coordinating investment in physical improvements in areas of London that are deprived, physically run-down, and not conducive to good health;

b. coordinating planning and action on the environment, climate change and public health to maximise benefits and engage a wider range of partners in action; and,

c. promoting a strong and diverse economy providing opportunities for all.

C. The impacts of major development proposals on the health and wellbeing of communities should be considered, for example through the use of Health Impact Assessments (HIA).

Planning decisions



D. New developments should be designed, constructed and managed in ways that improve health and promote healthy lifestyles to help to reduce health inequalities.

LDF Preparation

E. Boroughs should:

- a. work with key partners to identify and address significant health issues facing their area and monitor policies and interventions for their impact on reducing health inequalities;*
- b. promote the effective management of places that are safe, accessible and encourage social cohesion;*
- c. integrate planning, transport, housing, environmental and health policies to promote the health and wellbeing of communities; and,*
- d. ensure that the health inequalities impact of development is taken into account in light of the Mayor's Best Practice Guidance on Health issues in Planning.*

The 'Health Issues in Planning: Best Practice Guidance, Mayor of London, June 2007' has been reviewed and used to inform this assessment.

The Draft New London Plan: Intend to Publish version (December 2019)

The London Plan: Intend to Publish has the following relevant policy:

Policy GG3 Creating a healthy city

To improve Londoners' health and reduce health inequalities, those involved in planning and development must:

- A. ensure that the wider determinants of health are addressed in an integrated and co-ordinated way, taking a systematic approach to improving the mental and physical health of all Londoners and reducing health inequalities;*
- B. promote more active and healthy lives for all Londoners and enable them to make healthy choices;*
- C. use the Healthy Streets Approach to prioritise health in all planning decisions;*
- D. assess the potential impacts of development proposals and Development Plans on the mental and physical health and wellbeing of communities, in order to mitigate any potential negative impacts,*



maximise potential positive impacts, and help reduce health inequalities, for example through the use of Health Impact Assessments;

E. plan for appropriate health and care infrastructure to address the needs of London's changing and growing population;

F. seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution;

G. plan for improved access to and quality of green spaces, the provision of new green infrastructure, and spaces for play, recreation and sports;

H. ensure that new buildings are well-insulated and sufficiently ventilated to avoid the health problems associated with damp, heat and cold; and,

I. seek to create a healthy food environment, increasing the availability of healthy food and restricting unhealthy options.

NHS Healthy Urban Planning Checklist

The NHS has created Toolkits to assist in the completion of HIAs. The text below is taken from their website:²⁹

Healthy Urban Planning Checklist

Healthy Urban Development Unit (HUDU) also publishes a healthy urban planning checklist which is a desktop assessment aiming to 'mainstream' health into the planning process. The checklist poses a series of questions based on London Plan policy requirements and standards which if met can positively influence health and wellbeing.

It is intended that the checklist should be applied to larger (but not strategic scale) development proposals. It can also be used to help with preparing a local or neighbourhood plan, or to screen possible health impacts for a rapid or full HIA. Local planning authorities in London are encouraged to use the checklist and customise it for local use.

The checklist identifies four main themes for which HIAs should frame their review of a developments effect on 'health', which are:

- 'Healthy Housing' – dealing with housing design, accessibility of homes and affordability;

²⁹ <https://www.healthyrbandevelopment.nhs.uk/our-services/delivering-healthy-urban-development/health-impact-assessment/>



- 'Active Travel' – promoting safe walking and cycling and minimising car use;
- 'Healthy Environment' – Looking at environmental effects including noise and air quality and relating them to health; and,
- 'Vibrant Neighbourhoods' – Access to healthcare, education, social care local food, public spaces and employment opportunities.

Any HIA submitted for major developments would be expected to follow this framework for the assessment. The purpose of an HIA is to identify opportunities for minimising harms (including unequal impacts) and maximising potential health gains.



2.5 Case Law

There is an increasing trend for planning decisions, when determined by appeal, citing Air Quality matters being a reason for refusal. There have been several recent cases where the appeal was allowed (Wheatstone House, Case Ref: APP/F5540/A/14/2222128³⁰ & 92-94 Windmill Road, Case Ref: APP/F5540/W/17/3186406³¹), where the pollutant levels were above the 40ug/m³ criteria and mitigation was proposed. However, in other cases planning permission has been refused at appeal and the Inspector's decision upheld by the High Court (London Road, Kent³²) despite proposed pollutant levels being proposed to be mitigated.

As such, there remain concerns in drawing any case law direction regarding the decision-making process that Inspectors follow for air quality. The main inconsistency appears to be regarding the appropriateness or justification of mitigation and the balance between both mitigating the effects of a scheme (which can be argued is a national or regional level problem) together with mitigating the effects of the existing environment on future occupiers. However, for context a summary of the High Court decision is provided below which is considered to be relevant to this local plan review and LBH believes provides a justification for the approach to aim to, where possible, off-set developments away from polluted road transport corridors and request full details of the effectiveness of off-set style mitigation measures proposed by applicants. Similarly, this provides justification for a 'damage cost' style quantification of mitigation effects approach which may have contributed to a successful planning permission if had been undertaken by the appellants in the case study below.

Case Study:[Gladman Developments Ltd and Secretary of State for Communities and Local Government and Swale Borough Council and CPRE Kent (C1/2017/3476)³³.

In 2014, Gladman Developments Ltd submitted proposals for up to 330 homes and 60 extra-care facilities at Pond Farm, Newington, with the site located between air quality management areas (AQMAs) in Newington and Rainham. In 2017 the planning application was refused. The inspector then dismissed two appeals under Section 78, the first for 330 homes and 60 extra-care facilities, and the second for 140 dwellings and 60 extra-care facilities.

The application for the development was refused in 2015 by Swale Borough Council as the dwellings on the grounds that, due to the location and design, would be heavily reliant on car-based transport. This development was determined to negatively impact the air quality of the area.

The Planning Inspectorate upheld Swale Borough Council's decision and agreed that the development had the potential to worsen air quality in the area, in particular due to moderate to adverse effects in the two AQMA's

³⁰ <https://historicengland.org.uk/content/docs/legal/appeal-decision-wheatstone-house-650-chiswick-high-rd-pdf/>

³¹ <https://acp.planninginspectorate.gov.uk/ViewCase.aspx?Caseid=3186406&CoID=0>

³² <https://cprekent.org.uk/wp-content/uploads/2019/09/Pond-Farm-Court-of-Appeal.pdf>

³³ <https://cprekent.org.uk/wp-content/uploads/2019/09/Pond-Farm-Court-of-Appeal.pdf>



adjacent to the site in Newington and Rainham.

The context for the pollutant levels within these two AQMA's is that concentrations of NO₂ at the time of the appeal were predicted to fall between 2015 and 2020.

This is a similar situation to that within the WoB and RoB study areas, where pollutant levels are predicted to fall in the future.

The mitigation measures proposed by the appellant included electric vehicle charging points for each dwelling and incentives for sustainable travel methods, however no evidence was provided on the impacts that these measures would have on air quality.

The decision concluded that the proposals would conflict with the guidance within NPPF, policies within the local plan, and concluded that both human health and air quality would suffer if the development was to go ahead.



2.6 Hierarchical Summary

The table below shows a general hierarchical summary of effectiveness of policies and mitigation in the WoB and RoB study areas.

Table 2.8 Hierarchical Summary of Policies, Planning Controls and Mitigation for the WoB and RoB Study Areas

	Policies and Planning Controls	Development-led Mitigation
Most Effective	Ensuring all developments are Air Quality Positive [quantitative mitigation assessment (damage cost approach)]	Use of design and layout (shielding and set-back) to not introduce new sensitive uses (dwellings/hospitals/schools) into areas of poor air quality
	Promoting Car Free Development in accessible areas.	Specific Financial Contributions to Specific Off-site Action Plan Targets / Schemes
	Engagement with Communities and Stakeholders	On site provision for public transport, cycling walking
	Ongoing reduction of pollution levels to be achieved by development-led mitigation.	Car Free Development in accessible areas
Moderately Effective	Ensuring all developments are Air Quality Neutral [quantitative mitigation assessment (damage cost approach)]	Unspecified financial contributions to Air Quality Action Plan targets
		Provision of Electric Charging Points & Car Sharing Clubs
	London Low Emission Zone	Use of design and layout (utilising regression with height) to not introduce new sensitive uses (dwellings/hospitals/schools) into areas of poor air quality
	All developments to provide Electric Charging Points	Use of mechanical filters in new dwellings
	Air Quality Neutral – Boilers and Heating Emission Limits	Green walls, vegetative barriers
Less Effective in the WoB & RoB Area	Restriction on development in Air Quality Poor Areas	Supporting Community Action Groups
	Requesting Health Impact Assessments	Developer paid for monitoring
	Pollutant Monitoring	Retrofitting mechanical filters in existing dwellings
	Controls on Construction Emissions	Promoting access to green spaces

2.7 Designated Site Considerations

The designated sites associated with the WoB and RoB have been considered with respect to air quality affecting the site allocations within the accompanying Appendix A

Figure 2.15 LondonAir 2016 NO₂ Concentration Maps (µg/m³)

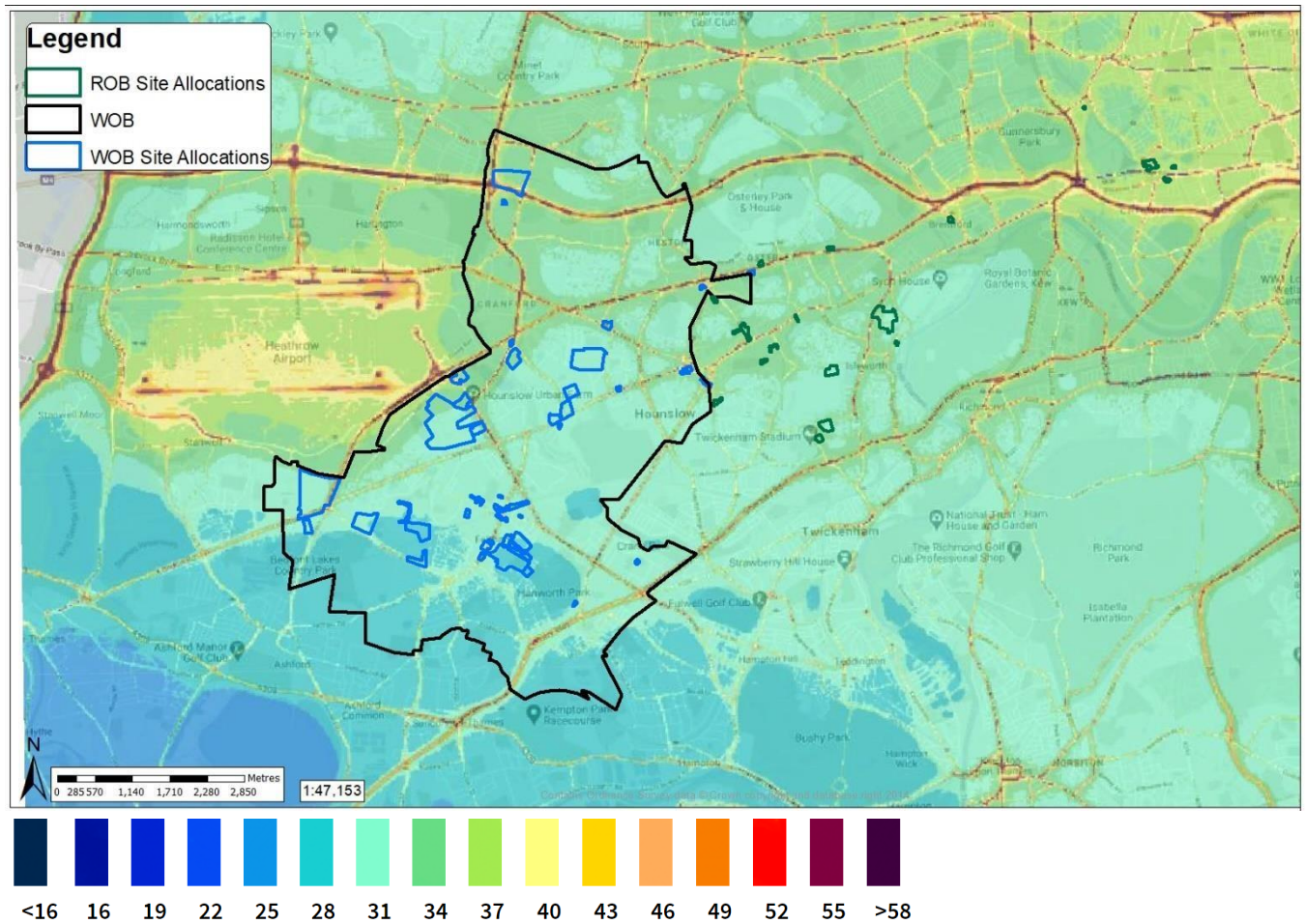


Figure 2.15 illustrates the elevated NO₂ concentrations derived from Heathrow Airport and the subsequent elevated NO₂ concentrations surrounding the airport. As a result, the NO₂ background concentrations used for the designated sites surrounding Heathrow Airport and have been increased by 3 µg/m³, in accordance with the increase shown in Figure 2.11. It is considered that this approach of increasing the utilised Defra Map NO₂ concentrations for the designated site, to take into account the impacts associated with Heathrow airport is considered a robust and worst-case assessment.



2.8 Interpretation of Policy and Air Quality

Consider health and wellbeing during the design stages and use Best Available Techniques (BATs) to mitigate and minimise any adverse effects on health and quality of life³⁴.

In relation to the above, 'Best Available Techniques' typically refers to *"the available techniques which are the best for preventing or minimising emissions and impacts on the environment. You need to use BAT if your operation is an installation (e.g. a facility that carries out an industrial process like a refinery, food factory or intensive farm).*"³⁵ This is usually in reference to controlling emissions at source rather than controlling them at the receptor.

Details have been given for measures which would help 'mitigate and minimise' the effects of pollution to future residential receptors (e.g. green infrastructure, installation of mechanical ventilation, design measures such as setbacks) but all of these measures require some form of maintenance or management and do not ultimately detract from the fact that, if receptors are introduced into high areas of pollution, there is an increased likelihood for health to be affected. This is evidenced by the research which shows that PM_{2.5} levels have health effects even at low concentrations. Filtration could be used as a means of controlling emissions at receptors but should only be employed when other measures have been reviewed and exhausted.

The best methods of managing exposure to poor air quality are undertaken early at the design stage and include calculating appropriate step backs from busy roads and designing buildings in such a way that as many receptors would be shielded by the massing of the building itself in line with subsection (i) II of draft policy WOB3.

Determination and identification of areas of 'poor air quality' (e.g. areas above 38µg/m³ of NO₂) would be completed ideally through long term monitoring completed by developers to provide robust assessment of concentrations. This also gives the opportunity for monitoring to be completed at different heights to determine regression with height trends.

The requirement for large-scale development proposals to be 'Air Quality Positive' as required by subsection (k) of draft policy WOB3 and Draft New London Plan policy SI1 will be managed through the completion of 'Damage Costs' assessments to determine the extent of mitigation required for any development to offset additional emissions. Additional details on damage costs assessments are given in Section 2.3.6 above. This cost should be used to implement measures such as EV charging points or contributions to cycle infrastructure (as examples) or other measures set out within the AQAP.

³⁴ <https://www.gov.uk/guidance/best-available-techniques-environmental-permits>

³⁵ <https://www.gov.uk/guidance/best-available-techniques-environmental-permits>



2.9 Air Quality Conclusions

Exposure to Nitrogen Dioxide (NO₂) (the key traffic derived pollutant) has been attributed to 23,500 premature deaths per year³⁶ in the UK. The limits of 40µg/m³ for long-term (annual exposure) and 200µg/m³ for short-term (hourly) exposure have been set as the level where there are observable health effects in the general population. Exposure to high levels of NO₂ have been linked to both respiratory problems and shown to affect brain function.

Levels of NO₂ in the West of Borough (WoB) and Rest of Borough (RoB) study areas remains above these limits particularly along heavily trafficked routes including the A4, M4 A30 and A316 routes, Faggs Road, Harlington Road East, Uxbridge Road, Staines Road, Chiswick High Road and areas immediately east of Heathrow Airport.

It is acknowledged that improving air quality is not a simple problem and will continue to require a combination of policy, technology and behavioural change.

Key existing policies that continue to tackle air pollution are those that promote air quality positive development, including car free or zero emission communities.

Case studies and guidance such as the West Yorkshire Low Emission Strategy³⁷ show that more can be done to improve developer led mitigation to achieve air quality positive development, both in terms of on-site design to not introduce new sensitive uses (dwellings /hospitals/schools) into areas of poor air quality (which is more effective than simply fitting mechanical filters) and off-site mitigation such as schemes to promote sustainable transport. However, emerging policies and guidance needs to ensure that this mitigation is quantitatively assessed with clear requirements such as with a 'damage cost' type approach.

To ensure that emerging policies and guidance achieve a reduction in pollutant levels in this part of the Borough a nominal value of **38µg/m³** of NO₂ as an annual mean, should be used as a trigger level for identifying 'poor' air quality. Going forward, this level of **38µg/m³** (as a more stringent level compared to the National Limit of 40µg/m³) should be used as the basis for a borough-wide target, trigger for and the maximum design target for mitigation, and maximum headroom limit for all NO₂ emissions (notwithstanding the requirement for all new developments to be Air Quality Neutral and take an Air Quality Positive approach).

These measures are to be developed further within the LBH Air Quality and Noise Supplementary Planning Document in order to assist developers, decision makers, agents, residents and others to identify issues to be addressed in any application for development in which air quality will be an important consideration when assessing that application. Full details of the site-specific considerations for both the WoB and RoB are shown in Appendix A.

³⁶ Air Pollution in the UK 2015, Defra, September 2016 https://uk-air.defra.gov.uk/assets/documents/annualreport/air_pollution_uk_2015_issue_1.pdf

³⁷ <https://www.bradford.gov.uk/media/3590/west-yorkshire-low-emissions-strategy.pdf>



3. Noise

3.1 Draft Local Plan Policies

This section has been prepared in relation to the effects of noise within the West of Borough (WoB) and Rest of Borough (RoB) areas and the considerations outlined within Policies WOB 3 'Health and Wellbeing', WoB Feltham Town Centre Place Policy P1. Although a number of the measures outlined within these policies represent acoustic design principles that are expected to be considered in detail on a case-by-case basis, this document also includes additional analysis to quantify the extent of the areas within which the overarching design principles outlined below are considered to be applicable.

The following broad principles for the reduction of noise effects (and vibration) are considered as the following:

- Avoid significant adverse effects of noise on people living and working in the Borough;
- Mitigate and reduce to a minimum the adverse effects of noise within the context of sustainable development and prevent development which is unacceptable in terms of noise;
- Encourage good acoustic design as far as is reasonably practical;
- Improve living and working conditions where the acoustic environment already has a significant adverse effect on people's quality of life; and
- Improve and enhance the acoustic environment and promote the protection and access to areas of relative tranquillity and quietness where such features are valued.

3.2 Noise Legislation

The adopted London Plan provides an overall strategic framework for integrated economic, environmental, transport and social development of London over the next 20–25 years. With respect to noise, requirements of Policy 7.15 are relevant to this evidence document, in particular:

"Strategic

- A The transport, spatial and design policies of this plan will be implemented in order to reduce and manage noise to improve health and quality of life and support the objectives of the Mayor's Ambient Noise Strategy*

Planning decisions

- B Development proposals should seek to manage noise by:*
- a) avoiding significant adverse noise impacts on health and quality of life as a result of new development;*



- b) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens on existing businesses;*
- c) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity);*
- d) separating new noise sensitive development from major noise sources (such as road, rail, air transport and some types of industrial development) through the use of distance, screening or internal layout – in preference to sole reliance on sound insulation;*
- e) where it is not possible to achieve separation of noise sensitive development and noise sources, without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through the application of good acoustic design principles;...*
- ...g) promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver..."*

The London Plan (section 7.52) identifies that *"Noise management includes promoting good acoustic design of buildings whenever opportunities arise. See, for example, the guidance on planning and design in Section 5 of BS 8223:2014. It will include traditional and innovative noise reduction measures in otherwise unacceptable situations."*

Furthermore, as noted above, The London Plan also refers to the overarching strategic guidance presented within the Mayor's Ambient Noise Strategy, addressing the spatial implications of the Ambient Noise Strategy. Additionally, the London Plan includes references to *"The Government's Aviation Policy Framework, 2013, [which] states that : "Our overall objective on noise is to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise"*

With respect to the emerging Draft London Plan policies D4, D12 and D13 are relevant to the consideration of noise.

"Policy D4 Housing quality and standards

*3.4.5 **Single Aspect Dwellings** are more difficult to ventilate naturally and are more likely to overheat, and should normally be avoided. Single aspect dwellings that are north facing, contain three or more bedrooms or are exposed to noise levels above which significant adverse effects on health and quality of life occur should not be permitted."*

"Policy D12 Agent of Change



- A The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development*
- B Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance generating uses in a sensitive manner when new development is proposed nearby...*
- D Development should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.*
- E New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.*
- EA Development proposals should manage noise and other potential nuisances by:*
- 1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area*
 - 2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations*
 - 3) separating new noise-sensitive development where possible from existing noise generating businesses and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.*
- F Boroughs should refuse development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed."*

The Mayor of London's document 'Culture and the night-time economy' Supplementary Planning Guidance (SPG) further outlines the agent of change principle, specifically that "*acoustic and other design measures should be used to mitigate noise and other impacts. There should be no prospect of unreasonable neighbour complaints, licensing restrictions or threat of closure.*"

This principle is expanded further at Sections 5.8, 5.9 and 5.12 of the SPG which state:

"5.8 Sustaining and protecting noise generating cultural venues such as theatres, concert halls, pubs and live music venues thus requires a sensitive approach to managing change in the surrounding area. Adjacent development and land uses should be designed in ways



which ensure that established cultural venues remain viable and can be continued in their present form.

5.9 Housing proposed near to an existing cultural venue should include necessary acoustic design measures. This will ensure residential units have effective sound insulation to mitigate and minimise potential noise impacts or neighbour amenity issues. Mitigation measures should be explored at an early design stage, with necessary and appropriate provisions secured through planning obligations. The 2016 Housing SPG also requires the impact of noise to be considered in the layout and placement of dwellings, rooms and private open spaces within new development.

5.12 Noise impact assessments should be carefully tailored to local circumstances. That way the noise characteristics of existing uses can be properly captured and assessed. Cultural venues can have peaks of noise at different times of the day and night and on different days of the week and can have an impact on surrounding streets. It will therefore be important for acoustic surveys to be carried out and their results assessed accordingly. Boroughs should consider any assumptions made and methods used in noise impact assessments. That way they can ensure a full, accurate assessment has been submitted by the developer"

"Policy D13 Noise

A In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

- 1. avoiding significant adverse noise impacts on health and quality of life*
- 2. reflecting the Agent of Change principle to ensure measures do not add unduly to the costs and administrative burdens on existing noise-generating uses*
- 3. mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on development*
- 4. improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)*
- 5. separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening or internal layout – in preference to sole reliance on sound insulation*
- 6. where it is not possible to achieve separation of noise-sensitive development and noise*



sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles

7. promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

B. Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations.

National Planning Policy

The Noise Policy Statement for England (NPSE) (2010) provides guidance on how to 'secure a healthy environment' with emphasis on 'promoting good health and a good quality of life through the effective management of noise'. There are some key aims that apply to the draft local plan as set out below:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.*

National Planning Policy Framework

The NPSE uses the term of SOAEL, the Significant Observed Adverse Effect Level which is the level above which significant adverse effects on health and quality of life occur. It is this 'significant adverse impact' which is reflected within the current national policy guidance with respect to noise presented within the NPPF, published on 19th February 2019. With regard to noise and planning, the current version of the NPPF contains the following statement at Paragraph 170:

"170. 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 instability. 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*

A further 2 short statements are presented at Paragraph 180, which state:

"180. 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.

In doing so they should:

A) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life

B) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”

Furthermore, paragraphs 182 and 183 state:

"182. 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.

Planning Practice Guidance

Planning Practice Guidance (PPG): Noise [22 July 2019]³⁸ provides further guidance with regard to the assessment of noise within the context of Planning Policy. The overall aim of this guidance, tying in with the principles of the NPPF and the Explanatory Note of the Noise Policy Statement for England, is to identify *"whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation."*³⁹ Furthermore, the PPG introduces the term 'unacceptable observed affect level' where noise would be noticeable and very disruptive.

A summary of the effects of noise exposure associated with both noise generating developments and noise sensitive developments is presented within the PPG and repeated as follows:

¹ Paragraph: 003 Reference ID: 30-003-20190722 : Revision date: 22 07 2019

³⁹ Paragraph: 003 Reference ID: 30-003-20190722 : Revision date: 22 07 2019



Table 3.1 NPPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not present	No Effect	No Observed Effect	No Specific Measures Required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The PPG: Noise also identifies at Paragraph: 011 Reference ID: 30-011-20190722 the requirement for developments proposals to incorporate measures to mitigating the impact of noise on residential developments. In particular:

"Noise impacts may be partially offset if residents have access to one or more of:

- a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling;*
- a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced if this area is exposed to noise levels that result in significant adverse effects;*
- a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings; and/or*
- a relatively quiet, protected, external publically (sic) accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minute walking distance)."*



Ultimately, the NPSE (para 2.22) states that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations and neither the NPPF, NPSE and NPPG present absolute noise level criteria which define SOAEL, LOAEL and NOEL which is applicable to all sources of noise in all situations. Therefore, it is necessary to consider additional local planning policy guidance and appropriate standards and guidelines which are considered in-turn below.

Relevant British Standards and Guidance Documents

As noted above, the National, Regional and Local planning policy frameworks do not prescribe absolute noise level criteria which define SOAEL, LOAEL and NOEL, which is applicable to all sources of noise in all situations. As such, the following standards represent the most appropriate, contemporary and widely-used standards for the assessment of noise affecting new residential development.

Absolute Noise Levels (BS 8233)

The most appropriate criteria to assess internal noise levels is BS8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*. The guideline values for bedrooms and living rooms are presented in Table 3.2.

Table 3.2 Guideline noise levels for dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB L _{Aeq, 16 hour}	-
Dining	Dining Room/Area	40 dB L _{Aeq, 16 hour}	-
Sleeping (Daytime Resting)	Bedroom	35 dB L _{Aeq, 16 hour}	30 dB L _{Aeq, 8 hour} 45 dB L _{Amax}
Resting	Gardens/Balconies	55 dB L _{Aeq, 16hour}	-

The levels outlined in Table 3.2 above are also outlined within the World Health Organisation (WHO): Guidelines on Community Noise (1999) which also identifies that internal noise levels of 45 dB L_{Amax} represent the onset of effects such as sleep disturbance with respect to impulsive, short-term noise sources. Similarly, the WHO Night Noise Guidelines identify that the threshold in relation to night-time L_{Amax} noise events may be lower for a number of effects, though guidance documents such as the 2017 Professional Practice Guidance on Planning and Noise⁴⁰ (ProPG) consider methods for determining the probability of awakenings and a SOAEL for specific developments under consideration.

The WHO Environmental Noise Guidelines for the European Region (WHO 2018) also provides recommendations with respect to levels of external noise exposure to protect human health in relation to road, rail and air traffic though the values in the document are not LOAELs but the *"the aim of the current guidelines is to define an*

⁴⁰ <https://www.ioa.org.uk/sites/default/files/14720%20ProPG%20Main%20Document.pdf>



exposure level at which effects certainly begin”.

Survey of noise attitudes 2014: Aircraft (CAP 1506)

The report, commissioned by the Department for Transport (DfT) and published by the Civil Aviation Authority (CAA) in 2017⁴¹, presented the findings of *"a research study to obtain new and updated evidence on attitudes to aviation noise around airports in England, and how they relate to the UK aircraft noise exposure indices."* The study considered new and updated evidence on attitudes to aviation noise and the how the relationship between attitudes and the L_{Aeq} noise metric varies, taking into account non-acoustic factors (such as location and time of day, and socio economic group of respondents). The study also considered the use of L_{Aeq} as a measure for annoyance and the impact on people living near to airports and the threshold for significant community annoyance.

The results of the study identified that mean annoyance correlated well with average summer day noise exposure ($L_{Aeq, 16hour}$) and that none of the other indicators considered within the study correlated better and that evidenced-based decisions should continue to use $L_{Aeq, 16hour}$. Furthermore, the study identified that the 9% of respondents were estimated to be highly annoyed at an exposure level of 54 dB L_{Aeq} which is a lower level than the results of previous studies, such as the 1982 ANIS study which identified the 57 dB $L_{Aeq, 16hour}$ noise contour as the threshold of low community annoyance. However, the identified increase in sensitivity to aviation noise was only up to 63 dB $L_{Aeq, 16hour}$ where 23% of respondents were highly annoyed and also corresponds with the Government Aviation Policy Framework⁴² (APF) which identifies 63 dB $L_{Aeq, 16hour}$ as the level above which airport operators are expected to offer acoustic insulation to noise-sensitive buildings (including schools and hospitals).

Furthermore, the APF also identifies that airport operators would be expected to offer assistance with the cost of moving to households within the 69 dB $L_{Aeq, 16hour}$ noise contour.

As such, the 63 dB $L_{Aeq, 16hour}$ aircraft noise contour is considered to represent the SOAEL with respect to aviation noise, and any noise-sensitive development within this area would be expected to demonstrate how an appropriate form of mitigation can be incorporated to avoid significant adverse effects relating to noise and the 69 dB $L_{Aeq, 16hour}$ aircraft noise contour represents the UAEL.

Professional Practice Guidance on Planning and Noise for new residential development (ProPG)

Professional Practice Guidance on Planning and Noise for new residential development⁴³ (ProPG) was launched on 22nd June 2017 by the Chartered Institute of Environmental Health (CIEH), the Association of Noise Consultants (ANC) and the Institute of Acoustics (IOA). The guidance has been published to provide

⁴¹ <https://publicapps.caa.co.uk/docs/33/CAP%201506%20FEB17.pdf>

⁴² Aviation Policy Framework, March 2013:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf

⁴³ Op cit.



practitioners with guidance on the management of noise within the planning system in England.

The guidance is specifically for 'new residential development that would be exposed predominantly to noise from existing transport sources' and reflects the Government's overarching NPSE, the NPPF, and PPG-Noise, as well as other authoritative sources of guidance.

The guidance provides advice for Local Planning Authorities (LPAs) and developers, and their respective professional advisers which complements Government planning and noise policy and guidance and, in particular, aims to:

- Advocate full consideration of the acoustic environment from the earliest possible stage of the development control process;
- Encourage the process of good acoustic design in and around new residential developments;
- Outline what should be taken into account in deciding planning applications for new noise-sensitive developments;
- Promote appropriate noise exposure standards; and
- Assist the delivery of sustainable development.

There are two stages of the overall approach outlined in the ProPG:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of 4 key elements which is underpinned by an Acoustic Design Statement.

With regards to Stage 1, ProPG provides guidance to produce an initial site risk assessment, pre-mitigation, with regards to noise based on the prevailing daytime and night time noise levels across the site, from which the site (or areas thereof) can be allocated a Noise Risk as shown in Figure 3.1, together with their corresponding sound levels as referred to in the ProPG.

Stage 2 of the ProPG approach contains four key elements to be undertaken and considered systematically.

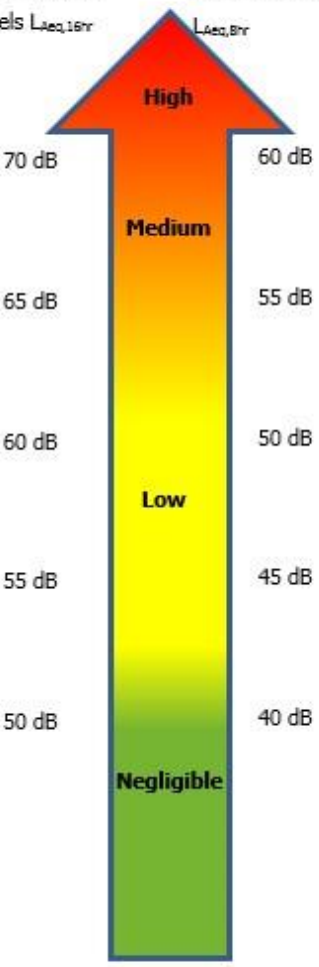
The key elements are as follows:

- Element 1 – Good Acoustic Design Process
- Element 2 – Internal Noise Level Guidelines
- Element 3 – External Amenity Area Noise Assessment
- Element 4 – Assessment of Other Relevant Issues

An Acoustic Design Statement is then produced which addresses issues found in Stages 1 & 2 of the ProPG

approach including recommendations for mitigation.

Figure 3.1 ProPG Stage 1, Noise Risk Assessment

Noise Risk Assessment	Potential Effect Without Noise Mitigation	Pre-Planning Application Advice
<p>Indicative Daytime Noise Levels $L_{Aeq,16hr}$</p> <p>Indicative Night-Time Noise Levels $L_{Aeq,8hr}$</p>  <p>70 dB</p> <p>65 dB</p> <p>60 dB</p> <p>55 dB</p> <p>50 dB</p> <p>60 dB</p> <p>55 dB</p> <p>50 dB</p> <p>45 dB</p> <p>40 dB</p> <p>High</p> <p>Medium</p> <p>Low</p> <p>Negligible</p>	<p>Increasing risk of adverse effect</p>	<p>High noise levels indicate that there is an increased risk that development may be refused on noise grounds. The risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice.</p> <p>As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrates that a significant adverse noise impact will be avoided in the finished development.</p> <p>At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.</p>
	<p>No adverse effect</p>	<p>These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.</p>

Both ProPG and BS 8233:2014 identify numerous situation-specific scenarios that are required to be considered within the noise assessment process, however as the policies associated with the WoB and RoB are directly related to major transportation noise sources associated Heathrow Airport and existing road network, the following provisions are of particular relevance.

ProPG incorporates the target internal noise level criteria that are detailed within BS 8233:2014 and the World Health Organisation L_{Amax} criterion of 45 dB L_{Amax} , noting at Figure 2 (note 4) that *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms)*



good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events."

Furthermore, ProPG (Figure 2, note 5) notes that *"designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded..."*

BS 8233 and ProPG recognise that the target noise level guideline values may not be achievable in all circumstances and ProPG expands on this point (Figure 2, note 7), stating that *"where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal L_{Aeq} target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved. The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form"*

It should be noted that the guidance presented within the January 2020 Acoustics Ventilation and Overheating Residential Design Guide⁴⁴ by the Association of Noise Consultants and Institute of Acoustics has been produced to supplement the guidance and approach for noise assessments to consider the integrated and sustainable design of buildings to improve the health and wellbeing for occupants. Although the direct effects of overheating and ventilation provisions are not considered within this document, the London Plan identifies measures within the 'Cooling Hierarch' to be included within building designs.

As such, in accordance with the aims and requirements of the NPSE, NPPF, PPG: Noise to identify appropriate noise level criteria in terms of the Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL), the following table presents the equivalent noise levels and their application in the context of the Local Plan Policies to achieve high quality design and to minimise exposure to elevated noise levels. It should be noted that the principles of the adopted and emerging London Plans, BS 8233 and ProPG all require a good acoustic design process to be followed as part of the development process, including site

⁴⁴ <https://www.association-of-noise-consultants.co.uk/wp-content/uploads/2020/07/ANC-AVO-Residential-Design-Guide-January-2020-v1.1.pdf>



layout options and as such it will be necessary for development proposals to demonstrate that the noise level guidelines outlined in Table 3.3 below can be achieved.

Table 3.3 Noise Level Criteria and Actions

Effect Level	Noise Level Criteria	Justification
No Observed Effect Level (NOEL)	<p>Noise levels are at or below:</p> <p>Bedrooms: 25 dB $L_{Aeq,8hours}$/40 dB $L_{Amax, 8hours}$</p> <p>Living Rooms: 30 dB $L_{Aeq,16hours}$</p> <p>Gardens/Balconies: 45 dB $L_{Aeq,16hours}$</p>	Adverse effects relating to noise levels 5 dB below BS8233 / WHO guideline criteria are unlikely
Lowest Observed Adverse Effect Level (LOAEL)	<p>Noise levels are at or below:</p> <p>Bedrooms: 30 dB $L_{Aeq,8hours}$/45 dB $L_{Amax, 8hours}$</p> <p>Living Rooms: 35 dB $L_{Aeq,16hours}$</p> <p>Gardens/Balconies: 50 dB $L_{Aeq,16hours}$</p>	The guideline BS8233 / WHO noise level criteria represent the level at which physiological effects relating to sleeping/resting conditions or subjective reactions such as annoyance may be observed for most people.
Significant Observed Adverse Effect Level (SOAEL)	<p>Noise levels are at:</p> <p>Bedrooms: 35 dB $L_{Aeq,8hours}$/45 dB L_{Amax} more than 10-15 times per night</p> <p>Living Rooms: 40 dB $L_{Aeq,16hours}$</p> <p>Gardens/Balconies:</p> <p>Road Traffic Noise: 60 dB $L_{Aeq, 16hours}$</p> <p>Aircraft Noise 63 dB $L_{Aeq,16hours}$</p>	<p>BS8233 and ProPG recognise that the target noise level criteria may not be achievable in all circumstances and that noise levels of up to 5 dB above the target noise level criteria may be considered reasonable. However, any development where the BS 8233/WHO noise level criteria are exceeded would be required to robustly demonstrate how noise levels across the development site have been reduced as far as practicable, including the layout of the development.</p> <p>If average L_{Aeq} noise levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable".</p> <p>Where noise levels in external amenity areas are expected to be within the SOAEL, provision of winter gardens or other mitigation measures to reduce noise levels within external amenity areas would be required.</p>
Unacceptable Observed Adverse Effect Level (UOAEL)	<p>Average noise levels are up to 10 dB above guideline criteria:</p> <p>Bedrooms: 35 dB $L_{Aeq,8hours}$/45 dB L_{Amax} more than 15 times per night</p> <p>Living Rooms: 40 dB $L_{Aeq,16hours}$</p> <p>Gardens/Balconies: = 69 dB $L_{Aeq,16hours}$</p>	Internal L_{Aeq} levels that exceed the target levels by more than 10 dB are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally.

With respect to noise, it is expected that proposals for noise-sensitive development will seek to secure a Good Acoustic Design, taking into account other socio-economic considerations of the development site.



Table 3.4 Hierarchical Summary of Noise Policies, Planning Controls and Mitigation for the WoB and RoB Study Areas

	Policies and Planning Controls	Development-led Mitigation
Most Effective	Ensuring that sensitive uses are located away from excessive noise sources	Use of design and layout (shielding and set-back) to not introduce new sensitive uses (dwellings/hospitals/schools) into areas exposed to elevated noise levels
	Promoting Good Acoustic Design Principles	Undertaking site-specific risk assessments to identify noise constraints to inform the development proposals and site master-plans
Moderately Effective	Management of noise generating sources	Assessment of new commercial sources of noise affecting noise-sensitive properties and provision of noise control measures such as barriers/screening
	Separation of noise sources and sensitive properties	Restriction of operating hours and/or determination of noise emission limits Incorporation of noise buffers into site layouts
Less Effective in the WoB & RoB Area	Insulation of noise sensitive properties with enhanced building envelope designs	Provision of enhanced glazing products and provision of a suitable ventilation for internal spaces and screening provided to reduce noise levels within external amenity spaces.
	Reliance of nearby open spaces for access to external amenity areas and areas of relative tranquillity.	Provision of fully or partially enclosed external amenity spaces

3.3 Application of WoB and RoB Planning Policy Within Designated Sites

The overarching national and regional planning policy considerations and guidance documents outlined above represent a framework of design principles that set out measures for minimising exposure to elevated noise levels through good acoustic design. The guidance documents and policies set out that good acoustic design does not simply represent achieving the identified guideline values though the use of the building fabric and that the layout and design of should demonstrate measures to mitigate and reduce the effects of noise to a minimum.

This is reflected within Policy WOB3 which requires development proposals to ensure that site and building design minimises exposure to elevated levels of pollution by designing-out the adverse effects of noise through a range of measures.

This is considered to be particularly important when considered against the expected changes in home and working practices across the nation as home-working becomes more prevalent which could result in increases in exposure to elevated levels of noise during daytime working hours when road traffic and aircraft noise may be higher than evening or weekend periods.



In particular, many allocated sites within the WoB and RoB site allocations are directly exposed to road traffic and aircraft noise which can dominate external amenity spaces in particular. As such, and in accordance with the requirements of the national PPG, developments will be expected to demonstrate that they provide access to external areas which are relatively quiet and protected from noise levels that are likely to result in significant adverse effects (i.e. ambient $L_{Aeq, 16 \text{ hour}}$ noise levels at or in excess of 63 dB). To achieve this, development proposals should consider the orientation and layout of buildings and sensitive external spaces at an early stage to remove or reduce the adverse effects of noise as far as practicable in order to demonstrate that a good acoustic design process has been followed; the use of additional physical mitigation measures (such as balcony balustrades, winter gardens or other innovative solutions such as acoustic shelters or horizontal screening) should be regarded as a last-resort to achieve the target noise level guidelines and their use justified accordingly.

To provide context regarding the draft allocated sites within the WoB and RoB area that are exposed to elevated noise levels from aircraft and the surrounding road network and to quantify the extent to which specific sites are likely to be affected by noise, three-dimensional noise modelling has been carried out for the existing road network based upon published Department for Transport (DfT) average traffic counts and contributions from Heathrow Airport using published aircraft noise contours. Modelling has been undertaken to demonstrate the sound pressure levels, expected to affect development sites both horizontally and vertically as a result of road traffic and aircraft noise.

Computer Aided Noise Abatement (CADNA) noise modelling software has been used. This model is based on the DfT Calculation of Road Traffic Noise (CRTN) and ISO 9613 noise propagation methodology and allows for detailed prediction of noise levels to be undertaken for large numbers of receptor points and different noise emission scenarios both horizontally and vertically. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data, assumptions and model settings as given in the table below have been used.

Table 3.5 Modelling Parameters Sources and Assumptions

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels – around site	Ordnance Survey	Ordnance Survey
Ground levels – other areas	Site Observations and Ordnance Survey	OS 1:25,000 contours and OS 1:10,000 spot heights.
Receptor positions	WYG	1 m from façade, height of 1.5 m for ground floor, 4 m for first floor properties with 3m per additional storey.
Reflections	WYG	First order reflections have been applied based on mirror image sources
Absorbent Ground	CADNA	Frequency dependant ground absorption has been applied based on values specified in VDI 2714/16 clause 6.3.



Parameter	Source	Details
Façade Correction	CADNA	Façade corrections have been incorporated into the modelling

It is acknowledged that a number of these assumptions will affect the overall noise levels presented in this report. However, it should be noted that certain assumptions made, as identified above, are worst-case.

Road Traffic Data

All roads expected to make a significant contribution have been included within this assessment; traffic flows and heavy goods vehicle (HGV) percentages have been based on DfT traffic counts, which are summarised in the following table:

Table 3.6 Road Traffic Data for Noise Model Inputs

Road/Site number	18 Hour AAWT*	Percentage HGV
A205/28108	33380.1	3
A205/6758	30255.3	4
A205/6898	25025.4	3
A205/73838	33381	4
A3000/26918	30256	1
A3002/27613	25026	3
A310/75073	30256	3
A315/36948	6443	2
A315/36948	7828	2
A315/46927	18330	2
A315/56697	12739	3
A4/16111	12739	3
A4/26116	13961	3
A4/36120	11872	2
A4/38561	35737	4
A4/6122	89487	3
A4/75072	35837	3
A406/37112	10049	4
B4491/942598	40656	5
B454/900003	50245	4
B454/930066	34205	1
B454/942595	7857	1
B455/942448	18431	3
B455/951712	8839	1
Cawdor Cres/942616	12330	10
Clayponds Ave/942475	12266	0
Durham Rd/942615	8061	0
Green Dragon Ln/900008	213	1



Road/Site number	18 Hour AAWT*	Percentage HGV
Kew Green/942868	2747	2
Kew Green/942871	1166	1
Larch Dr/990563	5643	6
Lionel Rd/942455	583	0
M4/26012	350	1
M4/47892	6893	3
Rose Gardens/942606	3027	0
Rothbury Gardens/942469	91886	0
A30/3734	40492	4
A30/38579	20804	3
Bedfont Road/930280	12848	6
A244/46845	9087	5
Forest Road/36943	23733	4
A312/16863	25069	3
Uxbridge Road/46922	23822	3
Hampton Road West/26915	21586	2
Hounslow Road/46924	10120	4
Beavers Lane/930281	4319	1
A3006/47611	14784	4
A30/36309	40492	4
A30/73633	40492	4
Lampton Road/75069	10526	3
Great West Road/16111	35736	3
Lampton Road/37653	9956	1
A312/18727	47723	5
M4 Roundabout/18487	135809	4
A312/26914	40691	5
M4/26012	91886	4
M4/47892	72438	3
Great West Road/75072	50244	3
A3002/27613	7827	3
A3002/38600	16142	2
B455/942448	12265	3
A205/6898	25025	3
A205/28108	33380	3
A3000/26918	6442	1
A315/56697	11872	3
A315/16928	14441	3
A315/26920	7805	10
A315/56900	14629	2
Stanwell Road/953083	12917	5

* Annual Average Weekday Traffic



The road traffic data summarised in the table above represent daily 18 hour traffic flows, therefore, in order to present noise levels in terms of $L_{Aeq, 16 \text{ hour}}$, the following correction (derived from PPG24) has been used:

$$L_{Aeq,16\text{hour}} = L_{A10,18\text{hour}} - 2 \text{ dB}$$

Limitations of Assessment

It should be noted that numerous site-specific factors will affect overall noise levels within specific development sites (for example commercial, industrial or entertainment noise sources) and noise effects can occur at different times of the day and night and as such the figures reflected within this document do not represent the absolute acceptability (or not) of a development site with respect to noise. However, the noise constraints identified within this document represent the areas where significant adverse effects relating to noise may occur and the mitigation measures that would be expected to be incorporated as part of the development process.

3.4 Designated Site Considerations

The designated sites associated with the WoB and RoB have been considered with respect to noise affecting residential development sites within the accompanying Appendix D

3.5 Noise Conclusions

With respect to noise, proposals for noise-sensitive development will need to secure a Good Acoustic Design, taking into account other socio-economic considerations of the development site. In particular the following good acoustic design principles will be adopted in emerging guidance as part of a hierarchical approach to avoiding and reducing significant adverse effects in relation to noise:

1. Avoid/Reduce the sound sources and the sound transmission path through site selection or other measures such as barriers/buildings.
2. Explore measures to manage the level of sound sources (including time/type of activity).
3. Separate the noise source and sensitive receiver with increased distance from the sources.
4. Explore innovative design measures including the layout, orientation of buildings and provision of acoustic screening, taking into account the character of the noise sources.
5. Insulate sensitive properties with enhanced building envelope designs.

Consideration will need to be given to designs that will achieve good acoustic design principles as far as practicable within internal and external amenity spaces of a development to provide an integrated approach that is aligned with, or does not otherwise conflict with, other design aspects that will affect living conditions and the quality of life of the inhabitants or other sustainable design objectives and requirements.

These measures are to be developed further within the LBH Air Quality and Noise Supplementary Planning Document in order to assist developers, decision makers, agents, residents and others to identify issues to be addressed in any application for development in which noise and/or vibration will be an important consideration when assessing that application.



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Appendix A - Designated Site Considerations

The following designated sites have been considered with respect to air quality affecting residential, commercial and industrial development sites within the West of Borough and Rest of Borough.

Design phase mitigation is the preferred choice to mitigate air quality impacts, this includes the use of; setbacks of height and distance, use of non-sensitive uses to screen or buffer sensitive uses and the use of greenery to act as a buffer through green walls or landscaping. Where design phase measures are not a viable option, mechanical ventilation should be utilised but only as a last resort as this is not considered to constitute high quality design mitigation.

All setbacks from roads will be given in metres and measurements have been taken from the kerbside of the associated roads. Setbacks of height have all been given from ground floor. Sites adjacent to railways have been considered within the backgrounds of the modelled assessment.

Based on the proximity to the boundary of the WoB, the air quality impacts associated with Heathrow Airport have been considered when determining the air quality concentrations at each individual designated site. A review of the impacts from Heathrow Airport are demonstrated in figure A1 below.

Figure A1 LondonAir 2016 NO₂ Concentration Maps (µg/m³)

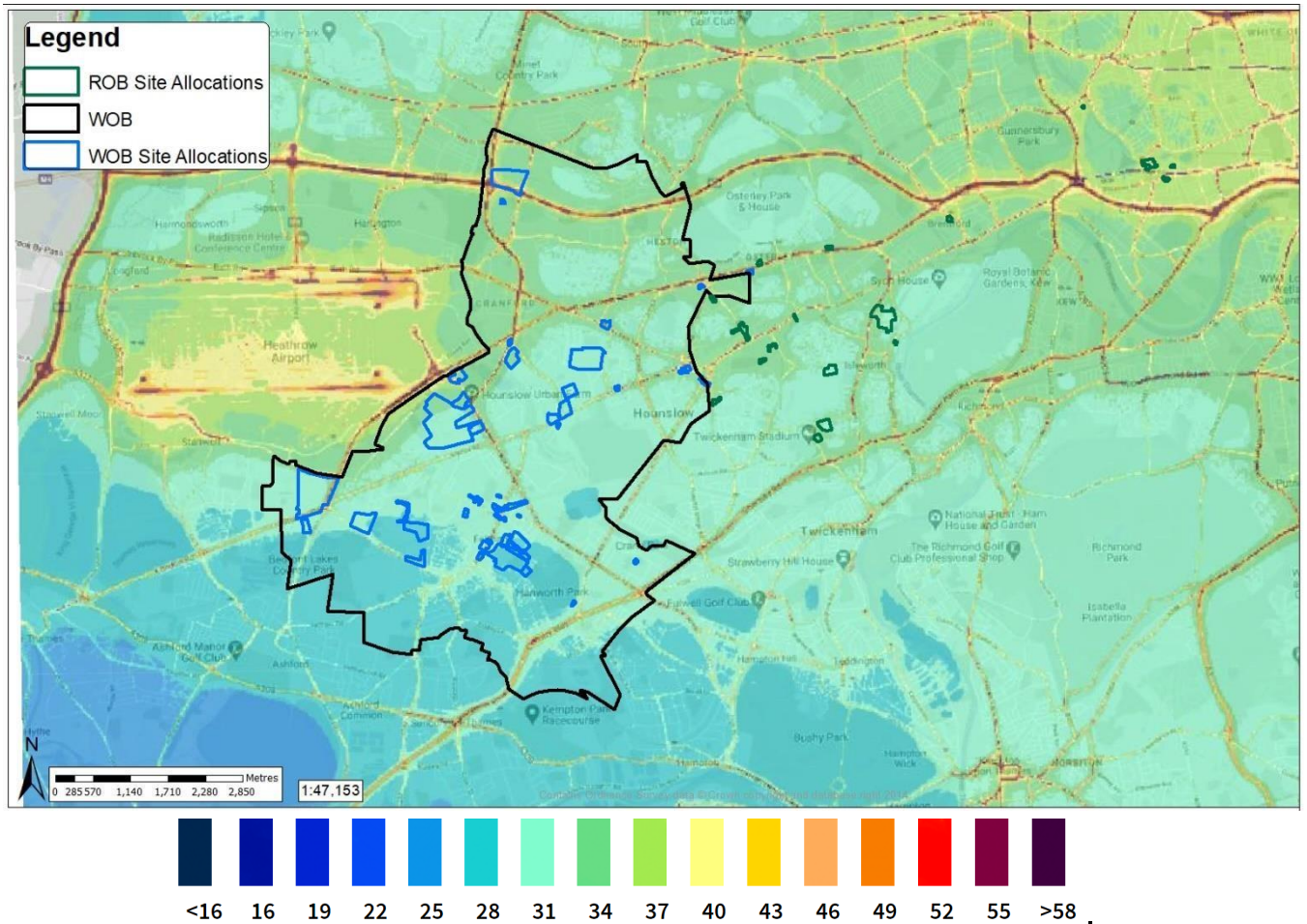


Figure A1 illustrates the elevated NO₂ concentrations derived from Heathrow Airport and the subsequent elevated NO₂ concentrations surrounding the airport. As a result, the NO₂ background concentrations used for the designated sites surrounding Heathrow Airport and have been increased by 3 µg/m³, in accordance with the increase shown in Figure A1. It is considered that this approach of increasing the utilised Defra Map NO₂ concentrations for the designated site, to take into account the impacts associated with Heathrow airport is considered a robust and worst-case assessment.

38 - Heathrow Gateway Business (B1a/b) with Retail (A1-A4), Hotel (C1), Residential (C3), Community Use (D2) and Open Space.

Proposal - Heathrow Gateway will be a major new neighbourhood in Hounslow, comprising new homes, open space and a new airport business hub providing high quality commercial office space centred around the new Bedfont Lakes Station and integrated with Bedfont lakes office park to the south.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 54.7 µg/m³. There are 2060 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective (38ug/m³), ground floor residential units should be set back 50m from the A30 south and east of the site boundary.

- Any proposed residential units within 10m of the Great South West Road east of the site should begin from 7m high and from the A30 4m high.
- Any proposed residential units within 20m of the Great South West Road east of the site should begin from 4m high, from the A30 residential units can begin from ground floor.
- Any proposed residential units within 30m of the Great South West Road east of the site should begin from 4m high.
- Any proposed residential units within 40m of the Great South West Road east of the site should begin from 4m high.

The proposed site has the potential to exceed the short term 50µg/m³ concentration objective at the south and east of the site boundary along the A30 and Great West Road respectively. A setback of 10m from the A30 and Great West Road will reduce the impacts of exposure to poor short-term air quality. Any non-residential units within the 10m setback will implement additional design mitigation as outlined above to ensure people are not exposed to poor air quality, including implementing greenery to act as a buffer.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.

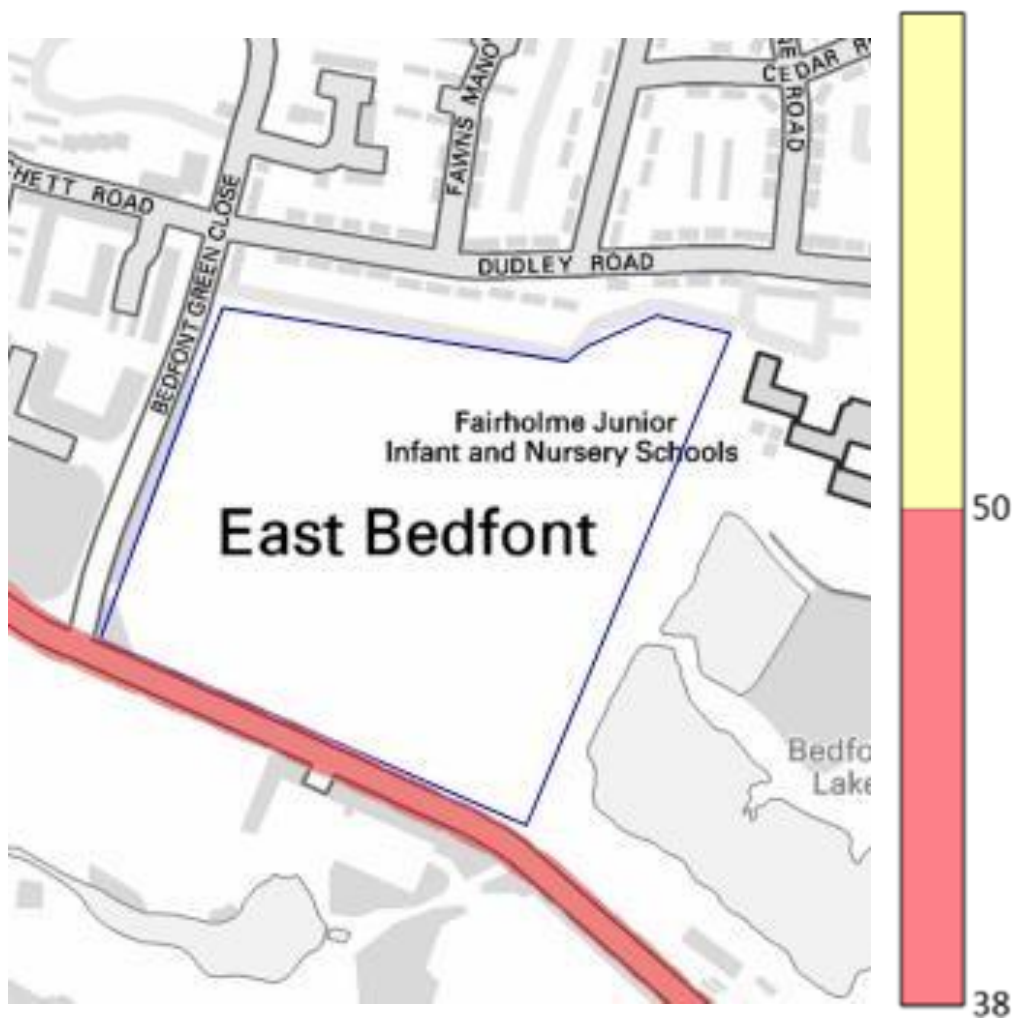


39 - South Bedfont Residential (C3), Retail (A1-A4) and Open Space

Proposal- South Bedfont will be a new residential neighbourhood close to the new Bedfont station, providing new homes integrated with open space.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 34.6 µg/m³. There are 910 residential units proposed with this scheme. As worst case concentrations are below the AQO it is expected that no additional design mitigation measures for this proposed development are required and proposed future residents are unlikely to be exposed to poor air quality.

There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



40 - Bedfont Gardens Residential (C3), Retail (A1-A4) and Open Space.

Proposal- Bedfont Gardens will be a new residential neighbourhood which opens out onto new and improved parkland with supporting community facilities.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.3 µg/m³. There are 650 residential units proposed with this scheme. As worst case concentrations are below the AQO it is expected that no additional design mitigation measures for this proposed development are required and proposed future residents are unlikely to be exposed to poor air quality.

There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



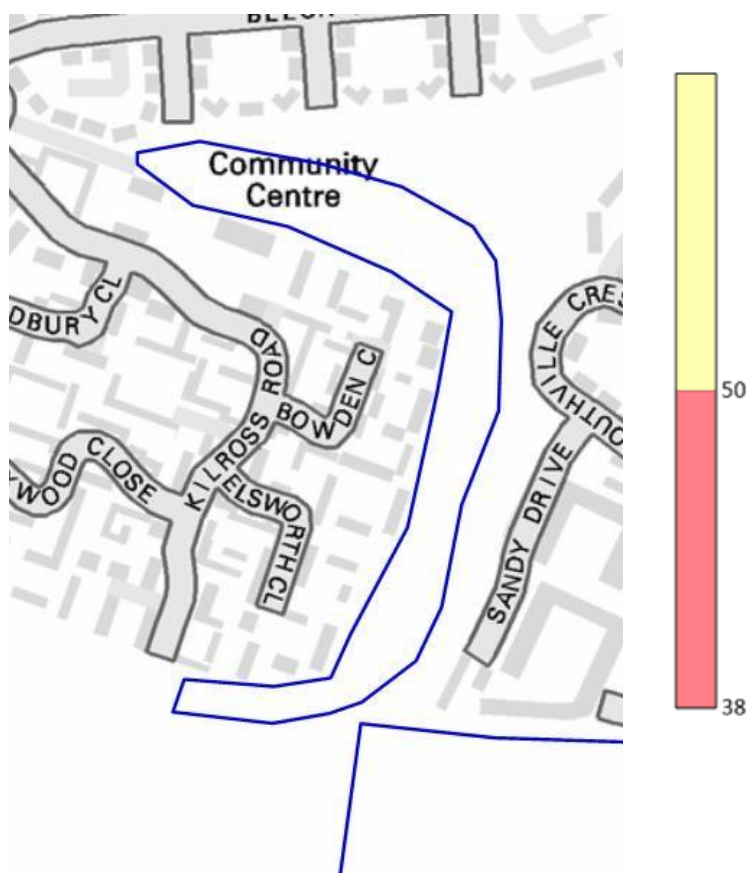
41 - Bedfont Gardens, Land at Southville Crescent Residential (C3), Community Use (D2) and Open Space.

Proposal - Bedfont Gardens North will extend the existing urban area with new homes and improved community facilities.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.6 µg/m³. There are 120 residential units proposed with this scheme. As worst-case concentrations are below the AQO it is expected that no additional design measures for this proposed development are required and proposed future residents are unlikely to be exposed to poor air quality.

There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy .



42 - Land at Bedfont Lakes (West) 753 Staines Road, Feltham Residential (C3) and Open Space.

Proposal - Bedfont Lakes West will be developed with new homes and a new park on the adjacent Green Belt.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 49.2 µg/m³. There are 140 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, ground floor residential units should be set back around 50m at the north east corner of the proposed site boundary along Staines Road to ensure future residents will not be exposed to poor air quality.

- Any proposed residential units within 10m of north east corner of the proposed site boundary along Staines Road should begin from 7m high
- Any proposed residential units within 20m of north east corner of the proposed site boundary along Staines Road should begin from 7m high
- Any proposed residential units within 30m of north east corner of the proposed site boundary along Staines Road should begin from 4m high
- Any proposed residential units within 40 of north east corner of the proposed site boundary along Staines Road should begin from 4m high

The proposed site has the potential to exceed the short term 50µg/m³ concentration objective at the north east corner of the site boundary along Staines Road. A setback of 5m from the north east corner of the site will reduce the impacts of exposure to poor short-term air quality. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

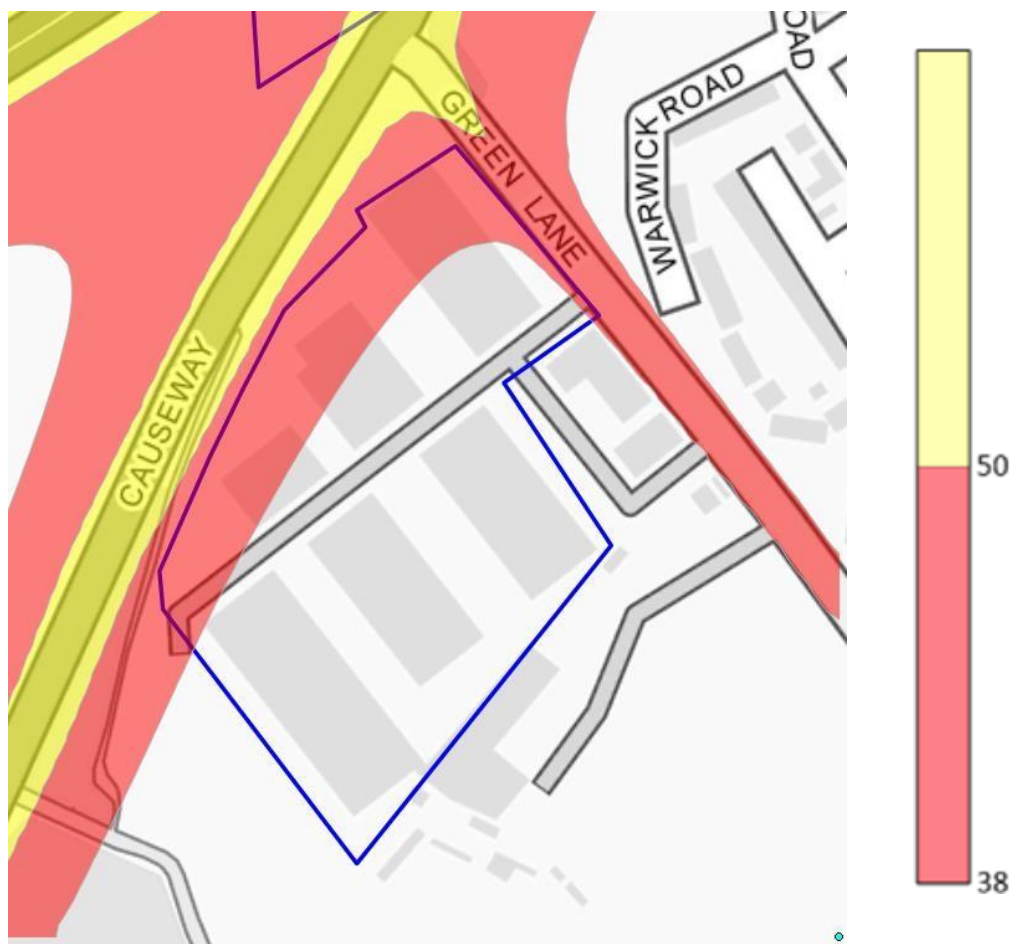
With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



43 - Heathrow International Trading Estate Light Industrial (B1c) and Industrial (B2/B8).

Proposal - Heathrow International Trading Estate will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.

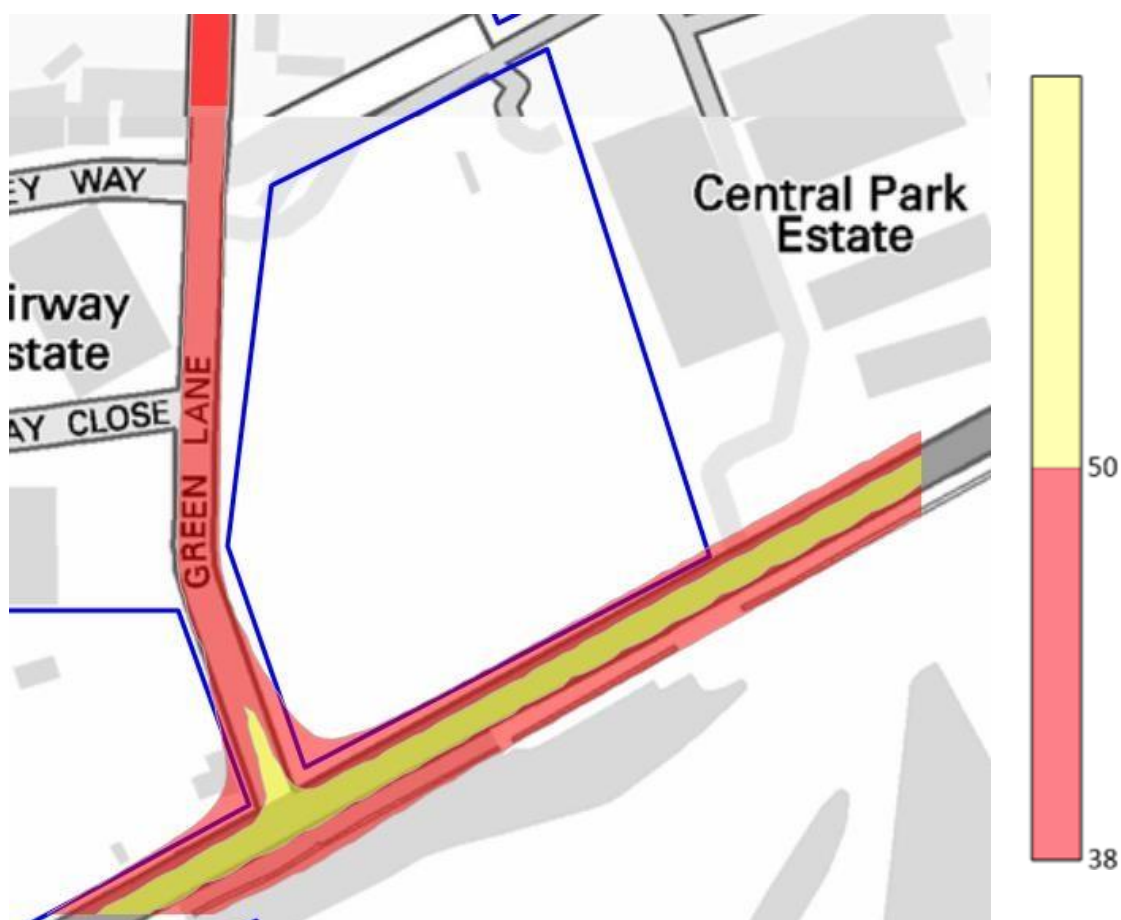
The worst case expected concentration of NO₂ at the proposed site is expected to be, 48.3 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



44 - Central Park Trading Estate Light Industrial (B1c), Industrial (B2/B8).

Proposal - Central Park Trading estate will be redeveloped and expanded to provide new industrial business space and units to support the borough's future employment needs.

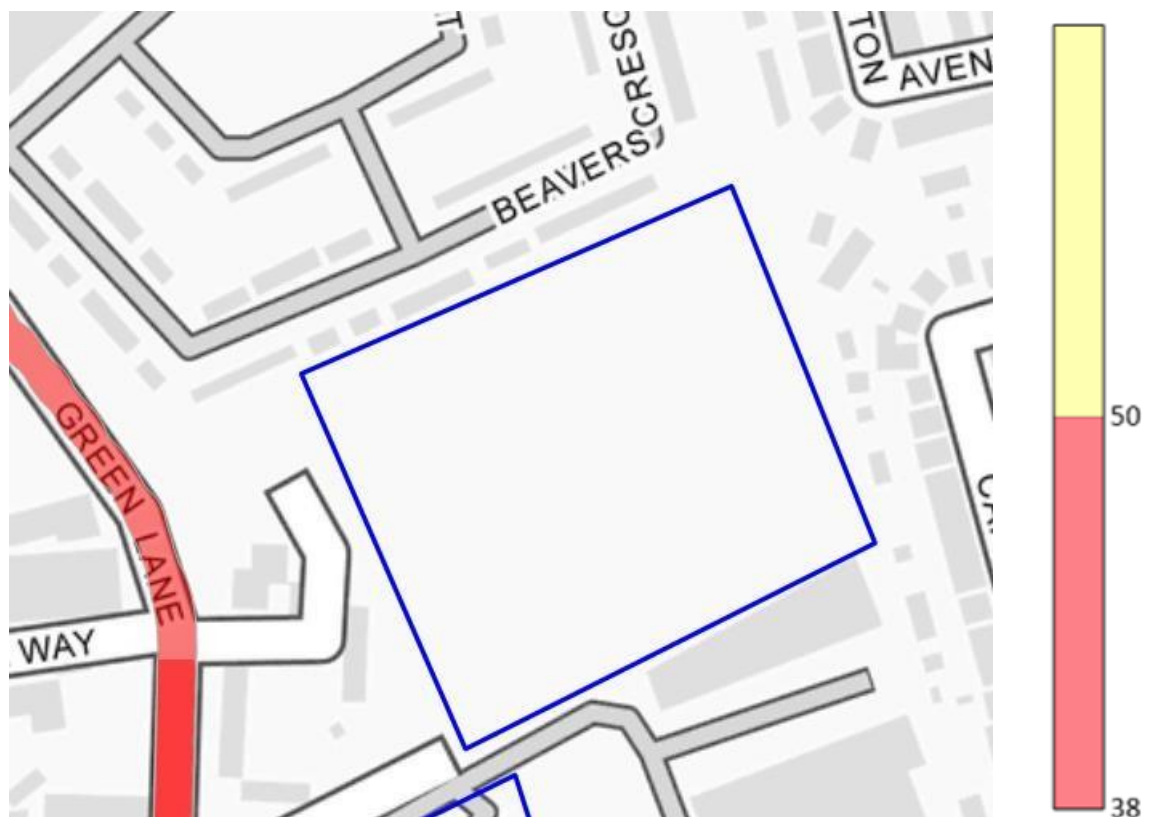
The worst case expected concentration of NO₂ at the proposed site is expected to be, 42.9 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



45 - Land at Green Lane Industrial (B2/B8).

Proposal - Land at Green Lane will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.

The expected concentration of NO₂ at the proposed site is expected to be, 31.7 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation is likely to comply with the proposed policy.



46 - Ron Smith Recycling, Green Lane Waste Uses Including Light Industrial (B1c) and Industrial (B2/B8).

Proposal - The site at Green Lane will be redeveloped to provide more intensive industrial use and a broader range of uses as well as improved access and exit from the site.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.9 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



47 - 150-152 Great South West Road, Cranford Industrial (B2/B8).

Proposal- 150-152 Great West Road will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.

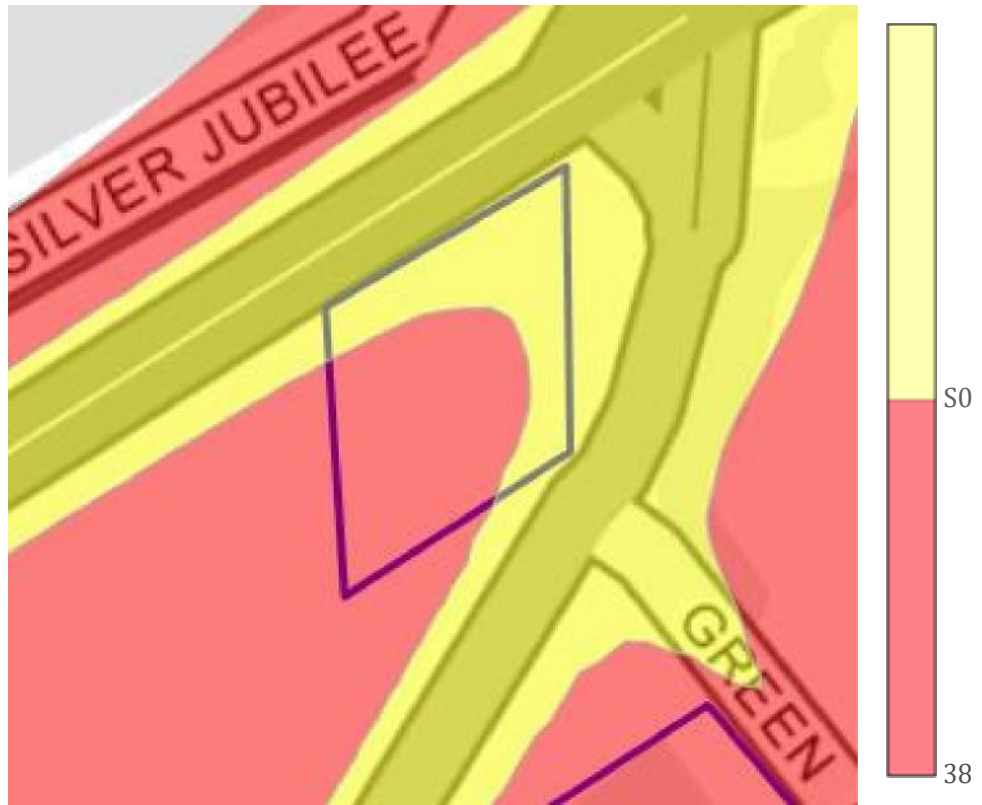
The worst case expected concentration of NO₂ at the proposed site is expected to be, 72.1 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is expected to be a potential exceedance of 50 µg/m³ short term annual limit, as a result there is expected to be an exceedance of the short-term air quality objective.

Based on the size of the site and concentrations observed at the site it is considered that a setback from the surrounding major roads would not be a viable option, this is also the case for setback of height, as from 7m high concentrations of NO₂ will be below the short term limit of 50 µg/m³.

The use of greenery to act as a buffer from the A30 and A312 Causeway should be considered, and proposals to install a green wall at the proposed site will be supported by the LBH. Development proposals should demonstrate how any proposed green buffer will ensure concentrations of NO₂ are below the short term AQO within the site.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



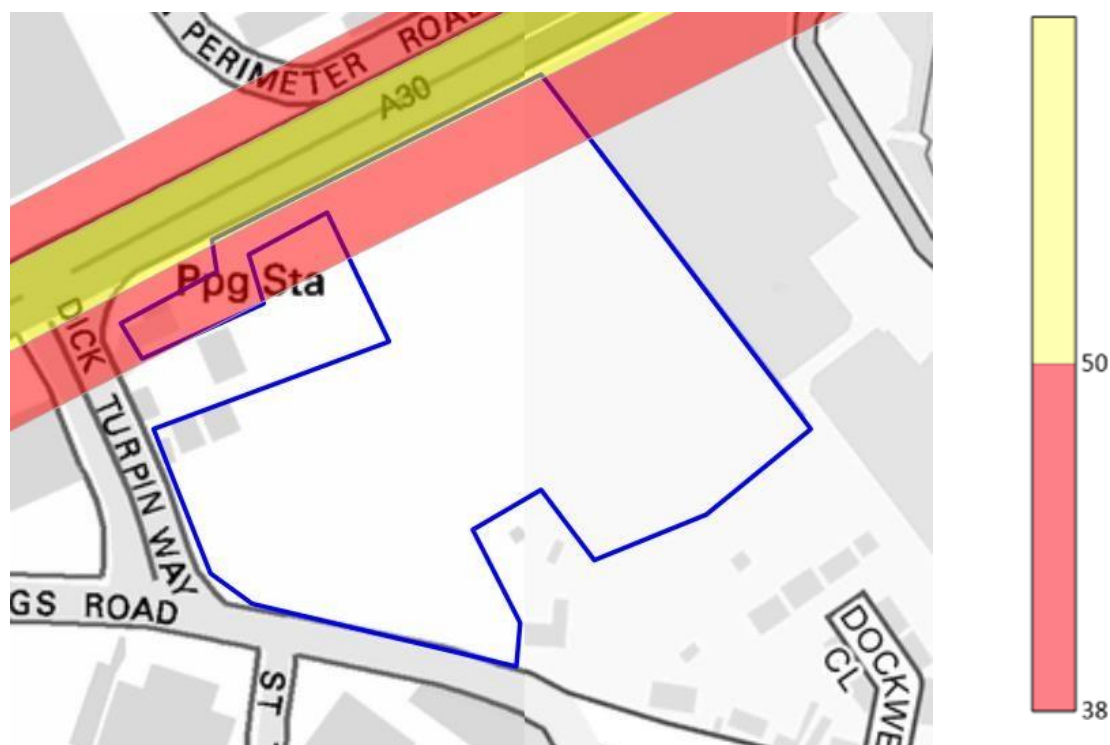
48 - Vacant Land at Dick Turpin Way Industrial (B2/B8).

Proposal- The Site at Dick Turpin Way will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 49.5 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is potential for the exceedance of the 50 µg/m³ and, as a result, a setback of 5m from the A30 should be implemented.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



49 - Site at Faggs Road Light Industrial (B1c) and Industrial (B2/B8).

Proposal- The site at Faggs Road will be extended to provide additional industrial business space and units to support the borough's future employment needs.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 41.6 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation is likely to comply with the proposed policy.



50 - Tesco Dukes Green Avenue Large Format Retail (A1), Residential (C3)

and open space.

Proposal- Tesco Dukes Green will be redeveloped to provide a new retail unit combined with new homes and open space.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 54.4 µg/m³. There are 210 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, ground floor residential units should be set back 50m from Faggs Road.

- Any proposed residential units within 10m of Faggs Road should begin from 7m high
- Any proposed residential units within 20m of Faggs Road should begin from 7m high
- Any proposed residential units within 30m of Faggs Road should begin from 7m high
- Any proposed residential units within 40m of Faggs Road should begin from 4m high

There is no potential for the exceedance of the 50 µg/m³ short term AQO, as a result a setback of 10m from Faggs Road should be implemented. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



51 - Network House Feltham Residential (C3), Retail (A1-A4) and Open Space.

Proposal- Network House will be redeveloped for housing as a part of the station quarter.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 56.1µg/m³. There are 200 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, ground floor residential units should be set back of 40m from Harlington Road and 20m from the north west corner of the site along Hounslow Road.

- Any proposed residential units within 10m of Harlington Road and Hounslow Road should begin from 7m and 4m respectively.
- Any proposed residential units within 20m of Harlington Road should begin from 7m.
- Any proposed residential units within 30m of Harlington Road should begin from 4m.

There is potential for the exceedance of the 50 µg/m³ short term limit, as a result a setback of 10m from Harlington Road should be considered. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



52 - Lidl Feltham Retail (A1-A4), Residential (C3).

Proposal- Lidl Feltham will be redeveloped to provide a new supermarket combined with new homes as part of the station quarter.

The worst case expected concentration of NO₂ at the proposed site is expected to be 38.3 µg/m³. There are 220 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back from Hounslow Road around 5m. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

It is likely that the proposed site allocation is likely to comply with the proposed policy if the above parameters are applied.



53 - New Road Triangle Residential (C3) and Open Space.

Proposal- New Road Car Park will be redeveloped for housing and to create a new entrance to Feltham Arenas as part of the Station Quarter.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 32.5 µg/m³. There are 110 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

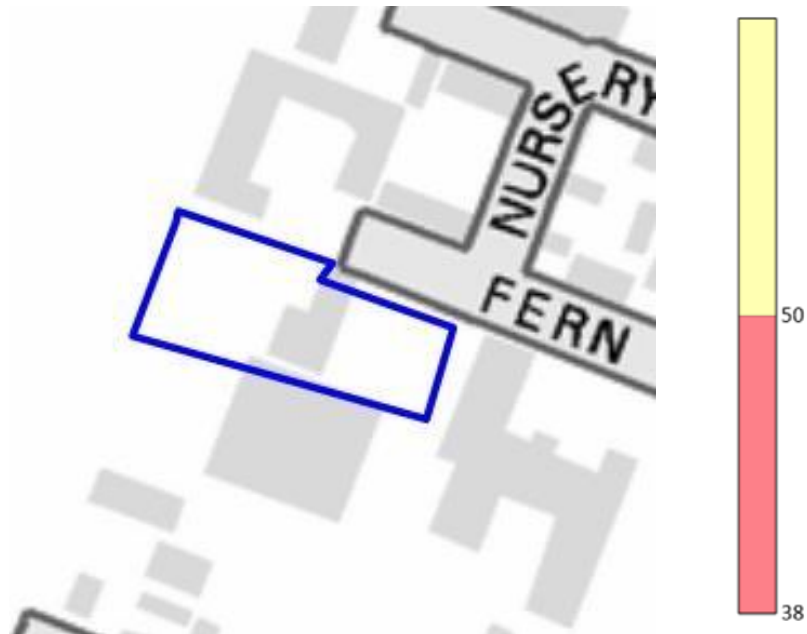
It is likely that the proposed site allocation will comply with the proposed policy.



54 - 61 Fern Grove Residential (C3).

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.1 µg/m³. There are 60 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ as a result there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

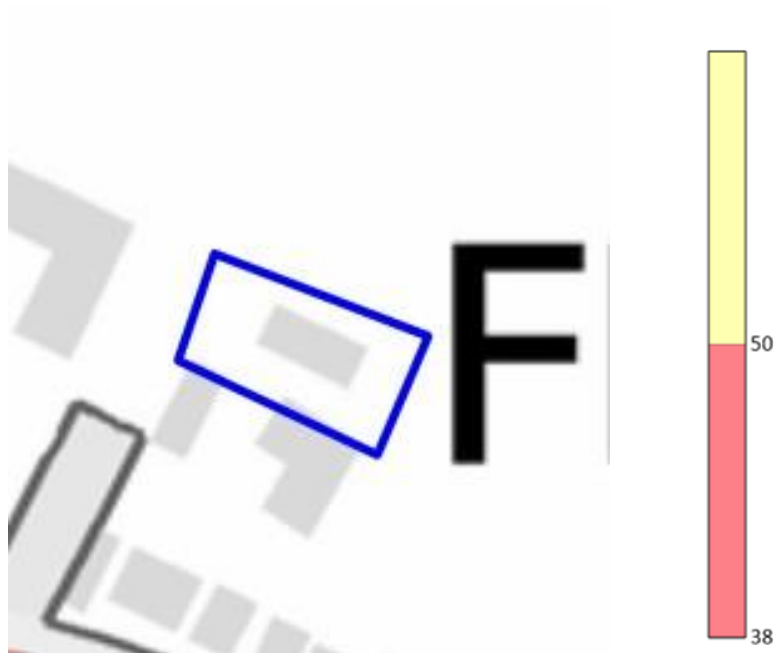


55 - Scout Hut Bedfont Lane Residential (C3) and Community Use (D1).

Proposal- The Scout Hut at Bedfont Lane will be redeveloped to deliver new housing.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 31.4 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

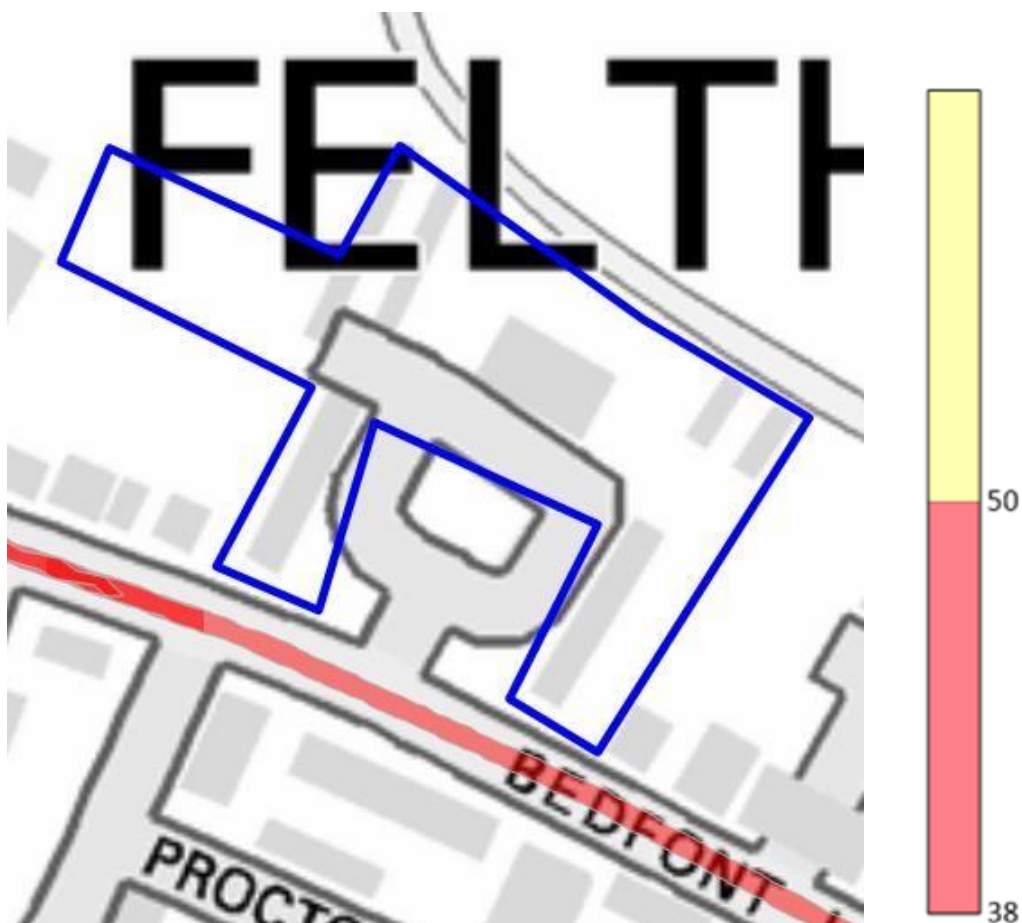


56 - Land at Glebelands Road Residential (C3).

Proposal- Sites at Glebelands road within the existing development will be redeveloped to provide new homes via sensitive infill development.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 33.2 µg/m³. There are 70 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



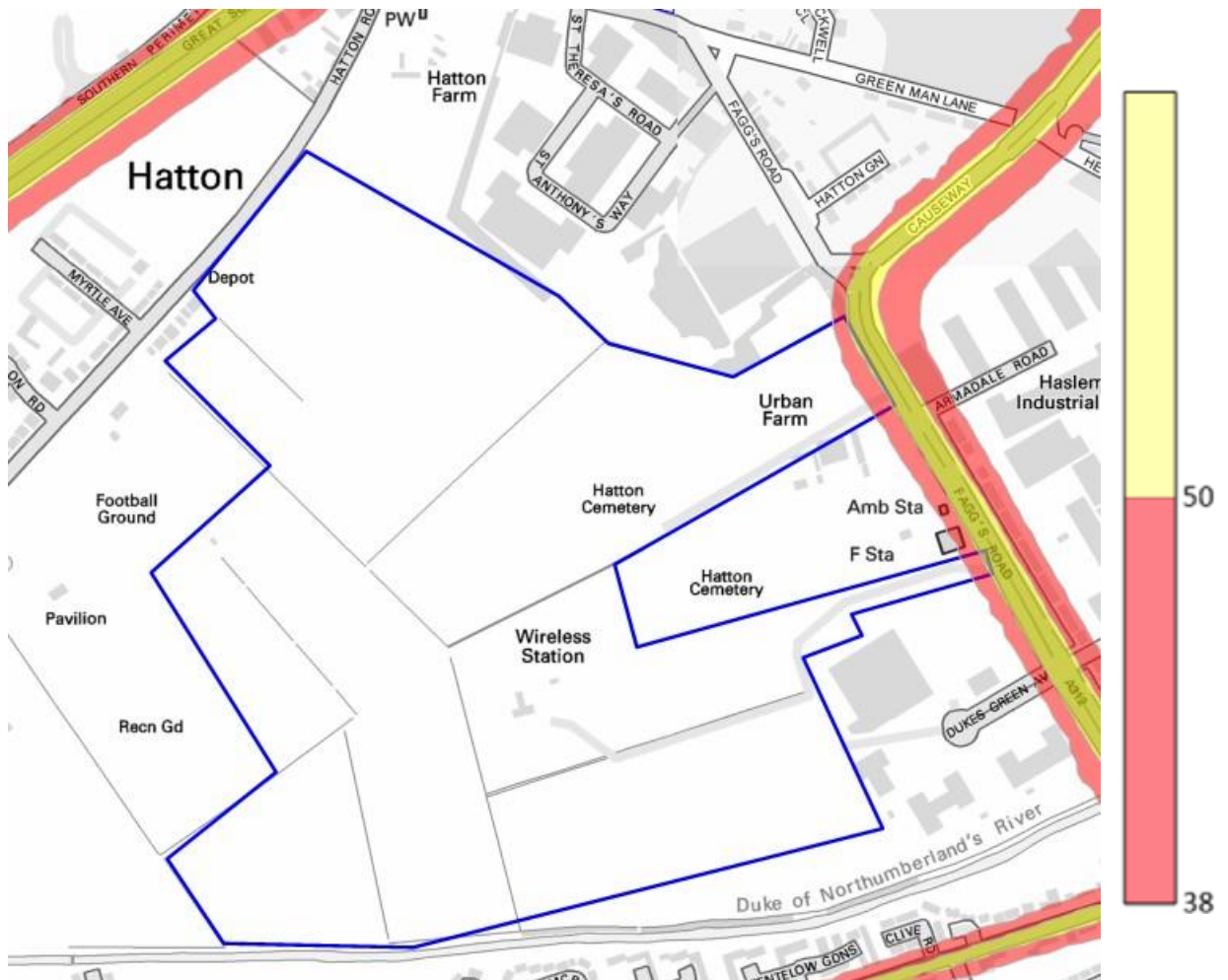
57 - Airport Business Park Industrial (B2, B8).

Proposal- Airport business park will form a major new industrial area to support the Hounslow's employment needs over the plan period, combining modern, high density warehousing with high quality infrastructure.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 53.8 µg/m³. There are no residential units proposed with this scheme therefore only the short-term objective is considered. There is potential for the exceedance of 50 µg/m³ and, as a result, a setback of 15m from Faggs Road should be implemented. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

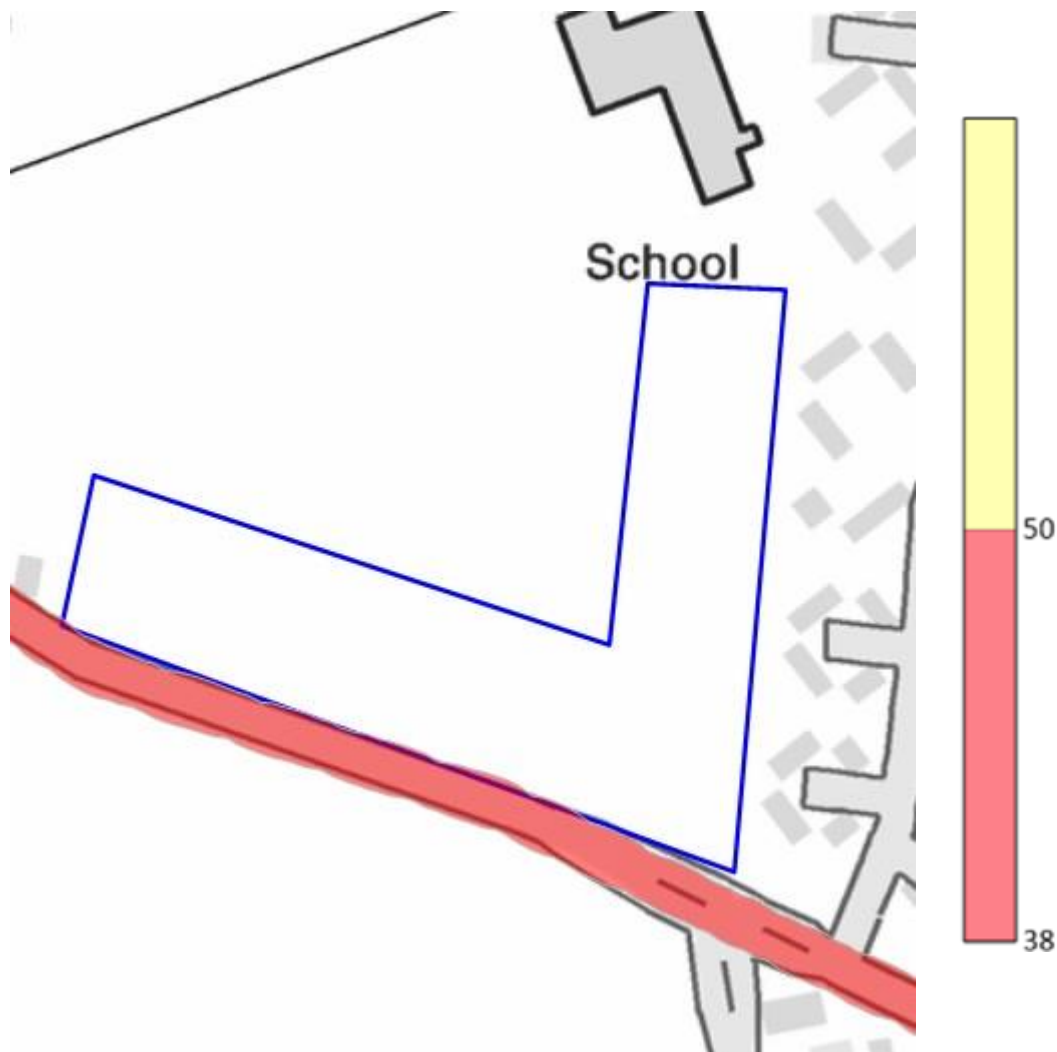
With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



58 - Lower Feltham West Residential (C3) and Open Space.

Proposal - Lower Feltham West will be redeveloped to provide an improved and more accessible Raleigh Park and new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.9 µg/m³. There are 130 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back from the south east corner of the site boundary along Bedfont road around 5m. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.



59 - Tesco Feltham Retail (A1-A4) and Residential (C3)

Proposal - Tesco Feltham will be redeveloped to provide a new large floorplate retail unit (A1) with under-store parking, housing (C3) and a new public open space

The worst case expected concentration of NO₂ at the proposed site is expected to be, 41.2 µg/m³. There are 170 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 30m from the south of the site along High Street or begin from 4m high. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.

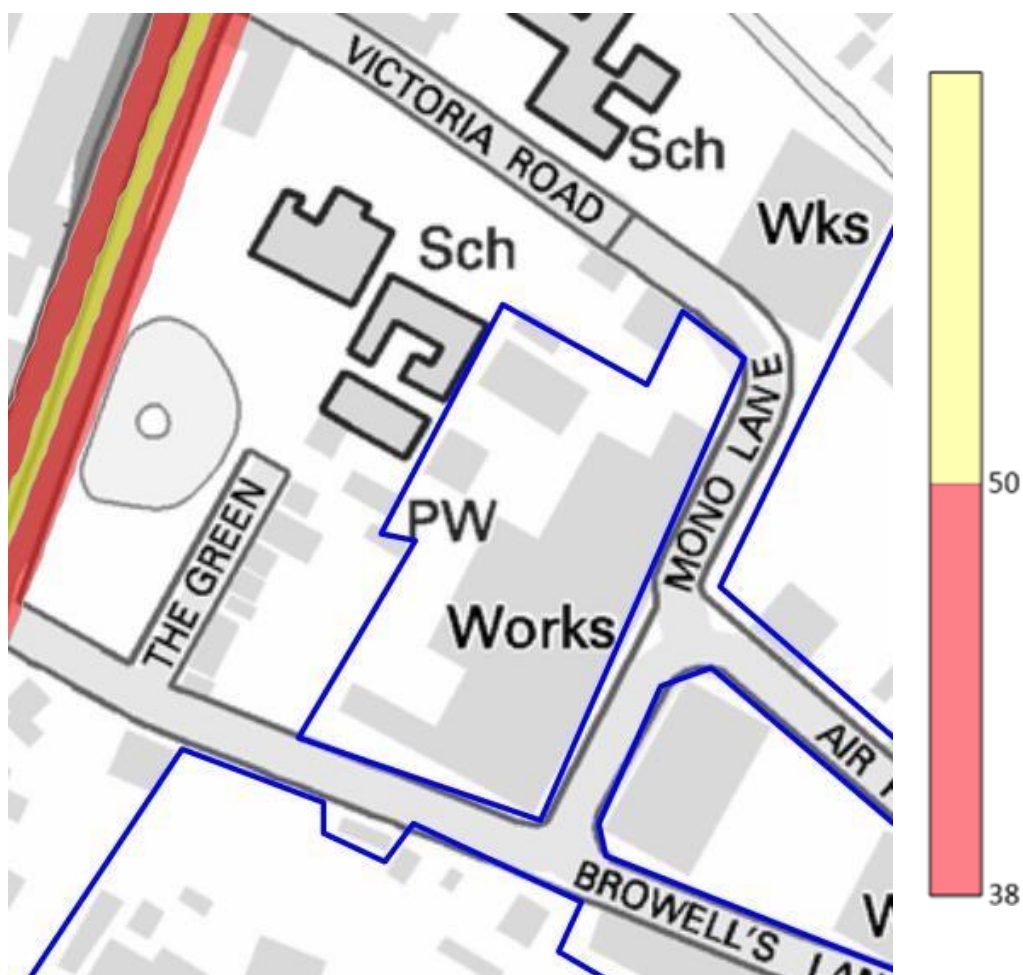


60 - Land at Air Park Way Business (B1a/b) and Residential (C3)

Proposal - Air Park way will be redeveloped to deliver new homes as part of the redevelopment of MOD Feltham.

The worst case expected concentration of NO₂ at the proposed site is expected to be 31.2 µg/m³. There are 180 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

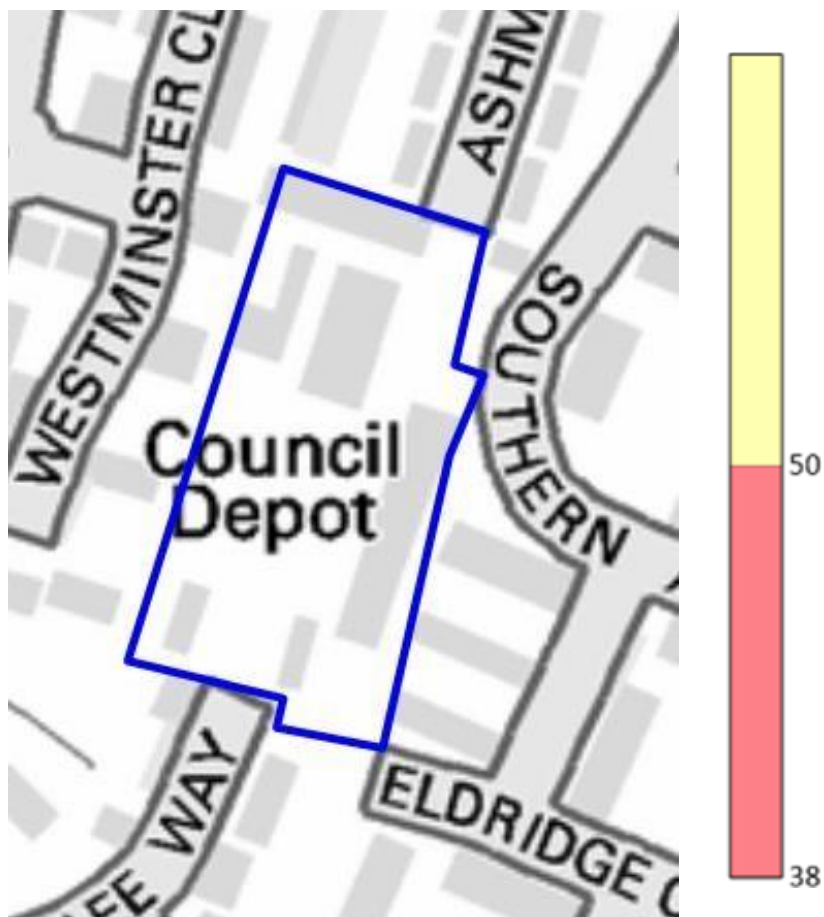


61 - Council Depot, Ashmead Road Residential (C3)

Proposal - Ashmead Depot will be redeveloped to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 30.4 µg/m³. There are 50 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



62 - Manor Park, Feltham Business (B1a/b) and Residential (C3)

Proposal - Manor Park will be redeveloped to intensify the use of the site to provide new retail units and homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 42.1 µg/m³. There is 80 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back around 25m from the north east corner of the site along high street or begin from the 4m high. There is no expected exceedance of the 50 µg/m³ as a result there is not expected to be an exceedance of the short-term air quality objective. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



63 - 80-86 High Street Feltham Business (B1a/b) and Residential (C3)

Proposal - The Aldi Site will be redeveloped to provide new retail floorspace and residential development.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.1 µg/m³. There are 200 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, a setback from High Street of 5m should be considered. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.

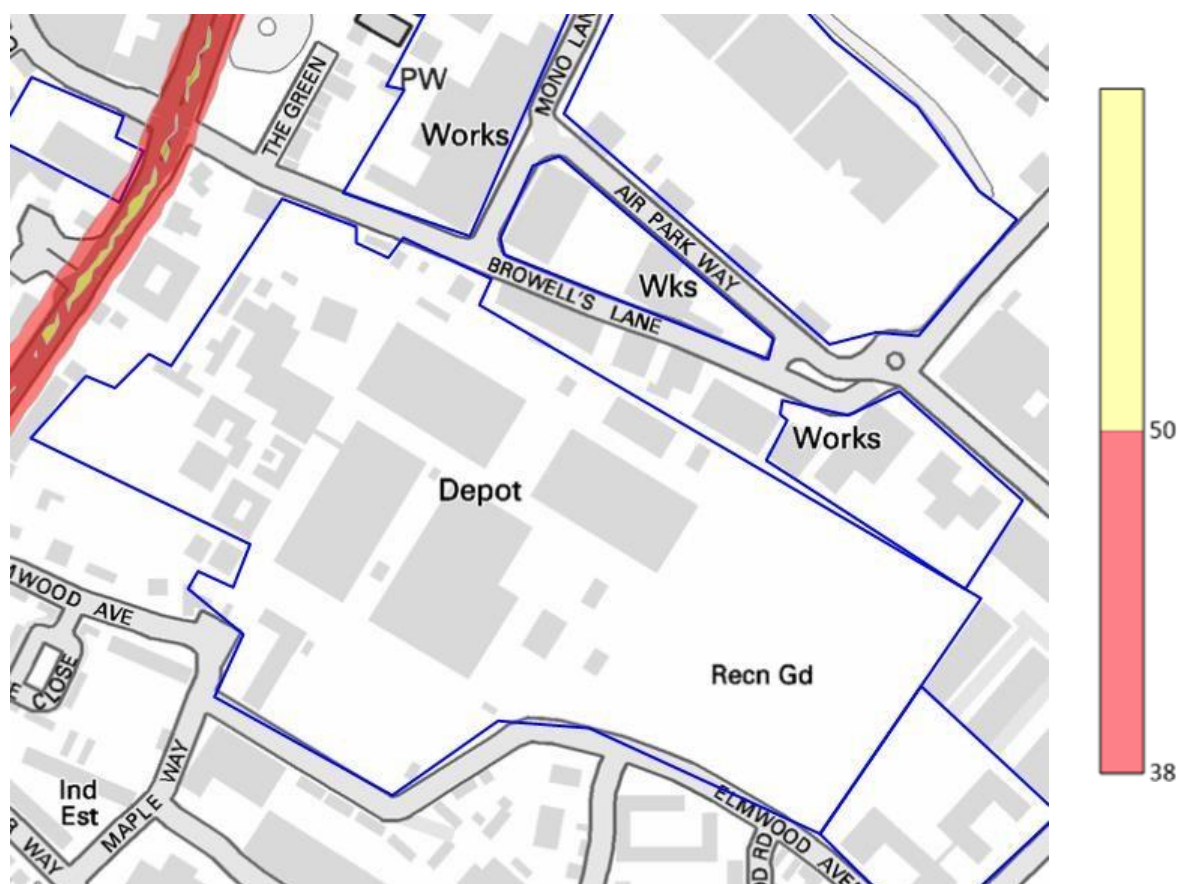


64 - MOD Feltham Residential (C3), Business (B1a/b), Open Space, Community Uses, and other Supporting Uses.

Proposal - MOD Feltham will be redeveloped into a major new residential area of Feltham, with a new school, public open space, and community uses.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 38.4 µg/m³. There are 1370 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back from south western corner of the site boundary near High Street around 5m. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.

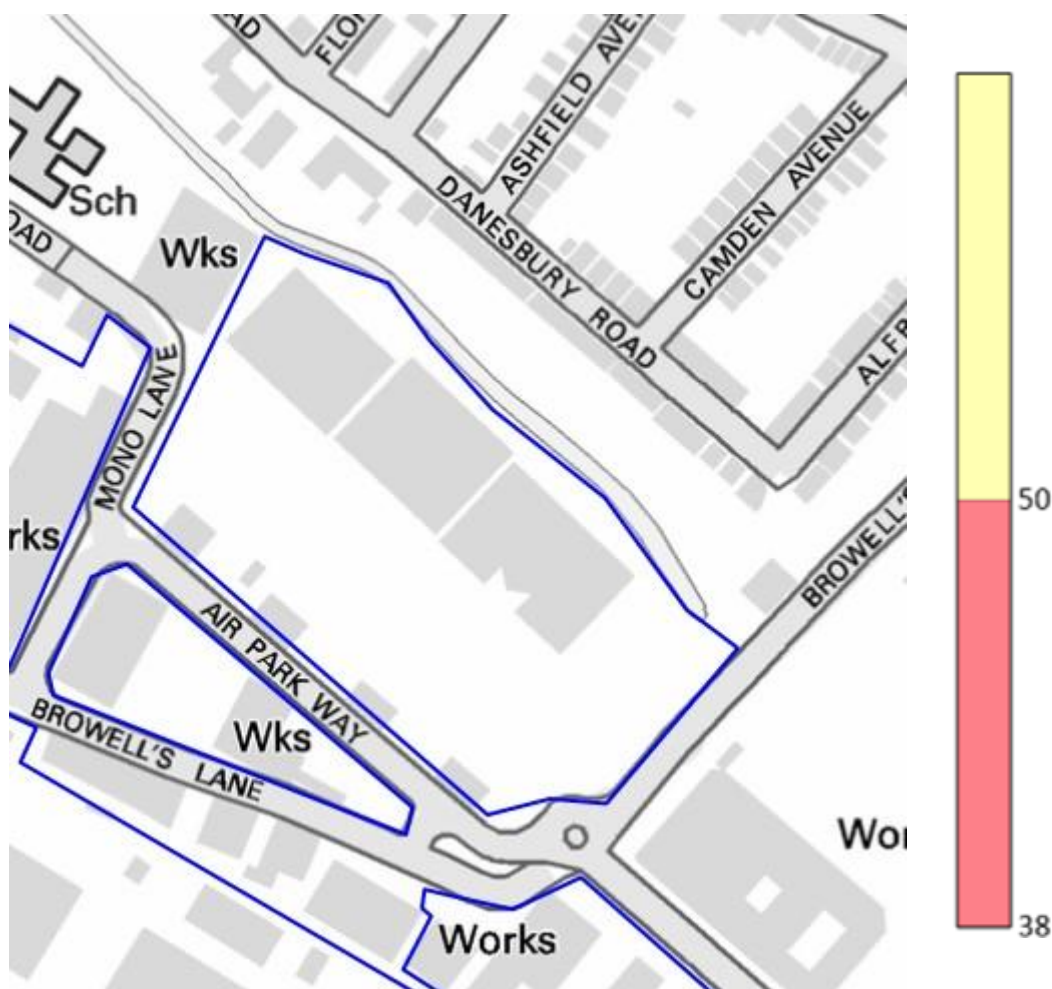


65 - Leisure West Residential (C3), Retail (A1-A4), Leisure (D1), Community Uses (D2) and Open Space.

Proposal - Leisure West will be redeveloped to introduce residential uses alongside new and improved leisure and entertainment facilities which support Feltham as a key town centre in West London.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.8 µg/m³. There are 480 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

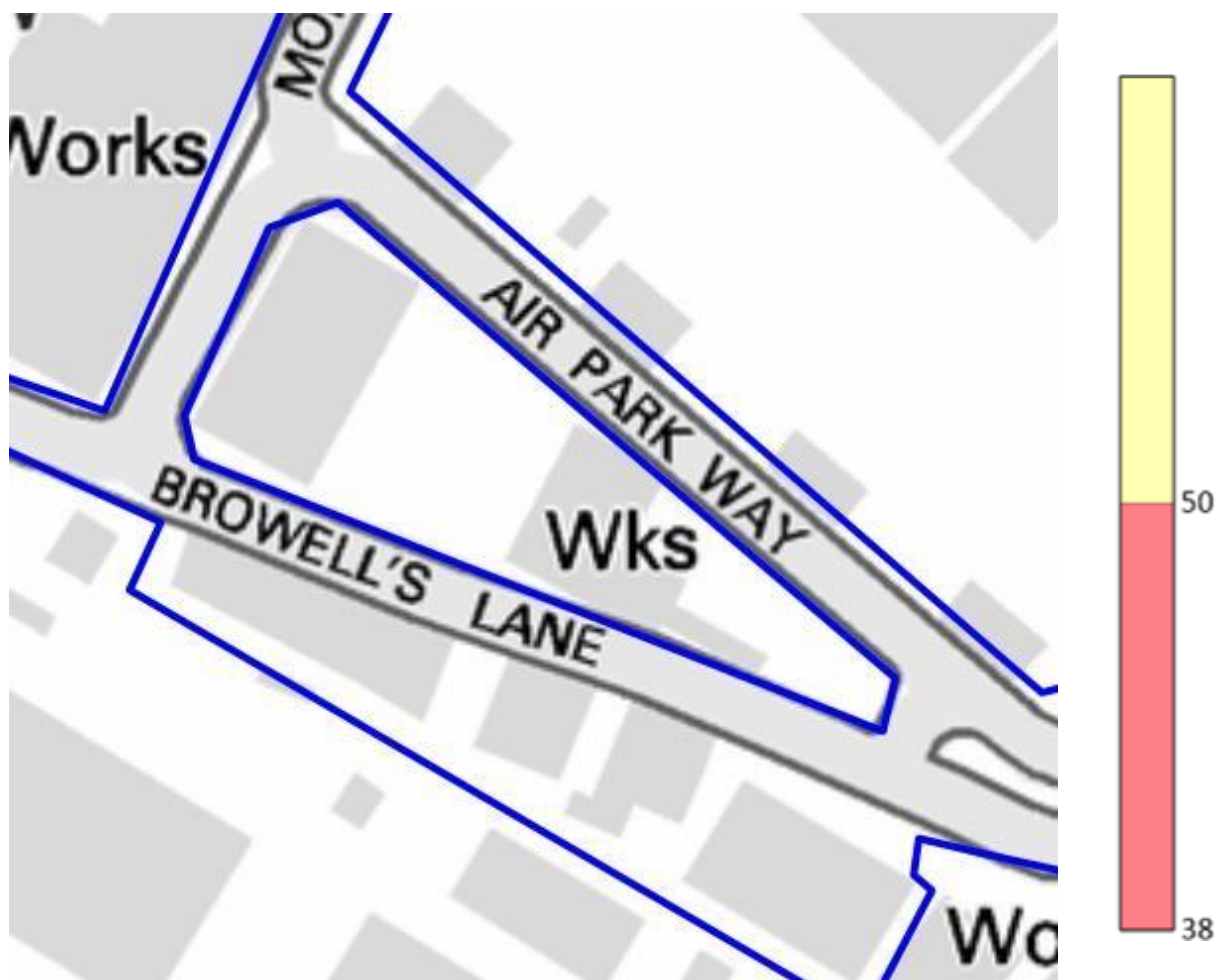


66 - Browells Lane Business (B1a/b), Light Industrial (B1c), Residential (C3).

Proposal - Land at Browells lane will be redeveloped to intensify business uses on the site and provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.8 µg/m³. There are 420 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation is likely to comply with the proposed policy.

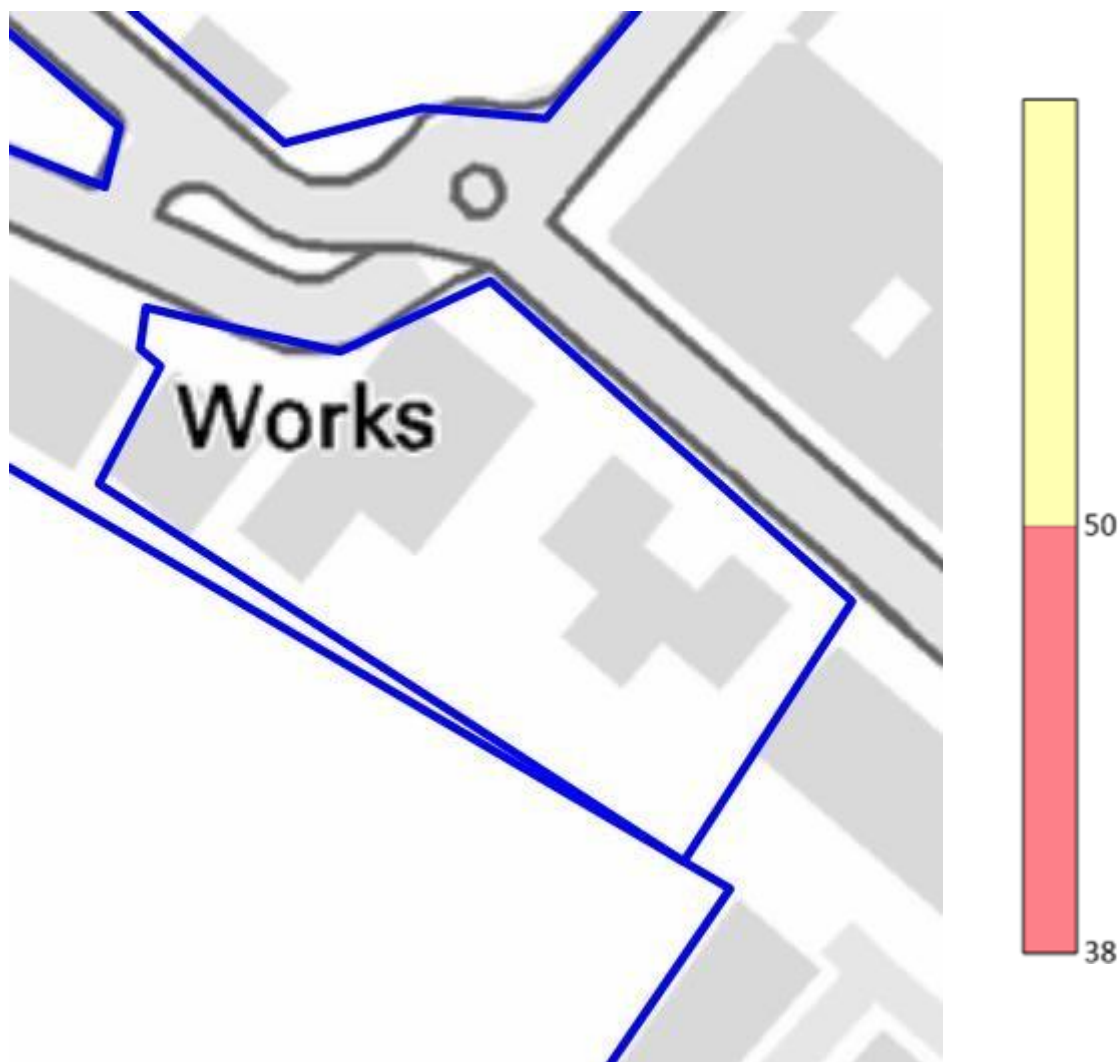


67 - UPS House Light Industrial (B1c), Industrial (B2/B8) and Residential (C3).

Proposal - UPS house will be redeveloped to intensify industrial uses and new homes as part of the redevelopment of MOD Feltham.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.8 µg/m³. There are 170 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

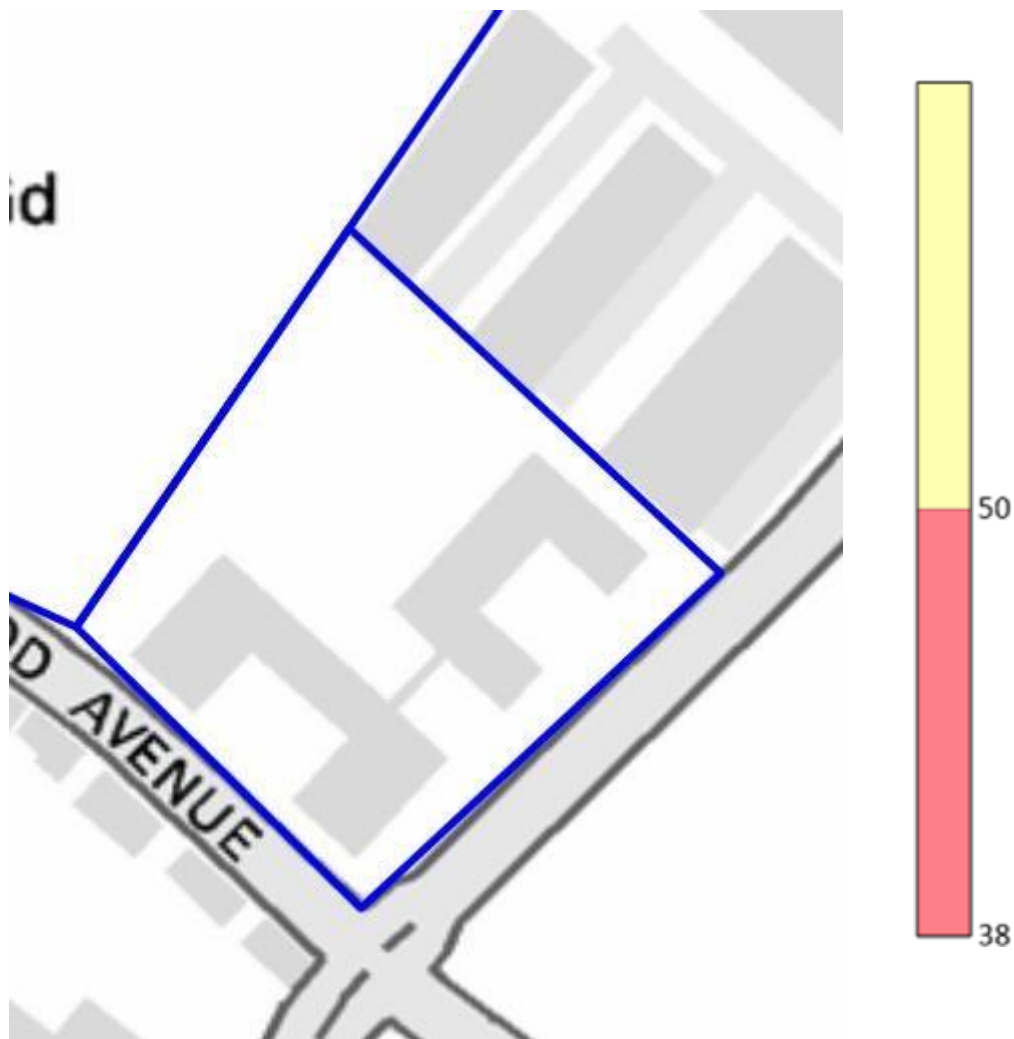


68 - Smith House, Elmwood Avenue Residential (C3)

Proposal - Smith House will be redeveloped to provide new homes and facilitate new public access to Hanworth Park as part of the redevelopment of MOD Feltham

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.6 µg/m³. There are 200 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



69 - Land at 2 High Street Feltham Retail (A1-A4), Residential (C3)

Proposal - Land at 2 High Street Feltham will be redeveloped to provide a new part of Feltham High Street, combining retail units at ground floor with residential development as part of the Station quarter.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 43.7 µg/m³. There are 90 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 50m from Hounslow Road A244.

- Any proposed residential units within 10m of Hounslow Road should begin from 7m.
- Any proposed residential units within 20m of Hounslow Road should begin from 7m.
- Any proposed residential units within 30m of Hounslow Road should begin from 4m.
- Any proposed residential units within 40m of Hounslow Road should begin from 4m.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.

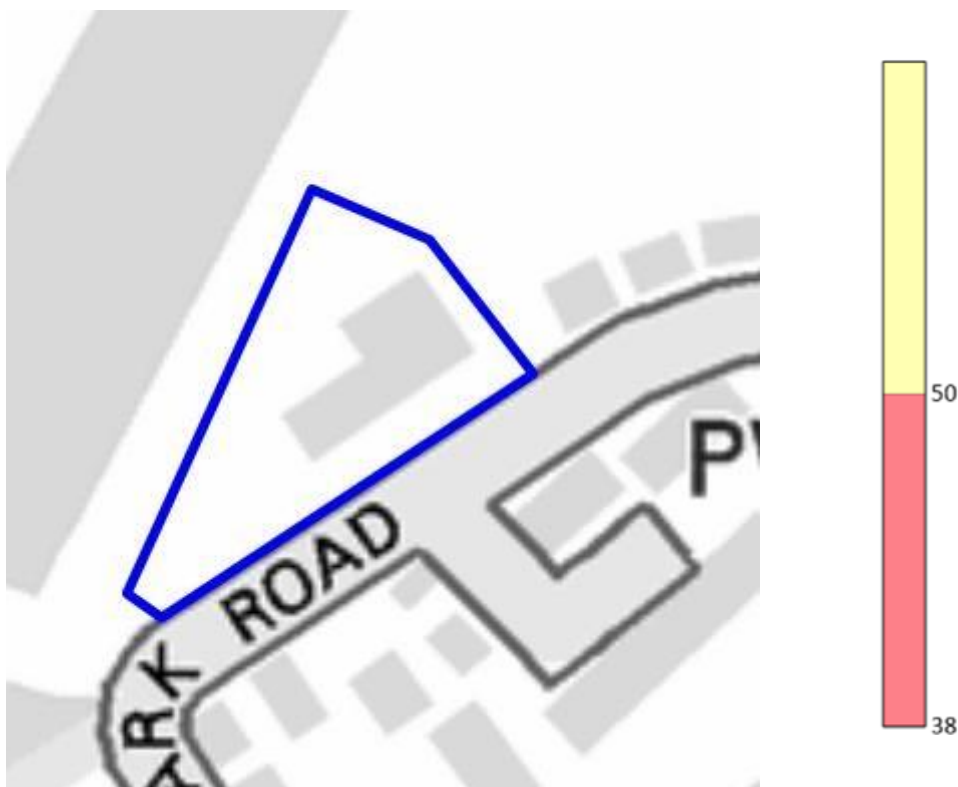


70 - Royal Naval Association Club Residential (C3)

Proposal - The Naval Club will be redeveloped to provide additional new homes and improved access to Hanworth Park.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 30.7 µg/m³. There are 20 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

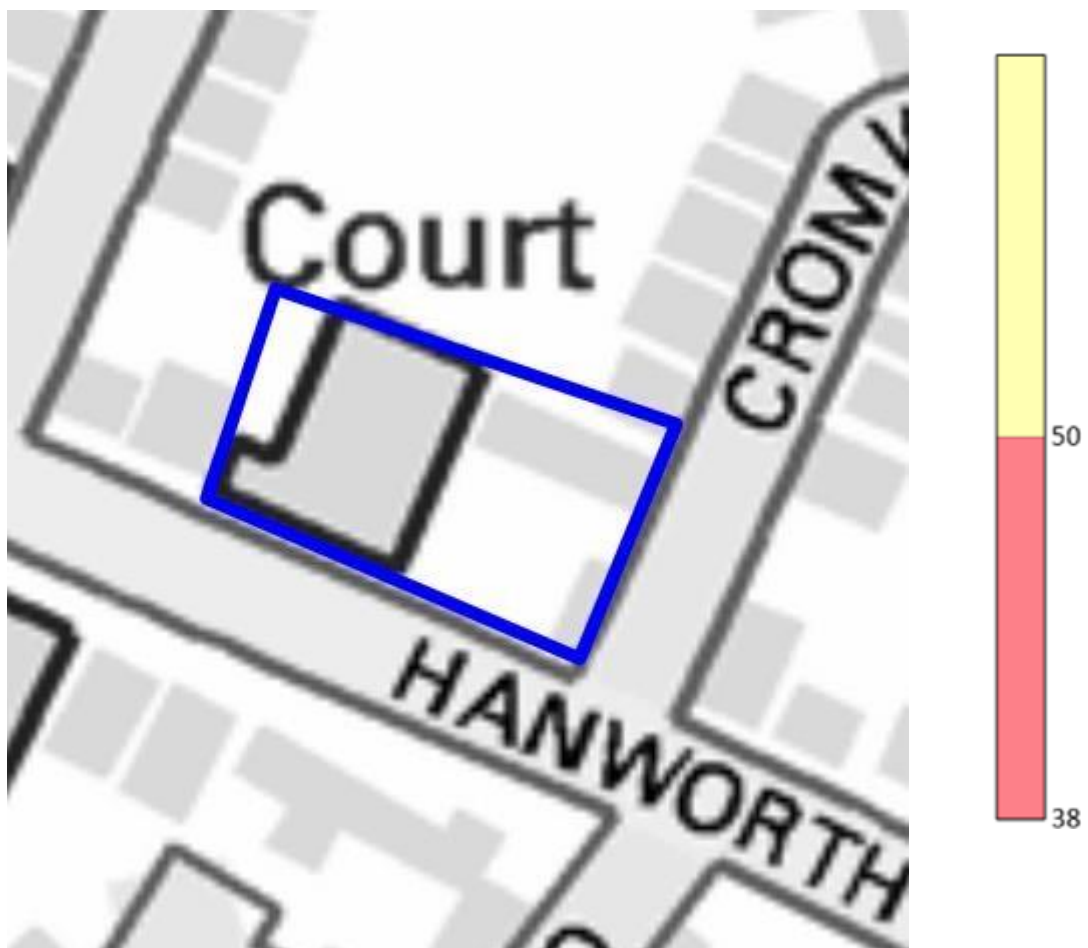


71 - Feltham Magistrates Court Residential (C3)

Proposal - Feltham Magistrates Court will be redeveloped to provide new homes and conserve this historic building.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.7 µg/m³. There are 20 residential units proposed with this scheme Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



72 - St. Catherine's House and Car Park Residential (C3)

Proposal - St Catherine's House will be redeveloped to provide a new, high quality residential development which incorporates the listed St Catherine's tower.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 46.6 µg/m³. There are 20 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, ground floor residential units should be set back 40m from High street.

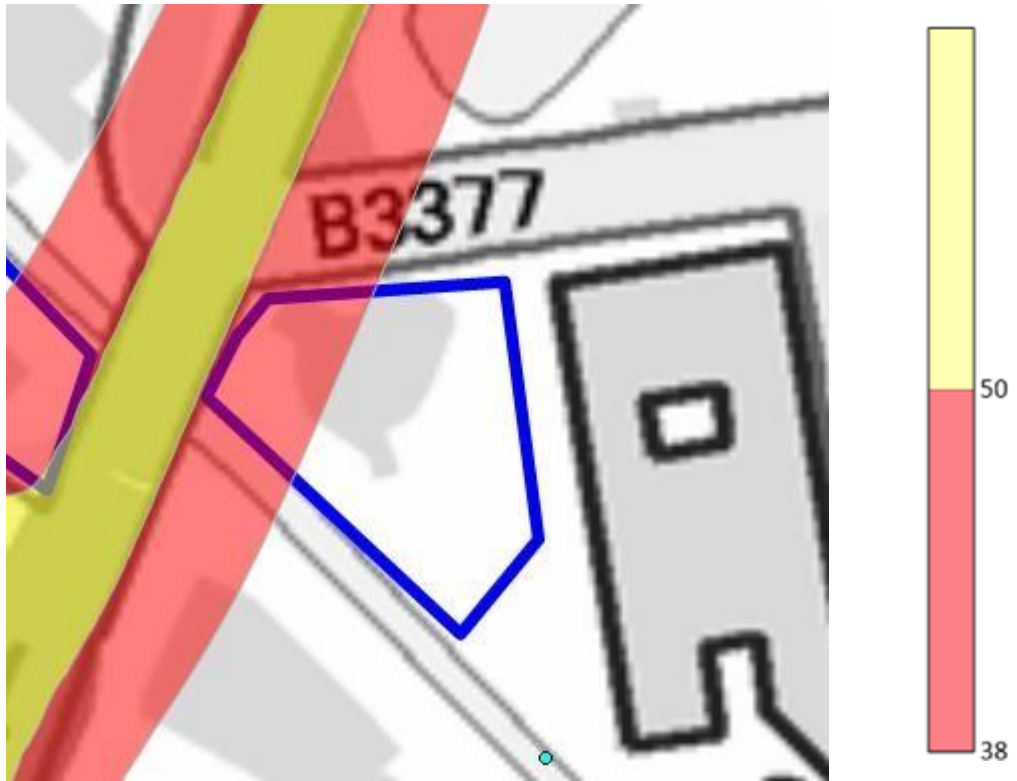
- Any proposed residential units within 10m of Hounslow Road should begin from 7m.
- Any proposed residential units within 20m of Hounslow Road should begin from 7m.
- Any proposed residential units within 30m of Hounslow Road should begin from 4m.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.

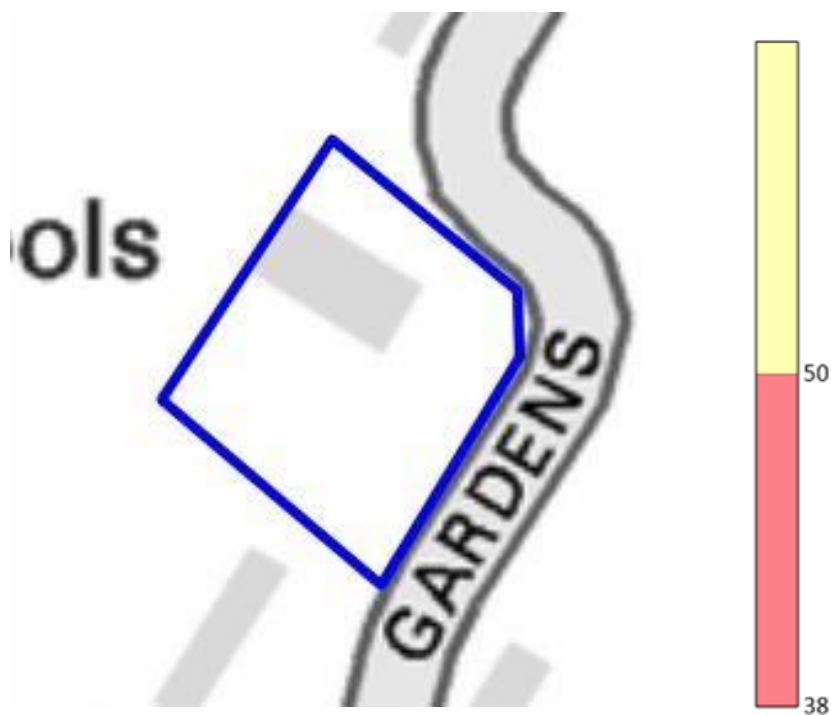


73 - Land at Nene Gardens Residential (C3) and Open Space

Proposal - Vacant Land at Nene Gardens will be redeveloped to provide new homes and open space.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.9 µg/m³. There are 40 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



74 - Hounslow West Station Retail (A1-A4), Residential (C3)

Proposal - Hounslow West station will be redeveloped to provide an improved station with retail and new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 43.2 µg/m³. There are 200 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 20m from the south east corner of the site boundary along Bath Road.

- Any proposed residential units within 10m of the South East corner of the site boundary along Bath Road should begin from 4m.
- Any proposed residential units within 20m of the South East corner of the site boundary along Bath Road should begin from 4m.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies.



75 - Land to the rear of HCC Sports and Social Club

Residential (C3)

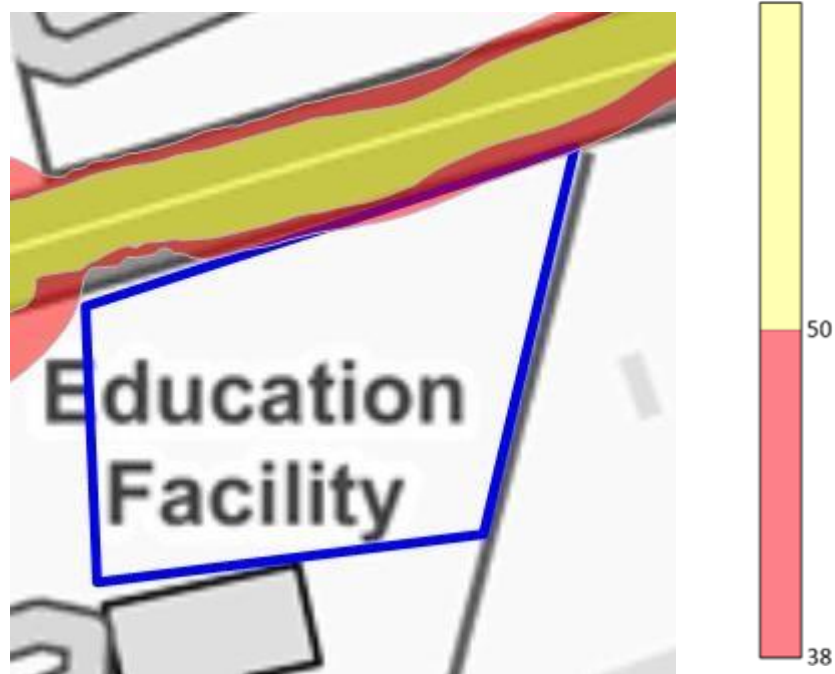
Proposal - Land at HCC will be redeveloped to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.8 µg/m³. There are 10 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units on the west boundary of the site should be set back 5m.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.



76 - Lampton House Residential (C3)

Proposal - Lampton house will be redeveloped to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 56.1 µg/m³. There are 90 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 30m from the north corner of the site.

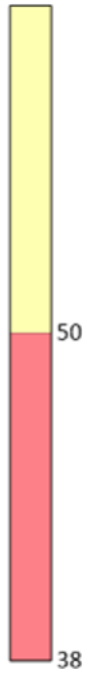
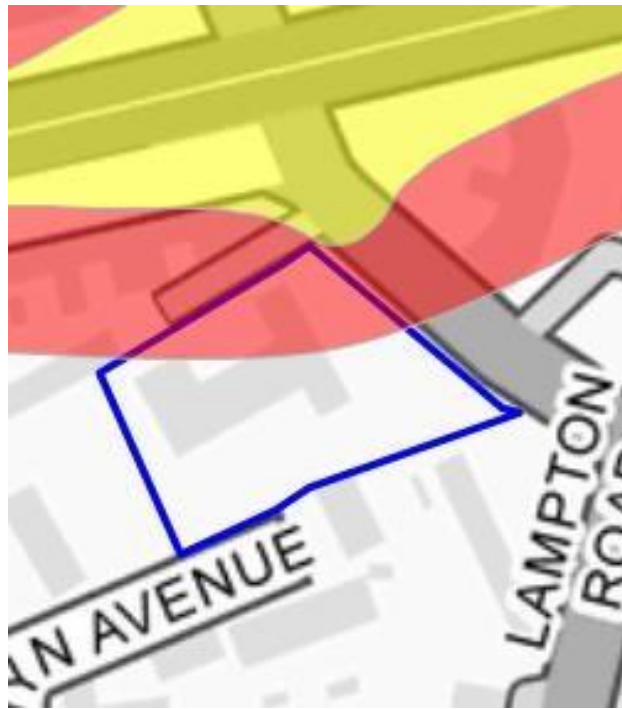
- Any proposed residential units within 10m of the North corner of the site boundary 10m.
- Any proposed residential units within 20m of the North corner of the site boundary 7m.
- Any proposed residential units within 30m of the North corner of the site boundary 4m.

There is potential for the exceedance of the 50 µg/m³ and, as a result, a setback of 5m from the north corner boundary of the site should be considered.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.



77 - Land South of Western International Market Minerals

Extraction

Proposal - Land South West of Western International Market will be utilised for mineral extraction, with redevelopment to industrial uses in the long term.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 90.4 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. As there is the potential to exceed the short term AQO as NO₂ concentrations are above 50 µg/m³ a setback of 50m is suggested along the M4 for any future non-residential uses.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

It is likely that the proposed site allocation will comply with the proposed policy if the above parameters are applied.

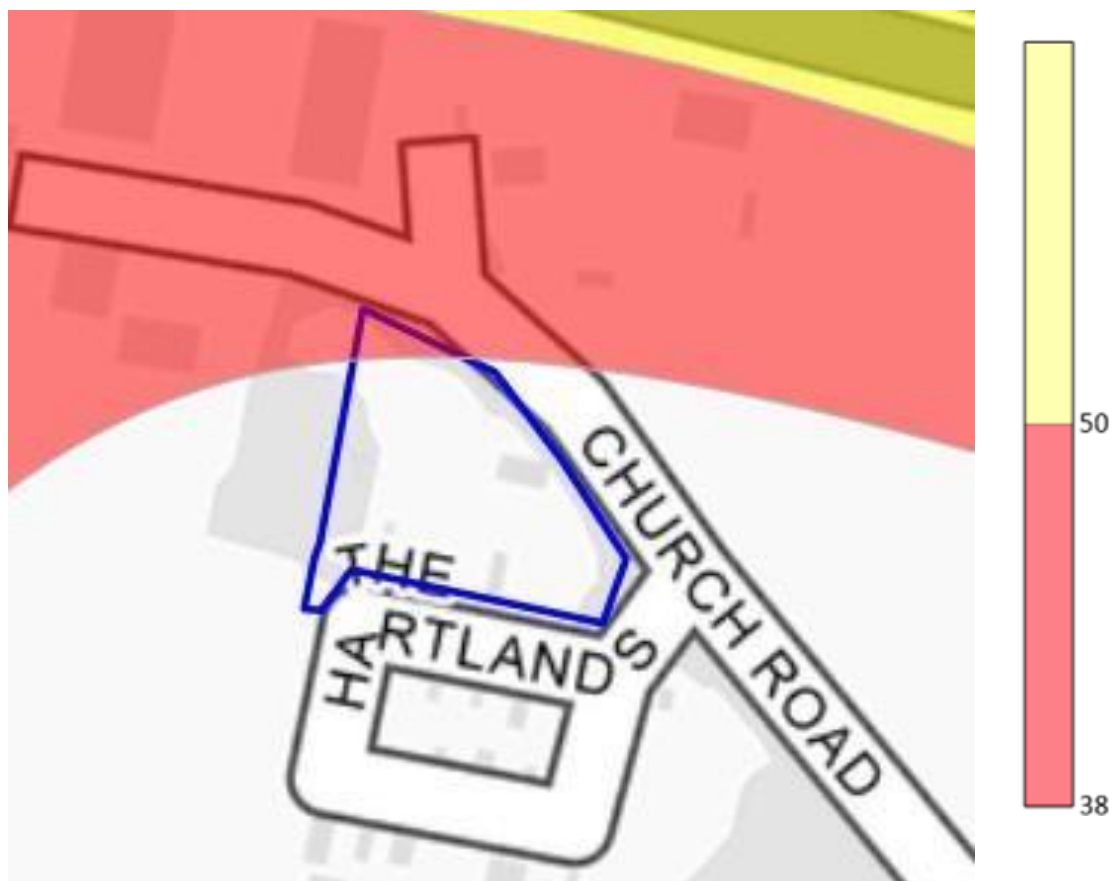


78 - Land at Hartlands Caravan Park Traveller Pitches

Proposal - Hartlands will be expanded to meet the needs of Gypsies and Travellers in Hounslow.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 32.8 µg/m³. There are 2.4 Ha of residential area proposed with this scheme. Residential properties associated with the scheme are not expected to be exposed to poor air quality above the air quality objectives. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

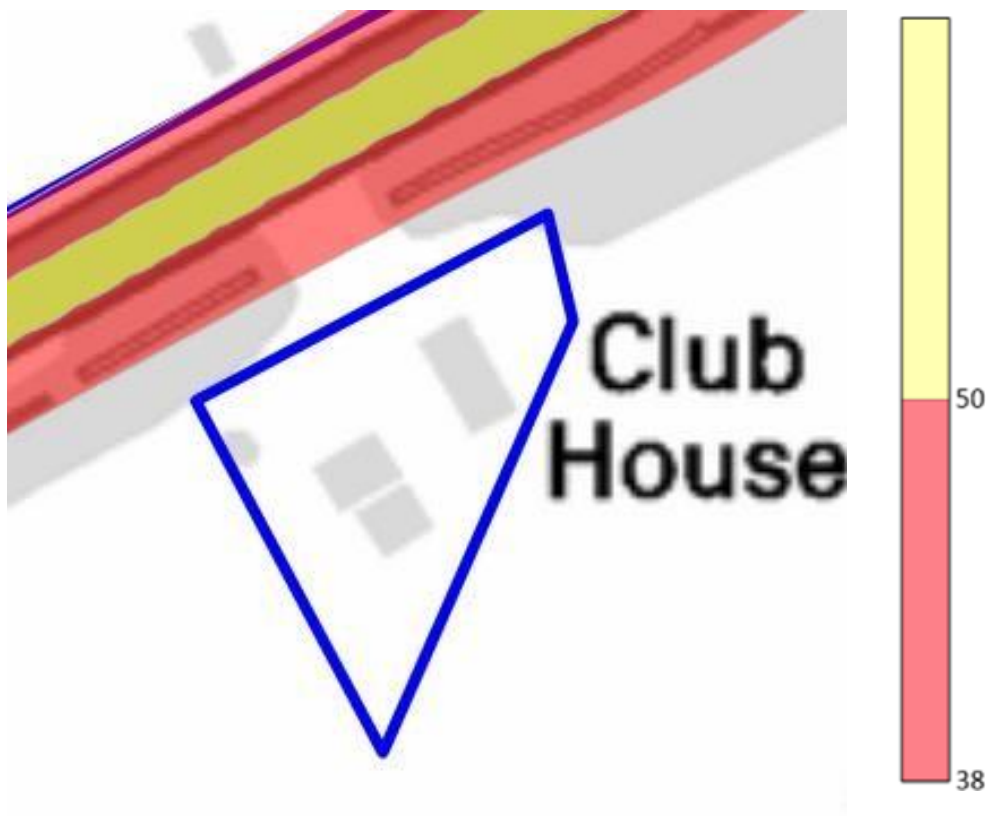
It is likely that the proposed site allocation will comply with the proposed policy.



79 - Baber Bridge Caravan Site Travelling Showpeople Yards

Proposal - Baber Bridge will be redeveloped and expanded to provide for the needs of the Travelling Showpeople in Hounslow.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 34.7 µg/m³. There are 0.8 Ha of residential area proposed with this scheme. Residential properties associated with the scheme are not expected to be exposed to poor air quality above the air quality objectives. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



80 - 34 Staines Road Retail (A1-A4), Residential (C3)

Proposal - 34 Staines Road will be redeveloped to provide a new, single large retail unit, with new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 48.6 µg/m³. There are 120 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, ground floor residential units should be set back 60m from the north east corner of the site boundary along Staines Road.

- Any proposed residential units within 10m of the north east corner of the site boundary along Staines Road should begin from 7m.
- Any proposed residential units within 20 of the north east corner of the site boundary along Staines Road should begin from 7m.
- Any proposed residential units within 30m of the north east corner of the site boundary along Staines Road should begin from 7m.
- Any proposed residential units within 40m of the north east corner of the site boundary along Staines Road should begin from 7m.
- Any proposed residential units within 50 of the north east corner of the site boundary along Staines Road should begin from 4m.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



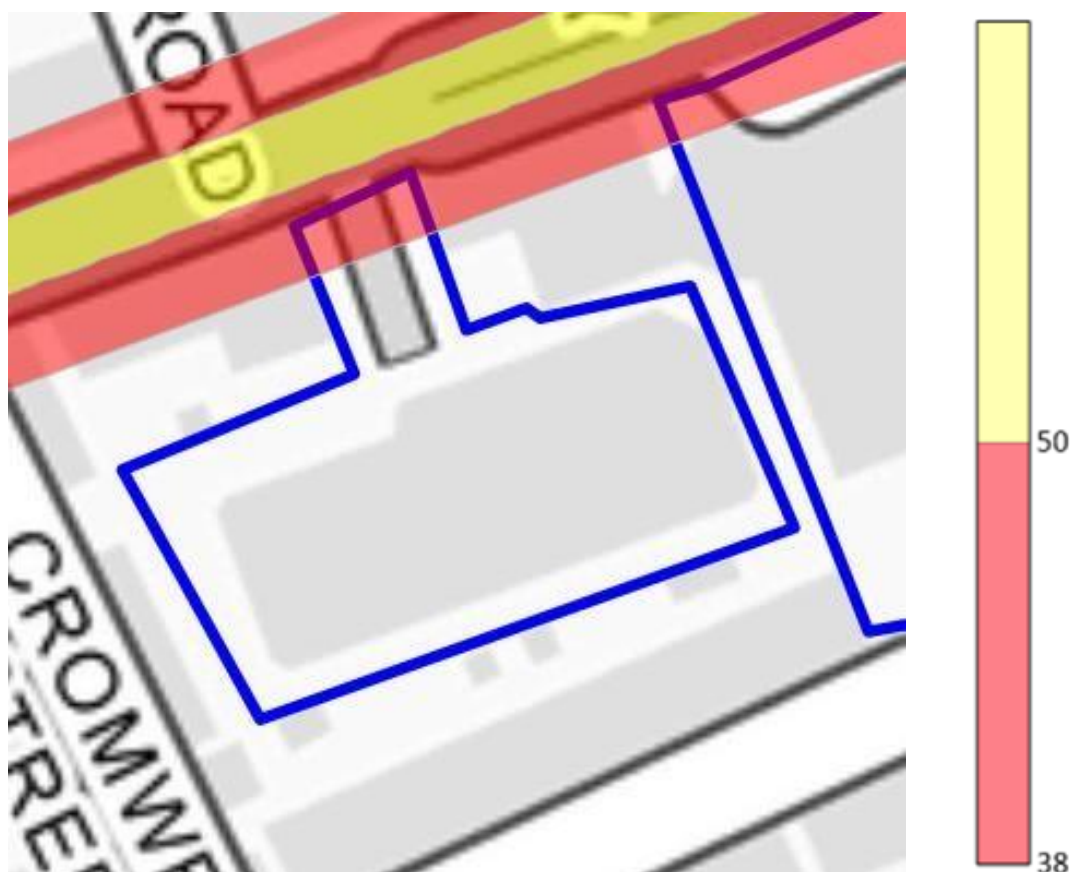
81 - 80-82 Staines Road Residential (C3)

Proposal - 80-82 Staines road will be redeveloped to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be 34.0 µg/m³. There are 50 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



82 - 206-210 Hanworth Road Residential (C3)

Proposal - 206-210 Hanworth road will be redeveloped to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 39.3 µg/m³. There are 80 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 30m from the south west corner of the proposed site boundary along Hanworth road.

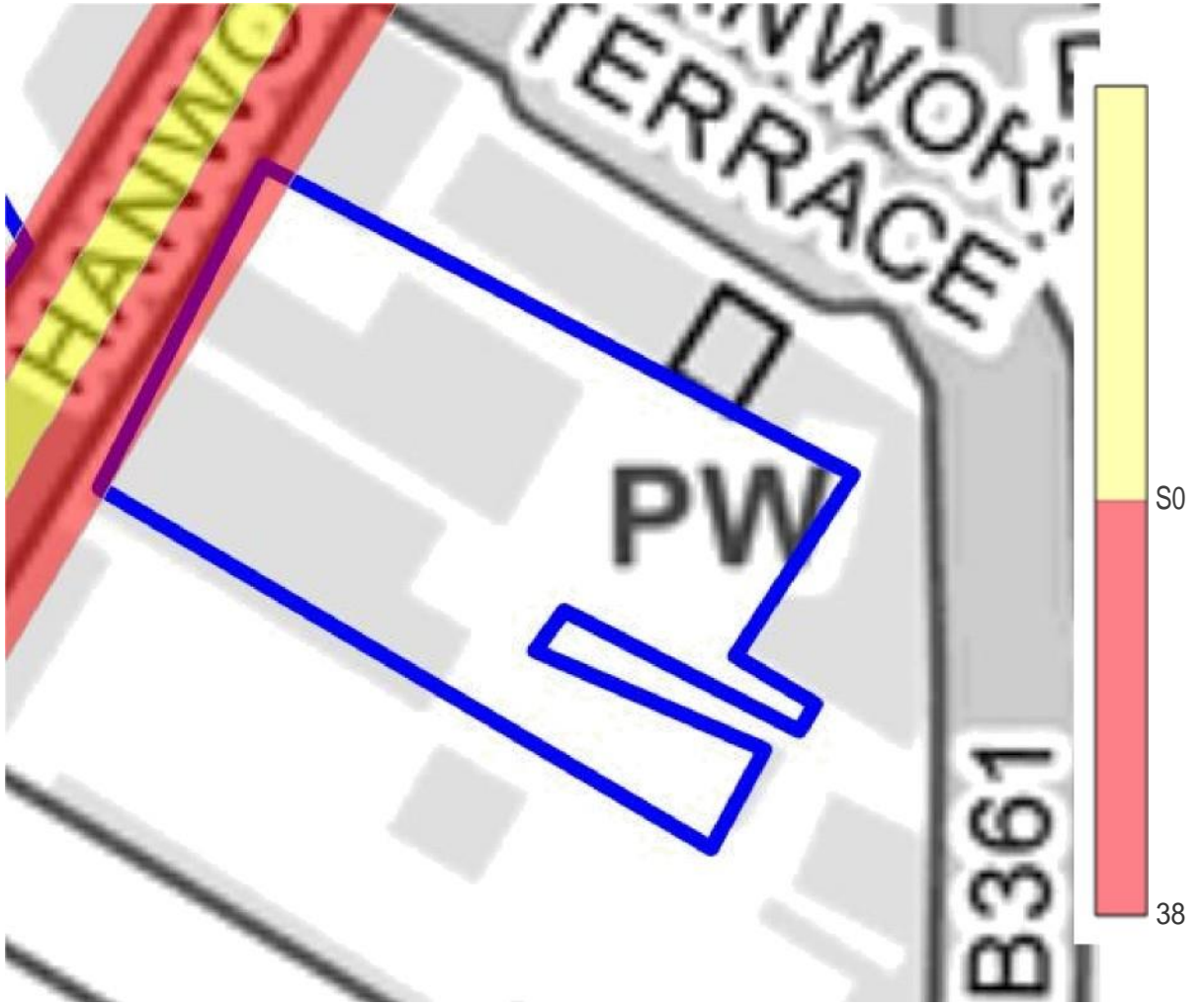
- Proposed residential units within 10m of the south west corner of the proposed site boundary along Hanworth road should begin from 4m high
- Proposed residential units within 20m of the south west corner of the proposed site boundary along Hanworth road should begin from 4m high

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



83 - Vacant Land Clarence Terrace Residential (C3) and Business (B1a/b).

Proposal - Vacant Land at Clarence Terrace will be redeveloped to provide business floorspace and to provide new homes.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 32.9 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³, and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



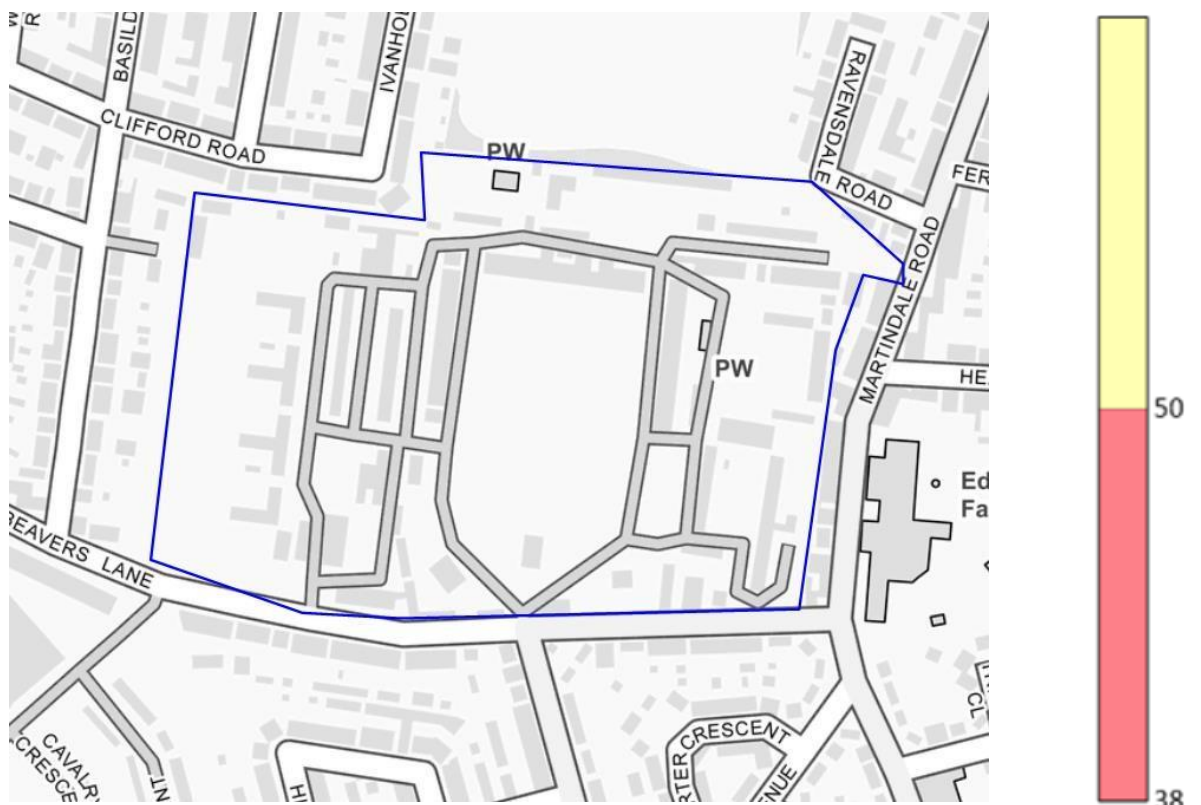
83 - Vacant Land Clarence Terrace Residential (C3) and Business (B1a/b).

84 - Hounslow Cavalry Barracks Residential (C3), Retail (A1-A4, Business (B1a/b), Community (D1), Leisure (D2) and Open Space.

Proposal - Hounslow Cavalry Barracks will be redeveloped to provide a new residential area which protects and enhances the historic buildings and introduces a range of new uses to the site to support new homes.

The worst cast expected concentration of NO₂ at the proposed site is expected to be, 33.4 µg/m³. There are 1000 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

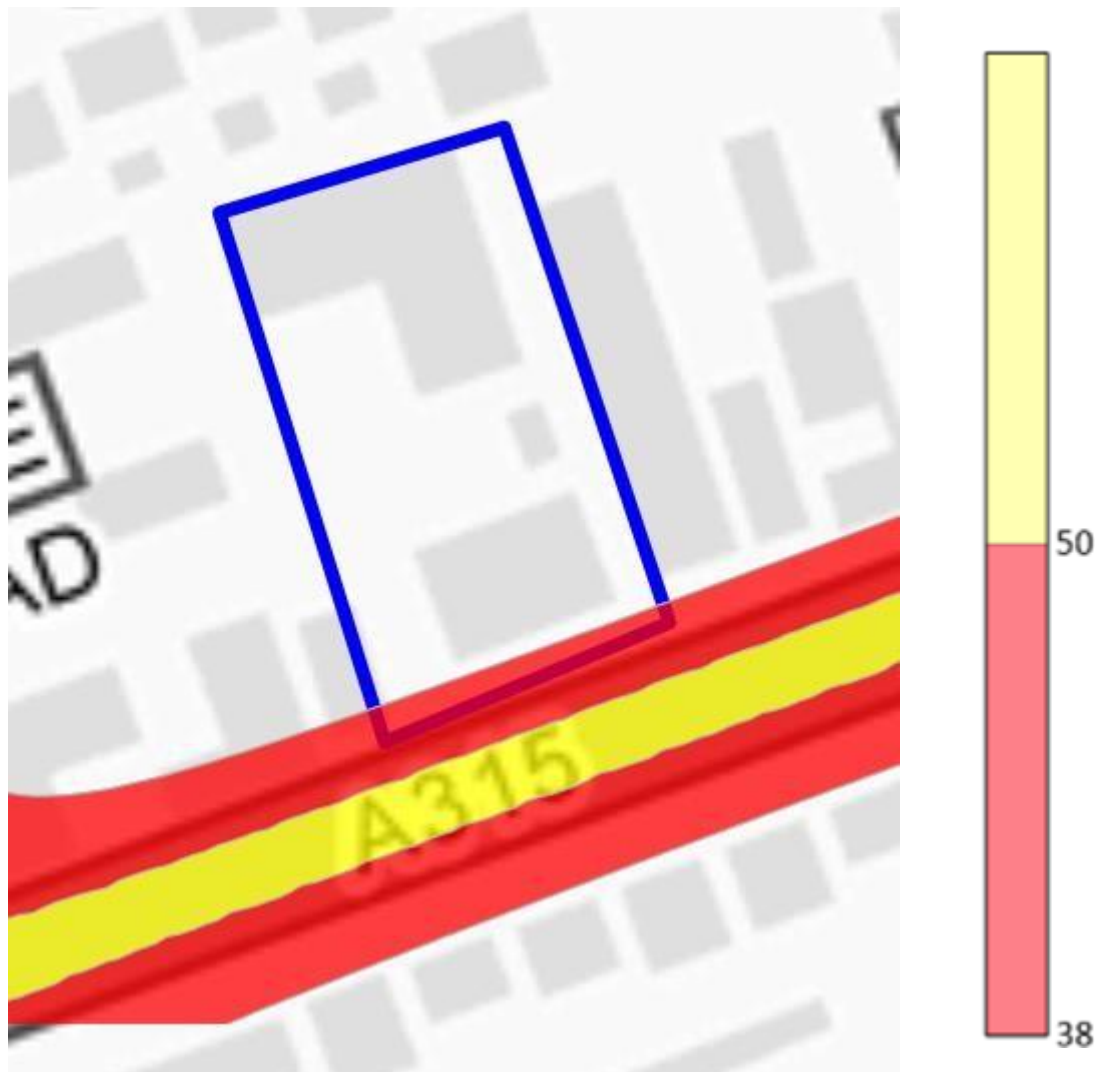


85 - Builders Yard, 379-389 Staines Road Residential (C3) with Business (B1a/b).

Proposal - 379-389 Staines Road will be redeveloped to provide existing business floorspace and introduce new homes which integrate with the surrounding area.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 36.7 µg/m³. There are 20 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

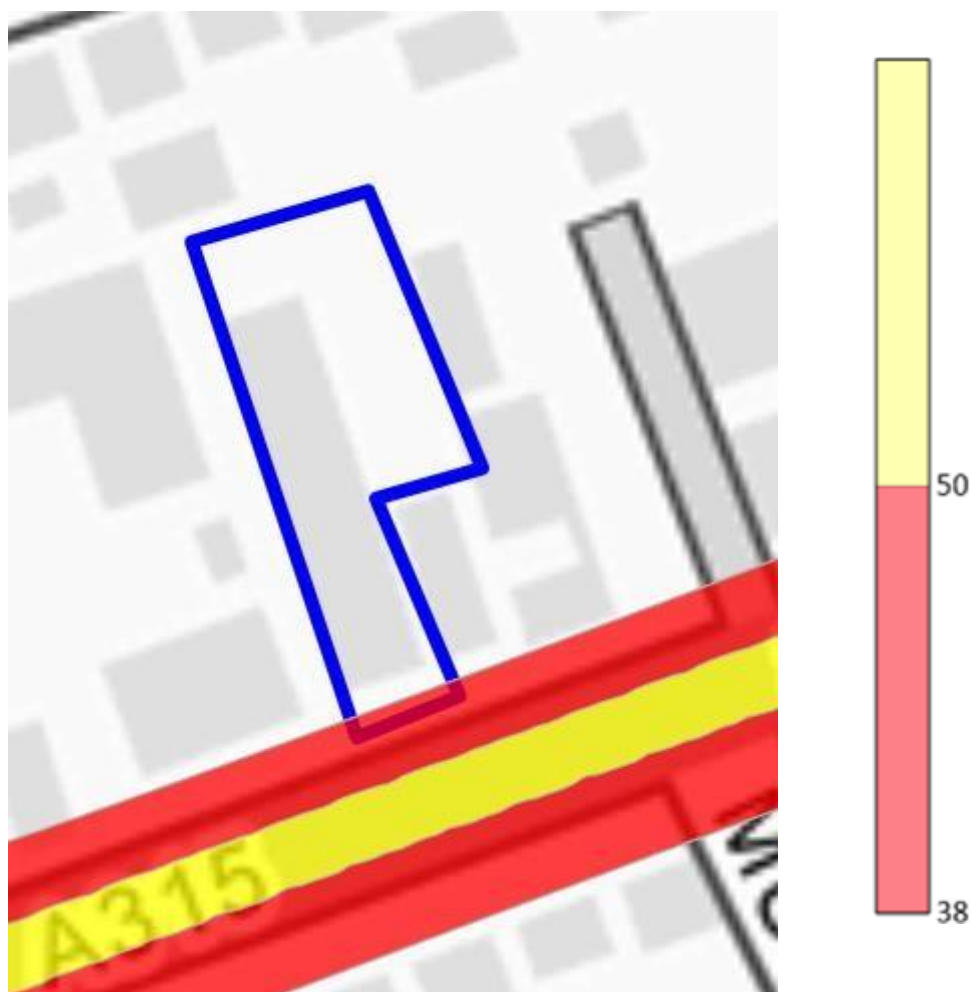


86 - Former Travis Perkins Staines Road Residential (C3) with Business (B1a/b).

Proposal - The former Travis Perkins site on Staines Road will be redeveloped to provide existing business floorspace and introduce new homes which integrate with the surrounding area.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.1 µg/m³. There are 10 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



87 - Euro House, Hounslow Residential (C3) with retail.

Proposal - The site is bounded by Prince Regent Road and the Kingsley Academy site opposite to the north, residential dwellings on Prince Regent Road and Cecil Road to the north-east, a mixed use residential and commercial block on High Street to the east, Hounslow High Street to the south and Laurence Road to the west. The site is accessed via High Street and Price Regent Road. The character is typical of an urban centre with surrounding taller buildings with commercial frontages at street level, however the area to the north of the site gives way to a more open, atypical character (Kingsley Academy)

The site is within the Hounslow Town Centre boundary, designated as secondary frontage.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 43.1 µg/m³. There are 80 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 10m from Hanworth Road.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



2.1 Designated Site Considerations RoB

The following designated sites have been considered with respect to air quality affecting residential, commercial and industrial development sites within the Rest of Borough.

Design phase mitigation is the preferred choice to mitigate air quality impacts, this includes the use of; setbacks of height and distance, use of non-sensitive uses to screen or buffer sensitive uses and the use of greenery to act as a buffer through green walls or landscaping. Where design phase measures are not a viable option, mechanical ventilation should be utilised but only as a last resort as this is not considered to constitute high quality design mitigation.

All setbacks from roads will be given in metres and measurements have been taken from the kerbside of the associated roads. Setbacks of height have all been given from ground floor. Sites adjacent to railways have been considered within the backgrounds of the modelled assessment

88 - Land at Bridge Road Depot Residential (C3)

Proposal - The site is bounded by residential development to the east, north and west, and the railway line to the south. The site is not designated. A SINC is adjacent to the site to the south.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.6 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

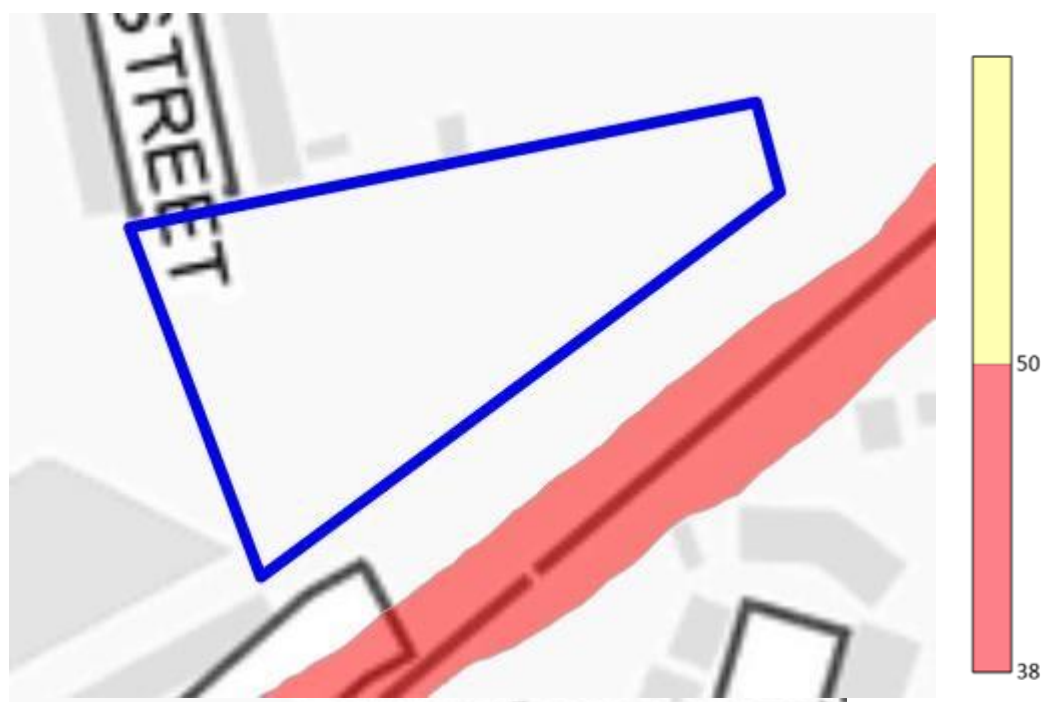


89 - Land at James Street Residential (C3)

Proposal - The site is bounded to the north and east by residential development, and by a railway line to the south. The site is not designated. A SINC is adjacent to the site to the south.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 28.6 µg/m³. There are 70 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



90 - Inwood Business Park Residential (C3) with Industrial (B2/B8) and Light Industrial (B1c)

Proposal - The site is bounded by Hounslow railway station and rail lines to the south, residential terraces along Ivy Road and Whitton Road to the west. The site is accessed from Whitton Road. The surrounding area is predominantly low rise residential. Part of the site is taken up by parking used by Hounslow Station. The site may need to be de-contaminated given previous use of the site (former rail yard).

The worst case expected concentration of NO₂ at the proposed site is expected to be, 28.6 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



91 - Hounslow Bus Garage

Bus Garage (B2/B8) with ancillary residential (C3), retail, business (B1a/b) and open space.

Proposal - The site is located adjacent to Kinglsey Road and London Road, on the edge of Hounslow town centre. The site is surrounded to the west, north and east by residential development (including new development to the east) and has a bus interchange on the south end of the site.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.0 µg/m³. There are 720 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

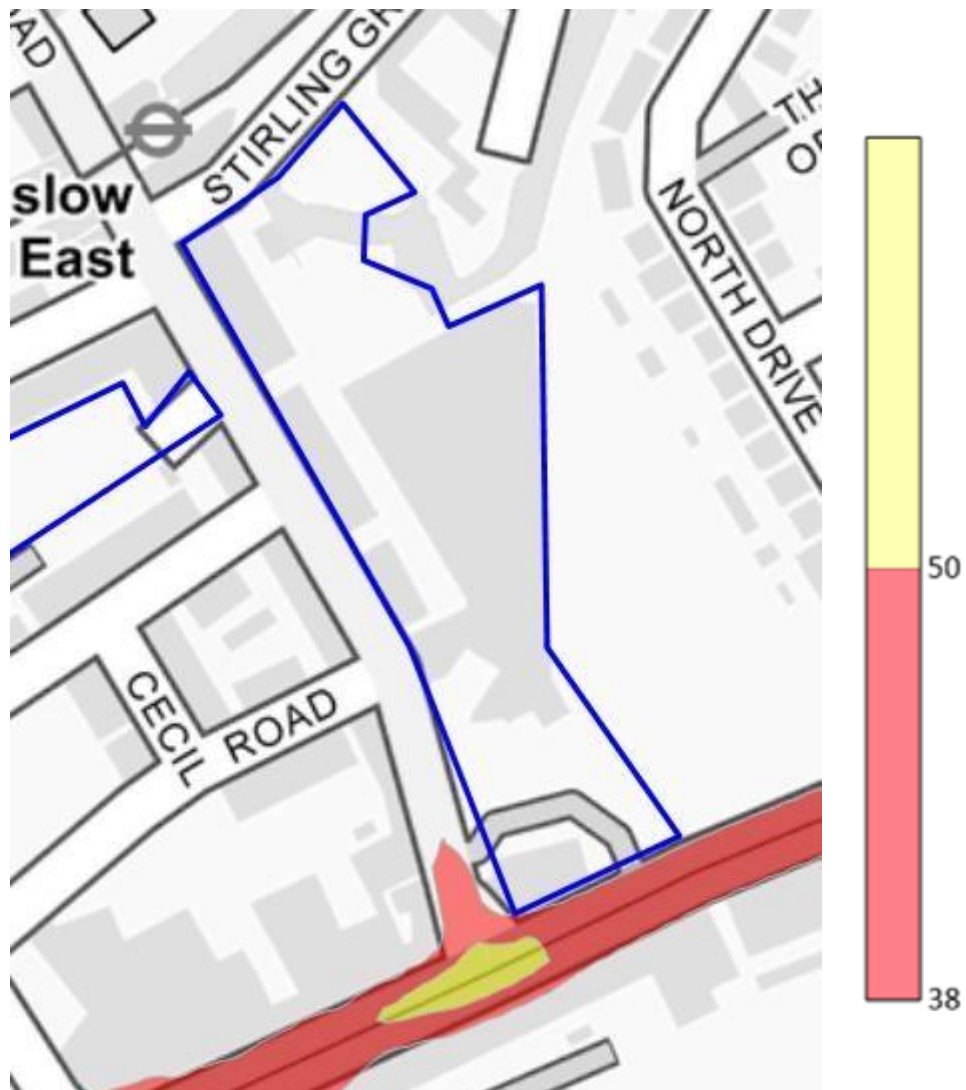


92 – Upstage Residential (C3) and Business (B1a/b).

Proposal - The site is located to the rear of residential properties along Spring Grove Road and Kingsley Road to the north and east, Brookwood Road to the south, Highlands Close to the west and Lainlock Place to the north. The site's sole point of access is from Lainlock Place. The surrounding context is predominantly low rise residential, with some mid rise residential to the south (Brookwood Road). Site falls within London Heathrow Airport 63dB LAeq noise contour.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.0 µg/m³. There are 720 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.

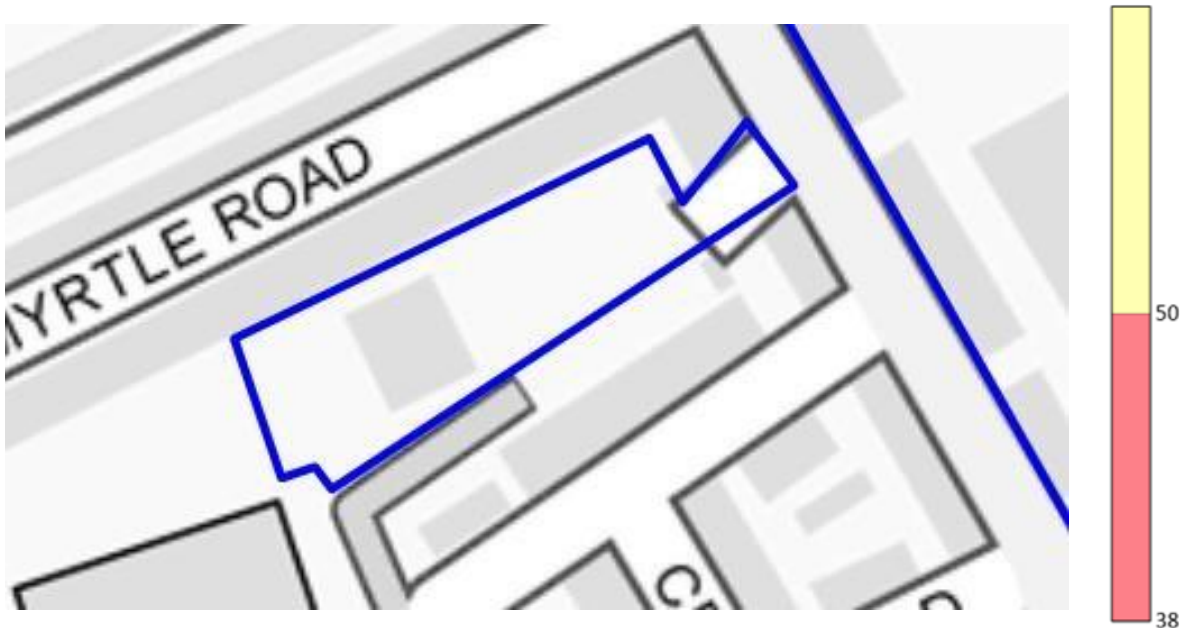


93 – Land at Kingsley Road Community Uses (D1) and Residential (C3).

Proposal - The site is bounded by residential terraces on Myrtle Road to the north, residential and commercial uses along Kingsley Road to the east, residential terraces along Cecil Road to the south and Kingsley Academy to the west. The site is accessed from Kingsley Road. The context is predominantly low rise residential and commercial with the new Kingsley Academy rising to 5 storeys to the west of the site.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 31.6 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



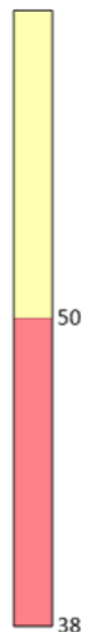
94– Vacant Land R/O Princes Avenue, Gunnersbury

Residential (C3)

Proposal - The site consists of a triangular plot of land to the rear of residential terraces along Princes Avenue to the south and west and The Ridgeway to the north, surrounded by residential garages and gardens serving these properties on two sides. The site adjoins a TfL site (Acton Works and Engineering Training Centre) and railway lines (District and Piccadilly Lines) to the east. The site is accessed by Princes Way which leads out to Princes Avenue to the south. The site is within the Gunnersbury Park conservation area and associated Article 4 direction area. There is Local Open Space to the south-west (Gunnersbury Triangle Sports & Social Club). There is a Locally Designated SINC to the south-east of the site (Hounslow Loop Railsides). There is a Locally Significant Employment Space to the south-east (Bollo Lane Industrial Estate).

The worst case expected concentration of NO₂ at the proposed site is expected to be, 29.4 µg/m³. There are 18 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



95– Tesco Mogden Lane Large Format Retail (A1) and Residential (C3)

Proposal - The site is bounded by Mogden Lane to the north, Summerwood Road to the east, residential uses along Varsity Drive to the south and a petrol station on Rugby Road to the west. The site is accessed from an access road off the roundabout to the west and Mogden Lane. The site's surroundings are mixed in character: low to medium rise residential to the south, medium to high rise residential blocks to the east, low rise residential and commercial to the north-east and open land to the north. The site adjoins a SINC and Local Open Space to the north (Mogden Sewage Works). A small part of the site is located in Flood Zone 2 (western corner).

The worst case expected concentration of NO₂ at the proposed site is expected to be, 52.04 µg/m³. There are 340 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 25m from the north west corner of the proposed site boundary at the Tesco Roundabout and 10m set back from Mogden Lane.

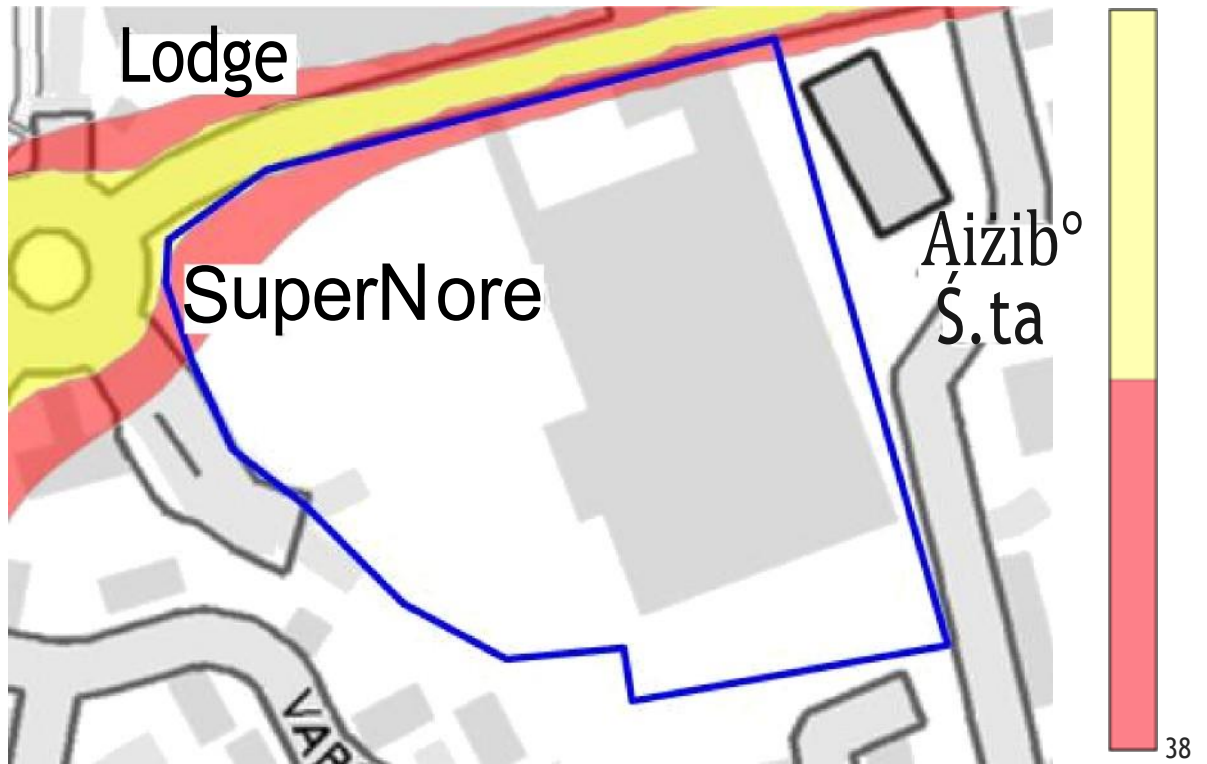
- Proposed residential units within 10m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 7m high. With 10m of Mogden Lane, residential units should begin from 4m high
- Proposed residential units within 20m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 4m high.
- Proposed residential units within 25m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 4m high.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is potential for the exceedance of 50 µg/m³ and, as a result, there is expected to be an exceedance of the short-term air quality objective. A setback of 5m from north west corner of the proposed site boundary at the Tesco Roundabout should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



96– Europa House Large Format Retail (A1) and Residential (C3)

Proposal - The site is bounded by residential uses on Church Street to the north, the River Thames to the east, offices along Church Street to the south and west . The site is accessed via Church Street. The site is within the Isleworth Riverside Conservation Area and there are a number of Listed Buildings in close proximity. The site is within a Archaeological Priority Area (Isleworth, Syon Park and Brentford). The site is within Flood Zones 3a and 3b (area benefitting from flood defences). Flood design constraints set out in Sequential Test. Site falls within London Heathrow Airport 57dB LAeq noise contour

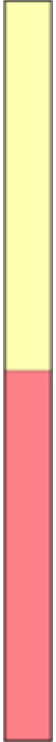
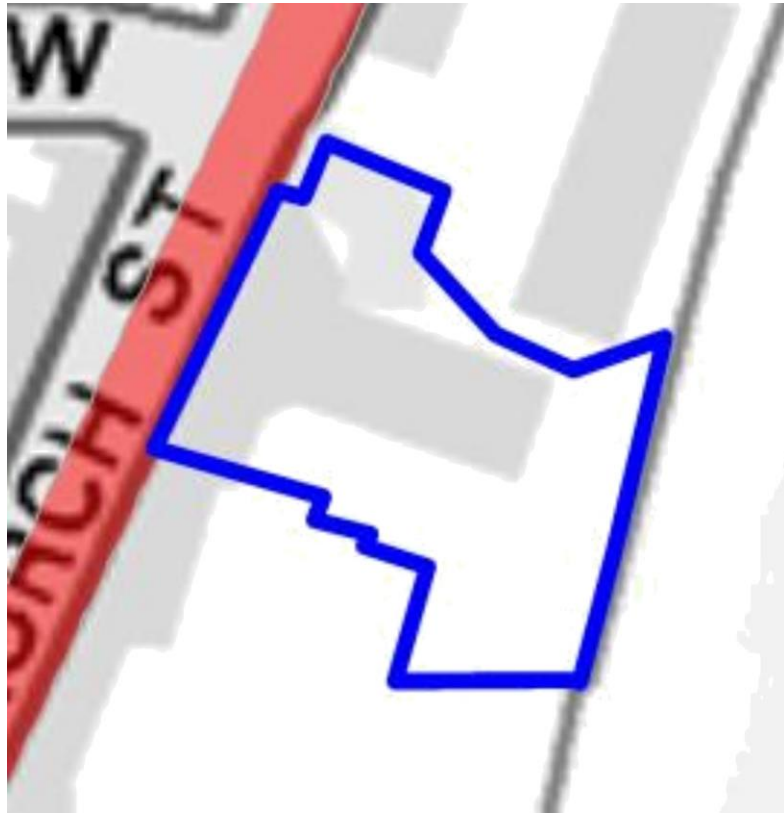
The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.7 µg/m³. There are 20 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Church Street.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



38

97 - 30 Rugby Road Light Industrial (B1c) and Industrial Use (B2/B8) with Residential Development (C3)

Proposal - The site is bounded by residential uses at low density to the North, Rugby Road and a major leisure facility, Twickenham Stadium to the west, and industrial sites to the south and southeast. The site is accessed from Rugby road.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 39.50 µg/m³. There are 62 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Rugby Road.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



98 - Osterley Station Car Park Residential Development (C3)

Proposal - The site is an existing station and ancillary station car park. Osterley station is Grade II listed with a highly visible and distinct element on top of the building. The site is bounded to the East, north and west by residential development, and by the Great West Road to the south.

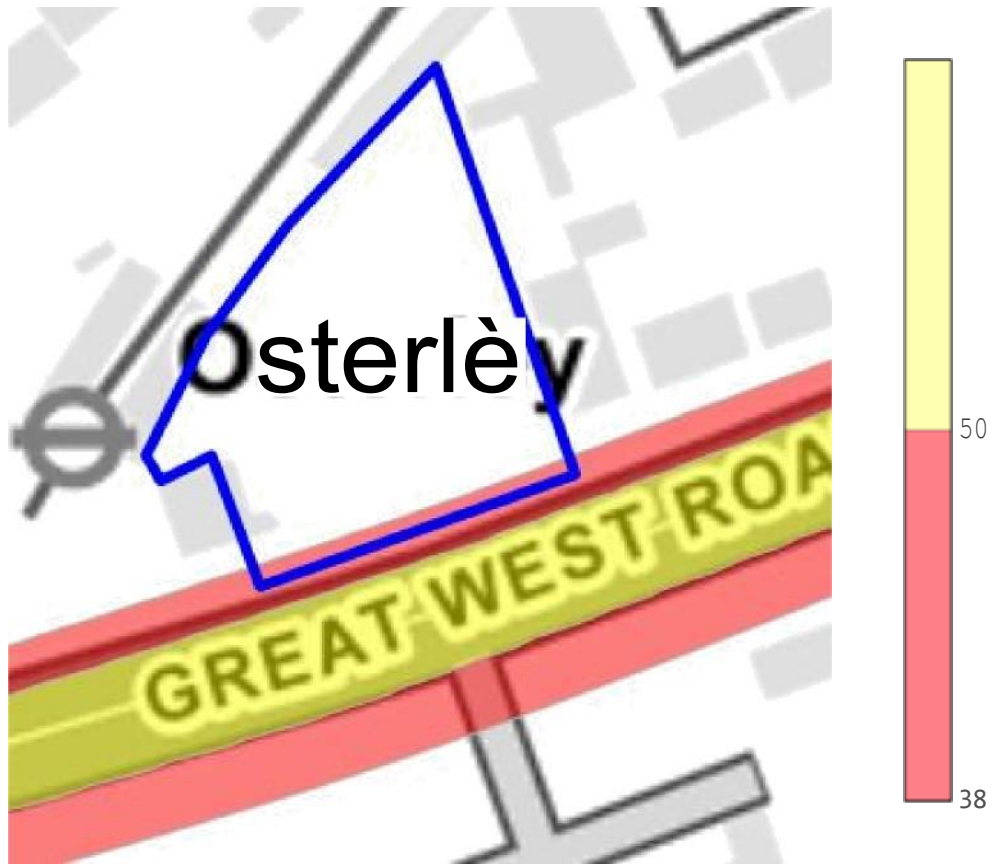
The worst case expected concentration of NO₂ at the proposed site is expected to be, 39.7 µg/m³. There are 40 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Great Wet Road.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



99 - Feltham Coachworks Residential (C3) and Business (B1)

Proposal - The site is bounded by residential development on the west, south and east of the site, and the London Road to the North. The area is within the Archaeological Priority Area, adjacent to the Spring Grove Conservation Area and opposite the grade II listed Spring Grove fire station.

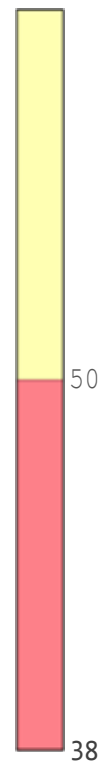
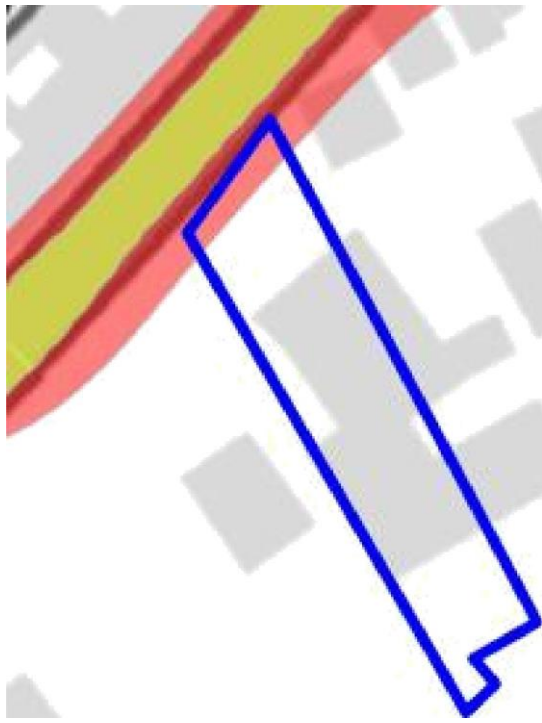
The worst case expected concentration of NO₂ at the proposed site is expected to be, 41.7 µg/m³. There are 10 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from A315 London Road

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



100 - Osterley Park Hotel Residential (C3)

Proposal - The site is bounded by residential uses on Breybourne Drive to the north, Syon Park Gardens and Great West Road to the west and east, and the Great West Road to the south. The site is accessed via Wood Lane and Great West Road. The context is predominantly low rise residential with some medium rise to the south-west. Local Open space is located to the south-west of the site (Osterley Sports and Athletic Centre).

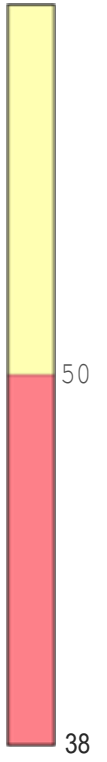
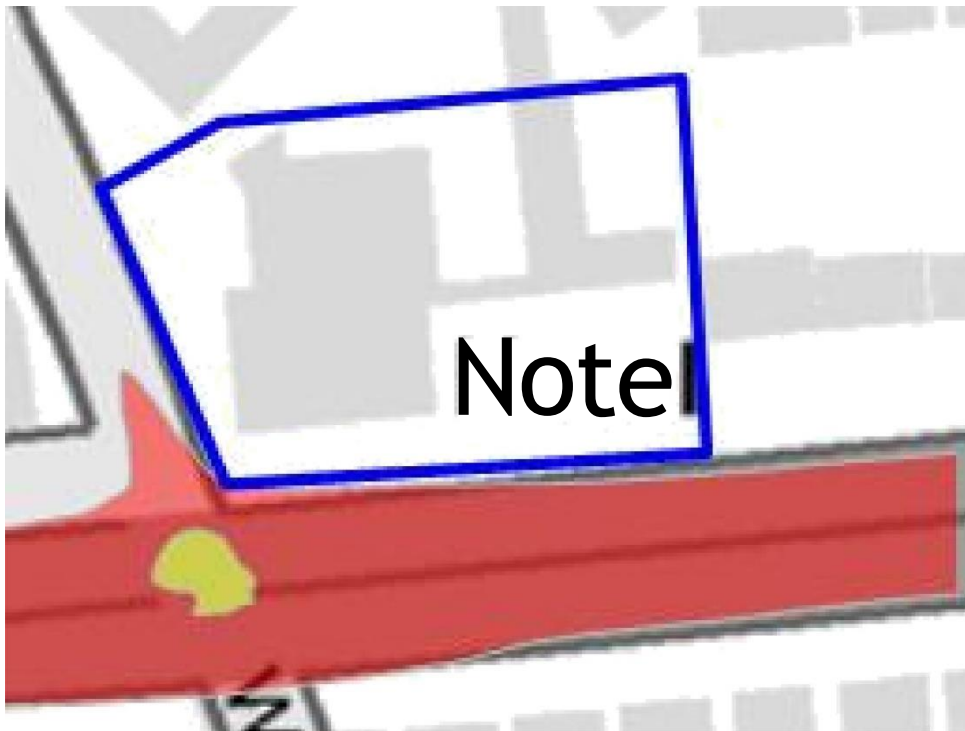
The worst case expected concentration of NO₂ at the proposed site is expected to be, 38.5 µg/m³. There are 80 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Great West Road

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



101 - Brentford Group Practice Health Centre (D1) with residential (C3).

Proposal - The site is an existing medical centre providing specialist and general services. The site is bounded to the North, West and South by two storey residential semi-detached development, and by Ealing Road to the East, which increases in level to form an embankment for a bridge over a railway. The predominant character is two storey development with large gardens.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.9 µg/m³. There are 60 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Boston Manor Road

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



102 - Victory Business Centre Light Industrial (B1c) and Industrial Use (B2/B8).

Proposal - The Site is an existing industrial estate which is accessed from Fleming way. The site is bounded to North by a mix of two storey residential and offices, with industrial uses to the east, west and south (where it is adjacent to Mogden Sewage Work). Access to the site is from Fleming Way.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 41.2 µg/m³. There are no residential units proposed with this scheme. As there are no residential properties associated with the scheme only the short-term objective is considered. There is no expected exceedance of the 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective. It is likely that the proposed site allocation will comply with the proposed policy.



103 - West Middlesex Hospital Health (D1) with residential (C3), retail, business (B1a/b).

Proposal - Major hospital including accident and emergency and other specialist units. Site has extensive buildings of varying heights (typically between 4-6 storeys) with large amounts of parking and access routes on site. Site is bounded by residential development to East, West and South, comprising 2-3 storey semi-detached and terraced housing. The site is bordered by a Cemetery to the North.

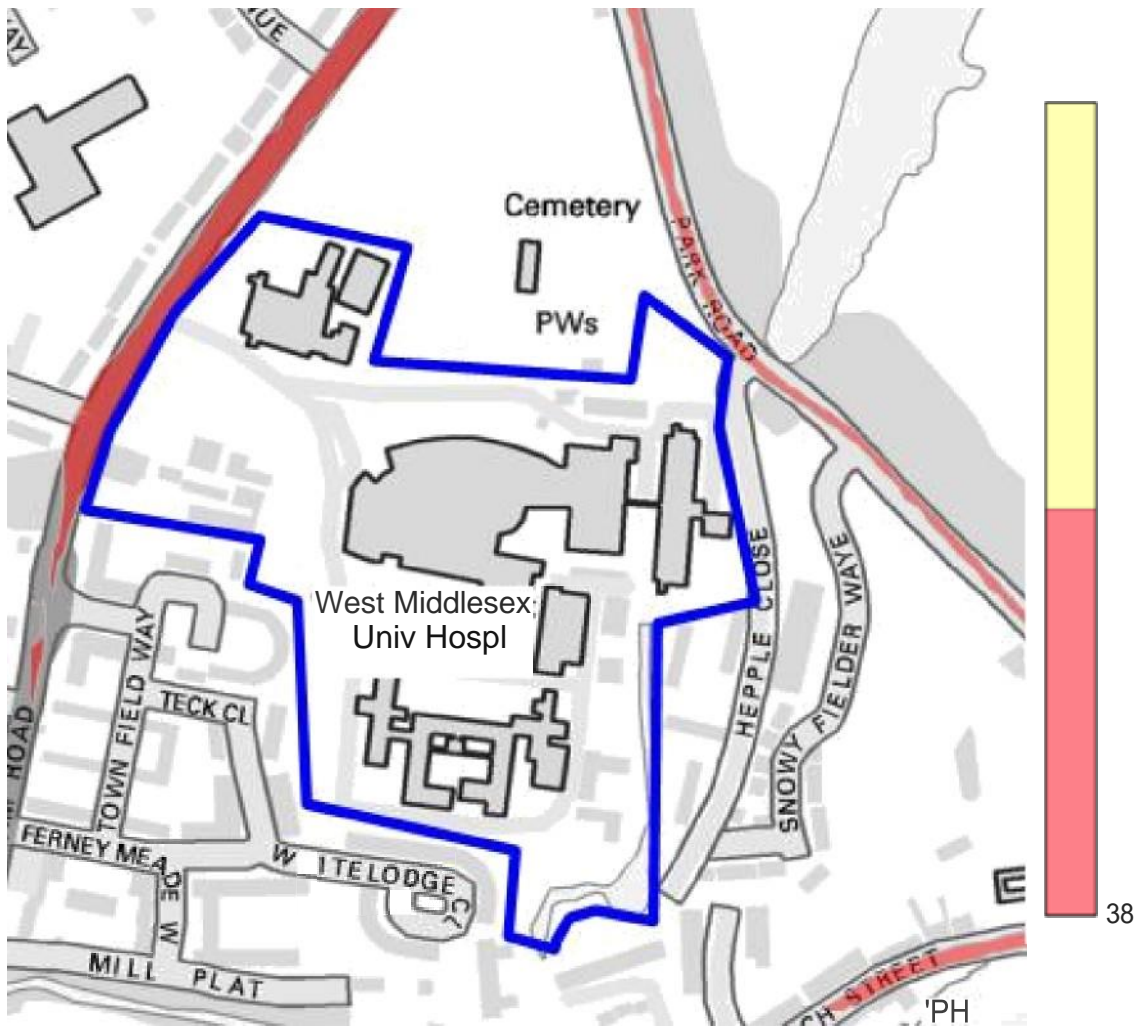
The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.6 µg/m³. There are 150 residential units proposed with this scheme. To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Twickenham Road

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



104 - Chiswick Health Centre Health Centre (D1) with residential (C3).

Proposal - The site is an existing medical centre providing specialist and general services. The site is bounded on all sides by residential development, and falls within the Chiswick Town Centre and Key Existing Office Location.

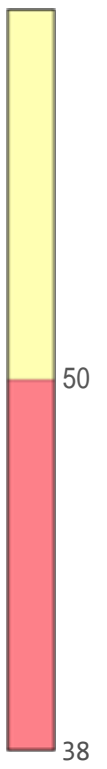
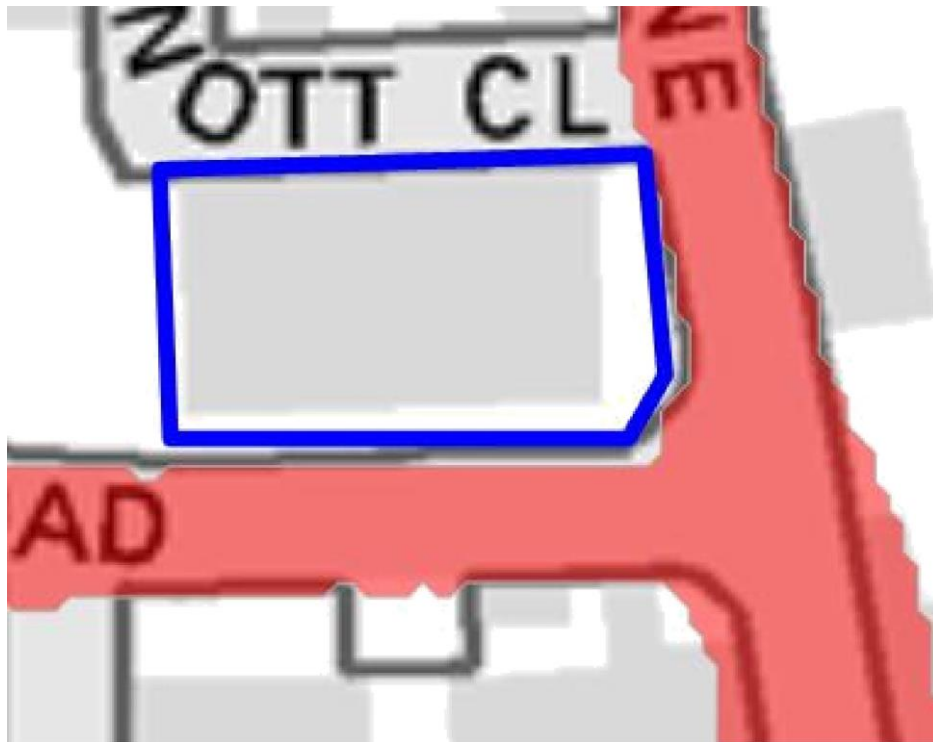
The worst case expected concentration of NO₂ at the proposed site is expected to be, 37.7 µg/m³. There are 0 residential units proposed with this scheme. To ensure any sensitive receptors are not exposed to poor air quality above the air quality objective, residential units should be set back 5m from Fishers Lane and Dolman Road.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is no expected exceedance of 50 µg/m³ and, as a result, there is not expected to be an exceedance of the short-term air quality objective.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies

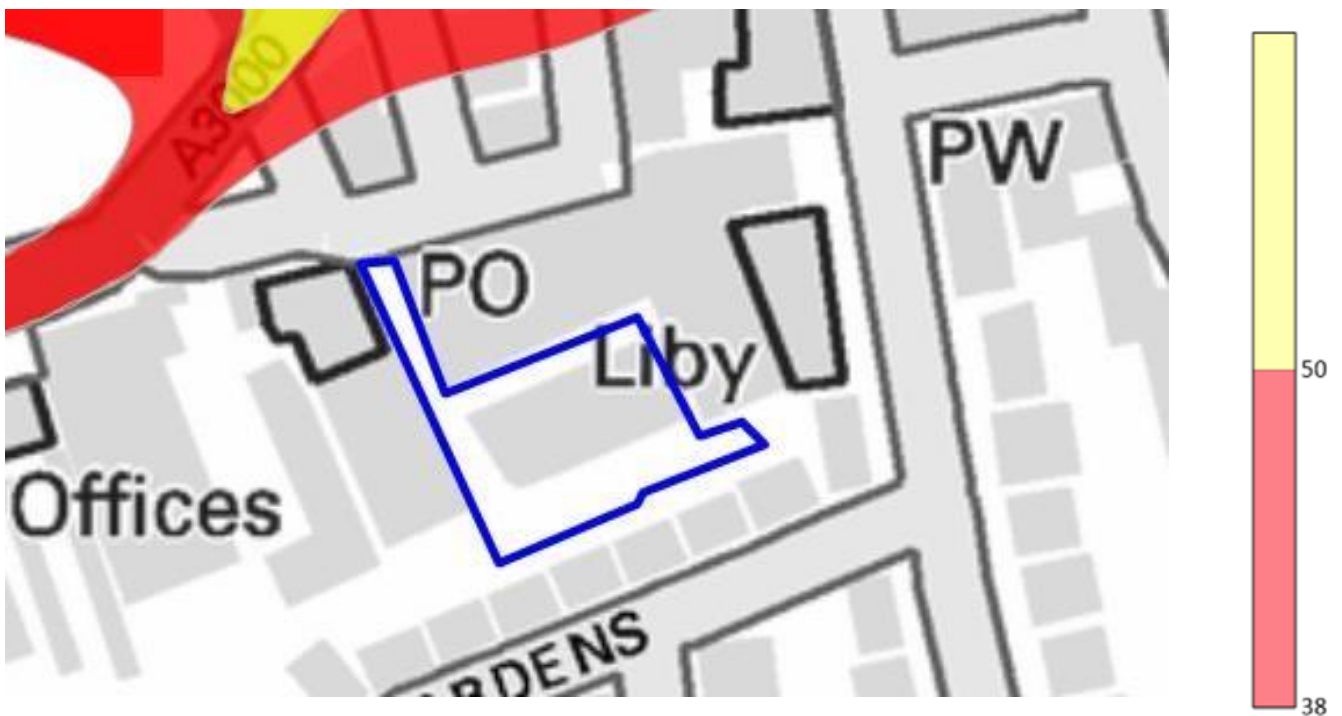


105 - Chiswick Telephone Exchange Business (B1a/b) and Residential (C3)

Proposal - The site is bounded by a former industrial building now converted to mixed use office and commercial (Barley Mow Centre) on Barley Mow Passage to the north and east, residential properties along Dukes Avenue and Hadley Gardens to the south and the Post Office and Royal Mail Chiswick Delivery Office site to the west. The site is accessed from Barley Mow Passage. The site character is typical of an urban centre with surrounding dense, mid-rise mixed use buildings, however the area to the south of the site abruptly reduces in scale to low rise residential. The site has been in use as a telephone exchange for a number of years and may require remediation.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 32.6 µg/m³. There are 40 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ as a result there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



106 - Royal Mail, Chiswick Delivery Office Business (B1a/b) and Residential (C3)

Proposal - The site is bounded by Barley Mow Passage to the north, offices (Barley Mow Centre) and the former Chiswick Telephone Exchange sites to the east, residential properties along Hadley Gardens to the south and residential flats within the former office building on Devonhurst Place to the west. The site is accessed from Barley Mow Passage. The site character is typical of an urban centre with surrounding dense mid-rise mixed use buildings, however the area to the south of the site abruptly reduces in scale to low rise residential. The site with is within the Turnham Green Conservation Area. There are listed buildings in the vicinity of the site (Voysey House, Grade II* to the north east and 2A Heathfield Terrace, Grade II to the west).

The worst case expected concentration of NO₂ at the proposed site is expected to be, 34.6 µg/m³. There are 30 residential units proposed with this scheme. Any future proposed residents are unlikely to experience exposure to poor air quality above the air quality objective. There is no expected exceedance of the 50 µg/m³ as a result there is not expected to be an exceedance of the short-term air quality objective.

It is likely that the proposed site allocation will comply with the proposed policy.



107 - Sainsbury's Chiswick Large Formal Retail (A1) with Residential (C3)

Proposal - The site is bounded by railway to the north (London Overground), residential uses on Essex Place, Mills Row and Essex Road to the east, the rear of mixed-use commercial uses along Chiswick High Road to the south and Acton Lane to the west. The site is accessed from Chiswick High Road (via Essex Place Square) and Essex Place. The site character is mixed with typical urban centre mid-rise mixed use building to the south and west, and loose grid low to medium rise residential to the east. The site adjoins an existing tall building Empire House to the south.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 72.97 µg/m³. There are 390 residential units proposed with this scheme. To ensure any residential receptors are not exposed to poor air quality above the air quality objective, residential units should be set back 30m from Acton Lane

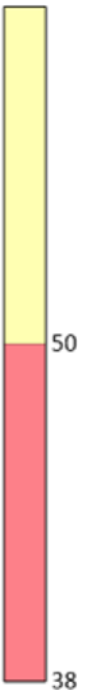
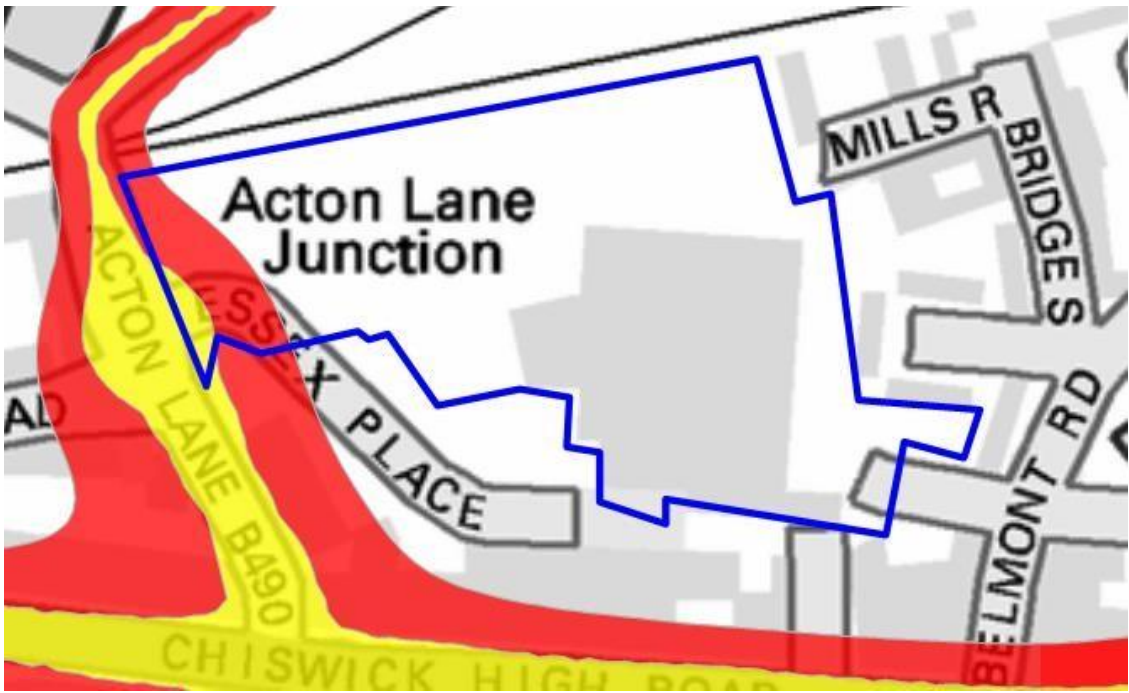
- Proposed residential units within 10m of the Acton Lane should begin from 7m high.
- Proposed residential units within 20m of the Acton Lane should begin from 4m high.
- Proposed residential units within 30m of the Acton Lane should begin from 4m high.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is potential for the exceedance of 50 µg/m³ and, as a result, there is expected to be an exceedance of the short-term air quality objective. A setback of 10m from Acton Lane should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies



108 - Empire House Residential (C3) and retail.

Proposal - The site bounds Essex Place to the North, Chiswick High Road and Turnham Green opposite to the south, town centre commercial uses along High Road to the east and the Grade II listed Public House ('The Old Packhorse') and commercial properties along Acton Lane to the west. The site is accessed from High Road and Essex Place. The site context is mixed with typical urban centre, mid-rise mixed use building with an active ground floor retail frontage to the east and west, big box retail to the north and open space (Turnham Green) to the south.

The worst case expected concentration of NO₂ at the proposed site is expected to be, 59.4 µg/m³. There are 110 residential units proposed with this scheme. To ensure any residential receptors are not exposed to poor air quality above the air quality objective, residential units should be set back 30m from Acton Lane and Chiswick High Road.

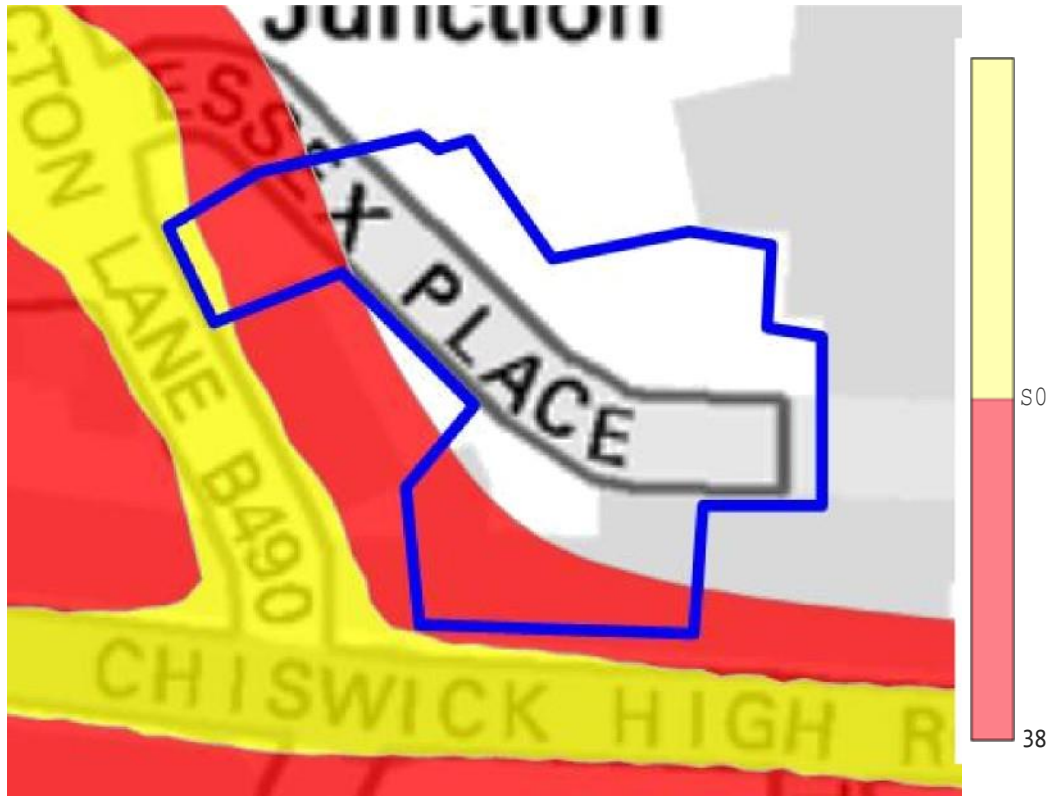
- Proposed residential units within 10m of the Acton Lane and Chiswick High Road should begin from 7m high.
- Proposed residential units within 20m of the Acton Lane and Chiswick High Road should begin from 4m high.
- Proposed residential units within 30m of the Acton Lane and Chiswick High Road should begin from 4m high.

If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.

There is potential for the exceedance of 50 µg/m³ and, as a result, there is expected to be an exceedance of the short-term air quality objective. A setback of 10m from Acton Lane should be considered.

Where it is not possible to implement design phase mitigation measures, other mitigation measures which are not considered high-level design should be implemented, such as ventilation and filtration, but only as a last resort once all other design phase mitigation measures have been fully investigated.

With these parameters in place it is likely that the proposed site allocation will comply with the proposed policies





Appendix B – Air Quality Technical Modelling

This section provides a review of the existing air quality in the vicinity of the WoB and RoB in order to provide baseline conditions and completion of modelling to analyse the distribution of pollutants throughout the study area. Baseline air quality in the vicinity of the WoB and RoB been defined from several sources, as described in the following sections.

Local Air Quality Management (LAQM)

A review of the monitoring within LBH and has been undertaken. As required under section 82 of the Environment Act 1995, LBH has undertaken an ongoing exercise to review and assess air quality within its area of jurisdiction. The assessments have indicated that concentrations of NO₂ are above the relevant AQOs at locations of relevant public exposure within the authority area. LBH has one designated Air Quality Management Area (AQMA) for NO₂ that covers the entirety of the borough:

- Hounslow AQMA: An area encompassing the entire borough of Hounslow

Monitoring

Continuous Monitoring

LBH operates four automatic monitoring stations within the WoB and RoB. This offers continuous records of NO₂ and PM₁₀ concentrations within the area. The most recently available monitored NO₂ and PM₁₀ concentration data is from 2018 at the locations shown in the table below.

Table B1 Monitored Annual Mean NO₂ Concentrations at Automatic Monitoring Stations

Site ID	X	Y	Location	Site Type	NO ₂ Annual Mean Concentration 2018 (µg/m ³)	PM ₁₀ Annual Mean Concentration 2018 (µg/m ³)
HS2	510370	177195	Cranford	Background	26.0	15.0
HS6	513656	176843	Heston	Roadside	40.0	22.0
HS7	509355	174989	Hatton Cross	Urban Background	28.0	21.0
HS9	510683	173259	Feltham	Roadside	27.0	20.0

The automatic monitoring station exceed the AQO for NO₂ at HS6 (40 µg/m³ annual mean) but are below for the remaining monitoring locations and below the AQO for PM₁₀ at all automatic monitoring locations within the WoB and RoB.

Non - Continuous Monitoring

LBH operates a network of around 34 diffusion tubes within the WoB and RoB. Diffusion tubes within the WoB and RoB study area are given below.

Table B2 Monitored Annual Mean NO₂ Concentrations at Diffusion Tubes



Site ID	X	Y	Location	Site Type	2018 Annual Mean NO ₂ Concentration (µg/m ³)
HS41	512107	172502	Hanworth Library	Roadside	41.7
HS51	509127	174568	Marjory Kinnon School	Roadside	25.5
HS52	508873	173722	Bedfont Library	Roadside	23.3
HS53	510986	176032	Church of the good shepherd	Intermediate	25.6
HS54	510810	177667	Cranford lane / High St. Cranford Jct	Roadside	35.0
HS55	510747	176687	Cranford Library	Roadside	33.7
HS62	513630	176938	Sutton Rd & Heston Rd Jct	Roadside	33.5
HS63	513538	175828	Lampton Road	Roadside	34.1
HS64	512860	175013	Junction of Roseheath Road	Roadside	28.7
HS65	511840	172745	Eastbourne Road at	Roadside	25.0
HS66	510975	173646	Brainton Avenue	Roadside	37.9
HS72	513063	177552	Heston Crossroads	Roadside	36.1
HS73	510578	172857	Browells Lane, Feltham	Roadside	25.3
HS74	512040	171808	Swift Road, Hanworth	Roadside	30.9
HS76	511570	175015	Clements Court, Hounslow	Background	27.0
HS77	511990	175973	Beaversfield Park	Background	21.8
HS78	512762	175310	Staines / Wellington Road	Roadside	42.7
HS79	513384	175482	Whitton Road	Roadside	30.1
HS84	512781	172132	Apex Corner	Roadside	31.6
HS85	513213	175655	Hospital Road	Roadside	37.9
HS86	510955	176567	Jolly Waggoners	Roadside	41.3
HS87A	511545	176430	Henleys Roundabout	Roadside	44.7
CRAN A	510370	178198	Cranford Avenue Park	Background	24.3
CRAN B	510370	178198	Cranford Avenue Park	Background	24.3
CRAN C	510370	178198	Cranford Avenue Park	Background	24.3
FELT A	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
FELT B	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
FELT C	510676	173245	Feltham High St / Hanworth Rd Jct	Roadside	28.5
HEST A	513676	176844	Heston Road	Roadside	44.2
HEST B	513676	176844	Heston Road	Roadside	44.2
HEST C	513676	176844	Heston Road	Roadside	44.2
MYR A	509334	174997	Myrtle Avenue	Background	29.2
MYR B	509334	174997	Myrtle Avenue	Background	29.2



Site ID	X	Y	Location	Site Type	2018 Annual Mean NO ₂ Concentration (µg/m ³)
MYR C	509334	174997	Myrtle Avebue	Background	29.2

Diffusion tubes, HS41, HS78, HS86, HS87A and HEST A,B,C exceed the AQO for NO₂(40 µg/m³ annual mean). Monitoring trends have been reviewed within the West of Borough for the past 8 years of available data. This data shows that only in recent years is any kind of downward trend observable. This shows that there are likely issues with the canyon effects around the monitoring which are presenting issues with improvements in NO₂ concentrations.

Meteorology

Meteorological conditions have significant influence over air pollutant concentrations and dispersion. Pollutant levels can vary significantly from hour to hour as well as day to day, thus any air quality predictions need to be based on detailed meteorological data. The ADMS (Atmospheric Dispersion Modelling System) model calculates the dispersion of pollutants on an hourly basis using a year of local meteorological data. The 2018 meteorological data used in the assessment is derived from Heathrow Airport Meteorological Station. This is the nearest meteorological station, which is considered representative of the Wob and RoB, with all the complete parameters necessary for the ADMS model. Reference should be made to Figure B1 for an illustration of the prevalent wind conditions at the Heathrow Airport Meteorological Station site.

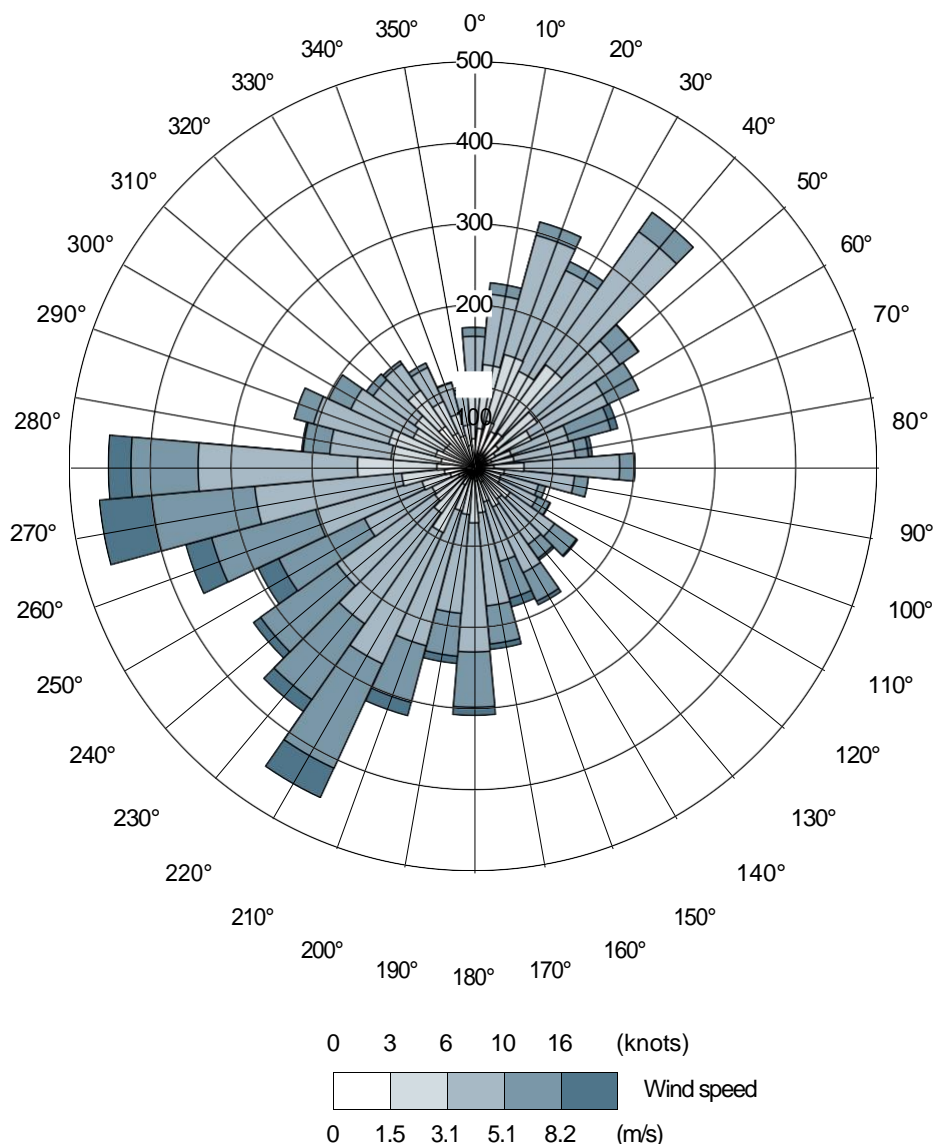


Figure B1 Heathrow 2018 Wind Rose

Emission Sources

A desktop assessment has identified that traffic movements are likely to be the most significant local source of pollutants affecting the site and its surroundings. The principal traffic derived pollutants likely to impact local receptors are NO₂, PM₁₀ and PM_{2.5}.

It should be noted that the pollutant contribution of minor roads and rail sources that are not included within the dispersion model is considered to be accounted for via the use of background air quality levels.

Sensitive Receptors

Receptors that are considered as part of the air quality assessment are primarily those existing receptors as part of the Site Allocations Local Plan Review (July 2019) for the WoB and RoB have been included, all seventy-one sites within this document have been included within the assessment.



The seventy-one site allocation are shown in Table B3.

Table B3 Long-Term Modelled Existing Sensitive Receptor Locations

Discrete Sensitive Receptor	
R38	Heathrow Gateway
R39	South Bedfont
R40	Bedfont Gardens
R41	Bedfont Gardens, Land at Southville Crescent
R42	Land at Bedfont Lakes (West) 753 Staines Road, Feltham
R43	Heathrow International Trading Estate
R44	Central Park Trading Estate
R45	Land at Green Lane
R46	Ron Smith Recycling, Green Lane
R47	150-152 Great South West Road, Cranford
R48	Vacant Land at Dick Turpin Way
R49	Site at Faggs Road
R50	Tesco Dukes Green Avenue
R51	Network House Feltham
R52	Lidl Feltham
R53	New Road Triangle
R54	61 Fern Grove
R55	Scout Hut Bedfont Lane
R56	Land at Glebelands Road
R57	Airport Business Park
R58	Lower Feltham West
R59	Tesco Feltham
R60	Land at Air Park Way
R61	Council Depot, Ashmead Road
R62	Manor Park, Feltham
R63	80-86 High Street Feltham
R64	MOD Feltham
R65	Leisure West
R66	Browells Lane
R67	UPS House
R68	Smith House, Elmwood Avenue
R69	Land at 2 High Street Feltham
R70	Royal Naval Association Club
R71	Feltham Magistrates Court
R72	St. Catherine's House and Car Park
R73	Land at Nene Gardens
R74	Hounslow West Station
R75	Land to the rear of HCC Sports and Social Club
R76	Lampton House
R77	Land South of Western International Market
R78	Land at Hartlands Caravan Park
R79	Baber Bridge Caravan Site
R80	34 Staines Road
R81	80-82 Staines Road
R82	206-210 Hanworth Road
R83	Vacant Land Clarence Terrace



R84	Hounslow Cavalry Barracks
R85	Builders Yard, 379-389 Staines Road
R86	Former Travis Perkins Staines Road
R87	Euro House, Hounslow
R88	Land at Bridge Road Depot
R89	Land at James Street
R90	Inwood Business Park
R91	Hounslow Bus Garage
R92	Upstage
R93	Land at Kingsley Road
R94	Vacant Land R/O Princes Avenue, Gunnersbury
R95	Tesco Mogden Lane
R96	Europa House
R97	30 Rugby Road
R98	Osterley Station Car Park
R99	Feltham Coachworks
R100	Osterley Park Hotel
R101	Brentford Group Practice
R102	Victory Business Centre
R103	West Middlesex Hospital
R104	Chiswick Health Centre
R105	Chiswick Telephone Exchange
R106	Royal Mail, Chiswick Delivery Office
R107	Sainsbury's Chiswick
R108	Empire House



Assessment of Detailed Dispersion Modelling

In the context of the WoB and RoB, road traffic is identified as the dominant emission source that is likely to cause potential risk of exposure of air pollutants across the WoB and RoB.

The traffic assessment consists of the quantified predictions of NO₂, across the WoB and RoB and the predicted concentrations at the thirty-seven site allocations. Modelling has been completed using ADMS Roads.

Existing and Predicted Traffic Flows

Traffic data has been obtained to identify 2018 baseline conditions in the form of Annual Average Daily Traffic Figures (AADT) for the major roads within the WoB and RoB.

The traffic data has been sourced through the London Air Emissions Inventory (LAEI) for 2016, the identified links are shown below which correlate with the LAEI data. The TG16 technical guidance requires the local authority monitoring data, meteorological data and traffic data to all derive from the same year for baseline modelling. To determine 2018 traffic flows a TEMPRO factor as 1.0268 to the 2016 LAEI traffic flows.

The traffic data utilised within the assessment is shown in Table B4

Table B4 Traffic Data used within Assessment

Link (Sourced from LAEI)	Speed (km/h)	2018	
		AADT	HGV%
13930	112	44526	4.36
13979	112	44526	4.36
26167	20	29585	4.90
13974	20	29157	4.92
57556	20	29157	4.92
13974	64	29157	4.92
57676	20	29157	4.92
57676	64	29157	4.92
55586	20	29157	4.92
55944	64	29157	4.92
55586	64	29157	4.92
55944	20	29157	4.92
55586	20	29157	4.92
54975	20	29516	6.08
55906	20	9913	6.15
55745	20	9913	6.15
204	64	10169	8.51
68468	64	10169	8.51



Link (Sourced from LAEI)	Speed (km/h)	2018	
		AADT	HGV%
55905	20	21726	7.11
55907	20	21366	5.54
20711	64	21366	5.54
51972	64	21366	5.54
20711	20	21366	5.54
51972	20	21366	5.54
20704	20	18542	7.35
20705	20	18542	7.35
14551	48	36969	7.07
55433	20	14736	5.27
55434	20	14736	5.27
55433	64	14736	5.27
20712	64	14844	5.96
55433	20	14844	5.96
20712	20	14844	5.96
25623	20	14686	6.03
13653	64	14326	3.66
13653	64	14326	3.66
17411	48	25838	4.62
20714	48	25840	4.63
65263	64	19446	3.71
16370	64	19446	3.71
16879	20	23316	3.58
76547	20	23316	3.58
13973	64	23316	3.58
13972	64	23316	3.58
74729	64	23461	5.73
14966	64	23461	5.73
57481	64	18846	8.85
57482	64	18846	8.85
14554	64	39832	4.79
14556	48	40259	5.80
14556	10	40259	5.80
60001	48	11605	5.49
67455	48	11609	5.52
60001	20	11605	5.49
67455	20	11609	5.52
60042	20	11399	3.77
13957	80	31982	3.56
52475	80	31982	3.56
13957	80	31982	3.56
52475	80	31982	3.56
59737	80	36490	3.78
59885	80	36490	3.78
59737	80	36490	3.78
59855	80	36490	3.78



Link (Sourced from LAEI)	Speed (km/h)	2018	
		AADT	HGV%
56279	80	24446	3.78
56820	80	24289	3.15
56279	80	24446	3.78
56820	80	24289	3.15
20219	20	18758	7.73
20219	48	18758	7.73
12953	48	17084	6.01
66802	10	17466	8.07
16497	48	18304	6.92
55816	20	15443	4.55
55816	48	15443	4.55
55749	20	19917	2.66
55749	48	19917	2.66
16931	48	15254	3.39
16931	10	15254	3.39
28019	20	16218	3.53
28109	48	16218	3.53
67707	48	19270	4.83
14555	48	15410	11.81
14555	30	15410	11.81
17393	48	14779	8.04
728	48	13051	7.25
1600	20	16100	4.36
402	64	16045	4.02
74896	64	16098	4.34
34897	64	23294	5.06
4754	64	23294	5.06
34897	20	23294	5.06
4754	20	23294	5.06
58751	20	6558	3.71
4758	20	6475	3.76
58751	48	6558	3.71
4758	48	6475	3.76
49196	20	6475	3.76
58751	20	6558	3.71
4758	20	6475	3.76
66299	20	12952	4.56
66299	48	12952	4.56
66299	20	12952	4.56
55684	20	17869	2.10
55684	48	17869	2.10
888	20	6041	5.49
888	48	6041	5.49
888	20	6041	5.49
65192	20	7955	7.32
65192	48	7955	7.32



Link (Sourced from LAEI)	Speed (km/h)	2018	
		AADT	HGV%
65192	20	7955	7.32
16933	20	7017	5.98
16933	48	7017	5.98
16933	20	7017	5.98
13930	112	44526	4.36
13979	112	44526	4.36
26167	20	29585	4.90
13974	20	29157	4.92
57556	20	29157	4.92
13974	64	29157	4.92
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68468	64	10169	8.51
55905	20	21726	7.11
55907	20	21366	5.54
20711	64	21366	5.54
51972	64	21366	5.54
20711	20	21366	5.54
51972	20	21366	5.54
20704	20	18542	7.35
20705	20	18542	7.35
14551	48	36969	7.07
55433	20	14736	5.27
55434	20	14736	5.27
55433	64	14736	5.27
20712	64	14844	5.96
55433	20	14844	5.96
20712	20	14844	5.96
25623	20	14686	6.03
13653	64	14326	3.66
13653	64	14326	3.66
17411	48	25838	4.62
20714	48	25840	4.63
65263	64	19446	3.71
16370	64	19446	3.71
16879	20	23316	3.58
76547	20	23316	3.58



Link (Sourced from LAEI)	Speed (km/h)	2018	
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13973	64	23316	3.58
13972	64	23316	3.58
74729	64	23461	5.73
14966	64	23461	5.73
57481	64	18846	8.85
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14556	48	40259	5.80
14556	10	40259	5.80
60001	48	11605	5.49
67455	48	11609	5.52
60001	20	11605	5.49
67455	20	11609	5.52
60042	20	11399	3.77
13957	80	31982	3.56
52475	80	31982	3.56
13957	80	31982	3.56
52475	80	31982	3.56
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59885	80	36490	3.78
59737	80	36490	3.78
59855	80	36490	3.78
56279	80	24446	3.78
56820	80	24289	3.15
56279	80	24446	3.78
56820	80	24289	3.15
20219	20	18758	7.73
20219	48	18758	7.73
12953	48	17084	6.01
66802	10	17466	8.07
16497	48	18304	6.92
55816	20	15443	4.55
55816	48	15443	4.55
55749	20	19917	2.66
55749	48	19917	2.66
16931	48	15254	3.39
16931	10	15254	3.39
28019	20	16218	3.53
28109	48	16218	3.53
67707	48	19270	4.83
14555	48	15410	11.81
14555	30	15410	11.81
17393	48	14779	8.04
728	48	13051	7.25
1600	20	16100	4.36
402	64	16045	4.02



Link (Sourced from LAEI)	Speed (km/h)	2018	
		AADT	HGV%
74896	64	16098	4.34
34897	64	23294	5.06
4754	64	23294	5.06
34897	20	23294	5.06
4754	20	23294	5.06
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4758	20	6475	3.76
58751	48	6558	3.71
4758	48	6475	3.76
49196	20	6475	3.76
58751	20	6558	3.71
4758	20	6475	3.76
66299	20	12952	4.56
66299	48	12952	4.56
66299	20	12952	4.56
55684	20	17869	2.10
55684	48	17869	2.10
888	20	6041	5.49
888	48	6041	5.49
888	20	6041	5.49
65192	20	7955	7.32
65192	48	7955	7.32
65192	20	7955	7.32
16933	20	7017	5.98
16933	48	7017	5.98
16933	20	7017	5.98

Background Concentrations

The use of background concentrations within the modelling process ensures that pollutant sources other than traffic are represented appropriately. Background sources of pollutants include industrial, domestic and rail emissions within the vicinity of the study site. Several sources have been used to obtain representative background levels as discussed below.

The background concentrations used within the assessment have been determined with reference to the IAQM Guidance and TG (16).

The IAQM Guidance states:

"A matter of judgement should take into account the background and future background air quality and whether it is likely to approach or exceed the value of the AQO."



Additionally, TG (16) states:

“Typically only the process contributions from local sources are represented within an output by the dispersion model. In these circumstances, it is necessary to add an appropriate background concentration(s) to the modelled source contributions to derive the total pollutant concentrations.”

Defra Published Background Concentrations for 2018

The background concentrations shown in Table B5 were referenced from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the application site. In May 2019, Defra issued revised 2017 based background maps for nitrogen oxide (NO_x), NO₂, PM₁₀ and PM_{2.5}.

Table B5 Published Background Air Quality Levels (µg/m³)

Receptor Location	2018			
	NO ₂	NO _x	PM ₁₀	PM _{2.5}
Local Authority Monitoring				
HS72	24.99	39.35	16.61	11.48
HS62	25.43	40.28	16.96	11.76
HS6	25.43	40.28	16.96	11.76
HS78	23.87	37.33	16.70	11.67
HS64	23.87	37.33	16.70	11.67
HS9	22.37	34.35	16.22	11.34
HS52	23.76	37.26	15.87	11.17
HS55	31.54	55.29	16.97	11.78
HS41	22.64	34.55	16.70	11.65
HS84	22.64	34.55	16.70	11.65
HS74	20.61	30.79	16.16	11.41

All the Defra background concentrations detailed in Table B5 for 2018, show that the background levels are predicted to be below the relevant AQO within the study area.

Worst case Defra backgrounds have been utilised to represent a worst-case assessment when assessing the Wob and RoB.

1.1 Model Verification

Model verification involves the comparison of modelled data to monitored data in order to gain the best possible representation of current pollutant concentrations for the assessment years. The verification process is in general accordance with that contained in Section 7 of the TG16 guidance note and uses the most recently available diffusion tube monitoring data to best represent this.

The verification process consists of using the monitoring data and the published background air quality data in the UK National Air Quality Information Archive to calculate the road traffic contribution of NO_x



at the monitoring locations. Outputs from the ADMS Roads model are provided as predicted road traffic contribution NO_x emissions. These are converted into predicted roadside contribution NO_2 exposure at the relevant receptor locations based on the updated approach to deriving NO_2 from NO_x for road traffic sources published in Local Air Quality Management TG16. The calculation was derived using the NO_x to NO_2 worksheet in the online LAQM tools website hosted by Defra. Table B6 summarises the final model/monitored data correlation following the application of the model correction factor.



Table B6 Comparison of Roadside Modelling & Monitoring Results for NO₂

Tube Location	NO ₂ µg/m ³		
	Monitored NO ₂	Modelled NO ₂	Difference (%)
Local Authority Monitoring			
HS72	36.10	37.02	2.54
HS62	33.50	31.13	-7.08
HS6	40.00	40.56	1.39
HS78	42.70	40.47	-5.21
HS64	28.70	28.43	-0.93
HS9	27.00	28.76	6.51
HS52	23.30	24.56	5.39
HS55	33.70	31.78	-5.71
HS41	41.70	40.49	-2.90
HS84	31.60	33.94	7.41
HS74	30.90	32.74	5.95

The final model produced data at the monitoring locations to within 10% of the monitoring results as recommended by TG16.

[Summary of Model Inputs](#)

Table B7 Summary of ADMS Roads Model Inputs

Parameter	Description	Input Value
Chemistry	A facility within ADMS-Roads to calculate the chemical reactions in the atmosphere between Nitric Oxide (NO), NO ₂ , Ozone (O ₃) and Volatile organic compounds (VOCs).	No atmospheric chemistry parameters included
Meteorology	Representative meteorological data from a local source	Heathrow 2018 Meteorological Station , hourly sequential data
Surface Roughness	A setting to define the surface roughness of the model area based upon its location.	1.5m representing a typical surface roughness for Large Urban Area was used for the Site. With 0.5m representing a typical surface roughness for Parkland, Open Suburbia was used for the met. Measurement site.
Latitude	Allows the location of the model area to be set	United Kingdom = 51.49
Monin-Obukhov Length	This allows a measure of the stability of the atmosphere within the model area to be specified depending upon its character.	Large Conurbations= 100m was used for the Site. With Cities & Large Towns= 30m was used for the met. Measurement site.
Elevation of Road	Allows the height of the road link above ground level to be specified.	All road links were set at ground level = 0m . The Elevated M4 above the A4 was set at 10m
Road Width	Allows the width of the road link to be specified.	Road width used depended on data obtained from OS map data for the specific road link
Topography	This enables complex terrain data to be included within the model in order to account for turbulence and plume spread effects of topography	No topographical information used
Time Varied Emissions	This enables daily, weekly or monthly variations in emissions to be applied to road sources	No time varied emissions used
Road Type	Allows the effect of different types of roads to be assessed.	Urban (London - Outer) settings were used for the relevant links
Road Speeds	Enables individual road speeds to be added for each road link	Based on national speed limits



Parameter	Description	Input Value
Road Source Emissions	Road source emission rates are calculated from traffic flow data using the in-built EFT database of traffic emission factors.	The EFT Version 9.0 (2019) dataset was used.
Year	Predicted EFT emissions rates depend on the year of emission.	2018 data for baseline Assessment.

Site Allocations Assessment Results

Table B8 illustrates the highest concentration identified through the modelling at each site allocation within the WoB and RoB and the height or setback required to ensure residents are below the air quality objective for NO₂.

Table B8 Predicted Annual Average Concentrations of NO₂ at Receptor Locations

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary (µg/m ³)	Potential Measures to Meet 50µg/m ³ Target AQO for Amenity Areas	Potential Measures to Meet 38µg/m ³ Level Long Term AQO for Residential/School Receptors
R38	Heathrow Gateway	Business (B1a/b) with Retail (A1-A4), Hotel (C1), Residential (C3), Community Use (D2) and Open Space.	54.7	A setback of 10m from the A30 and Great West Road will reduce the impacts of exposure to poor short-term air quality	<p>To ensure any proposed residents are not exposed to poor air quality above the air quality objective (38ug/m3), ground floor residential units should be set back 50m from the A30 south and east of the site boundary.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of the Great South West Road east of the site should begin from 7m high and from the A30 4m high. Any proposed residential units within 20m of the Great South West Road east of the site should begin from 4m high, from the A30 residential units can begin from ground floor. Any proposed residential units within 30m of the Great South West Road east of the site should begin from 4m high. Any proposed residential units within 40m of the Great South West Road east of the site should begin from 4m high.
R39	South Bedfont	Residential (C3), Retail (A1-A4) and Open Space	34.6	N/A	N/A
R40	Bedfont Gardens	Residential (C3), Retail (A1-A4) and Open Space.	29.3	N/A	N/A
R41	Bedfont Gardens, Land at Southville Crescent	Residential (C3), Community Use (D2) and Open Space.	29.6	N/A	N/A
R42	Land at Bedfont Lakes (West) 753 Staines Road,	Residential (C3) and Open Space.	49.2	A setback of 5m from the north east corner of the site will reduce the impacts of exposure to poor short-term air quality.	Set back around 50m at the north east corner of the proposed site boundary along Staines Road to ensure future residents will not be exposed to poor air quality.

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary (µg/m ³)	Potential Measures to Meet 50µg/m ³ Target AQO for Amenity Areas	Potential Measures to Meet 38µg/m ³ Level Long Term AQO for Residential/School Receptors
	Feltham				<ul style="list-style-type: none"> Any proposed residential units within 10m of north east corner of the proposed site boundary along Staines Road should begin from 7m high Any proposed residential units within 20m of north east corner of the proposed site boundary along Staines Road should begin from 7m high Any proposed residential units within 30m of north east corner of the proposed site boundary along Staines Road should begin from 4m high Any proposed residential units within 40 of north east corner of the proposed site boundary along Staines Road should begin from 4m high
R43	Heathrow International Trading Estate	Light Industrial (B1c) and Industrial (B2/B8).	48.3	N/A	N/A
R44	Central Park Trading Estate	Light Industrial (B1c), Industrial (B2/B8).	42.9	N/A	N/A
R45	Land at Green Lane	Industrial (B2/B8)	31.7	N/A	N/A
R46	Ron Smith Recycling, Green Lane	Waste Uses Including Light Industrial (B1c) and Industrial (B2/B8).	37.9	N/A	N/A
R47	150-152 Great South West Road, Cranford	Industrial (B2/B8)	72.1	Setback of height, as from 7m high concentrations of NO ₂ will be below the short term limit of 50 µg/m ³ .	N/A
R48	Vacant Land at Dick Turpin Way	Industrial (B2/B8).	49.5	Setback of 5m from the A30 should be implemented.	N/A
R49	Site at Faggs Road	Light Industrial (B1c) and Industrial (B2/B8).	41.6	N/A	N/A
R50	Tesco Dukes Green Avenue	Large Format Retail (A1), Residential (C3)	54.4	Setback of 10m from Faggs Road should be implemented	<p>Ground floor residential units should be set back 50m from Faggs Road.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary ($\mu\text{g}/\text{m}^3$)	Potential Measures to Meet 50 $\mu\text{g}/\text{m}^3$ Target AQO for Amenity Areas	Potential Measures to Meet 38 $\mu\text{g}/\text{m}^3$ Level Long Term AQO for Residential/School Receptors
					<ul style="list-style-type: none"> Faggs Road should begin from 7m high Any proposed residential units within 20m of Faggs Road should begin from 7m high Any proposed residential units within 30m of Faggs Road should begin from 7m high Any proposed residential units within 40m of Faggs Road should begin from 4m high
R51	Network House Feltham	Residential (C3), Retail (A1-A4) and Open Space	56.1	Setback of 10m from Harlington Road should be considered	<p>Set back of 40m from Harlington Road and 20m from the north west corner of the site along Hounslow Road.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of Harlington Road and Hounslow Road should begin from 7m and 4m respectively. Any proposed residential units within 20m of Harlington Road should begin from 7m. Any proposed residential units within 30m of Harlington Road should begin from 4m.
R52	Lidl Feltham	Retail (A1-A4), Residential (C3).	38.3	N/A	Set back from Hounslow Road around 5m
R53	New Triangle Road	Residential (C3) and Open Space	32.5	N/A	N/A
R51	61 Fern Grove	Residential (C3)	29.1	N/A	N/A
R55	Scout Hut Bedfont Lane	Residential (C3) and Community Use (D1).	31.4	N/A	N/A
R56	Land at Glebelands Road	Residential (C3).	33.2	N/A	N/A

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary (µg/m ³)	Potential Measures to Meet 50µg/m ³ Target AQO for Amenity Areas	Potential Measures to Meet 38µg/m ³ Level Long Term AQO for Residential/School Receptors
R57	Airport Business Park	Industrial (B2, B8).	53.8	Setback of 15m from Faggs Road should be implemented. If a setback is not a viable option, other design measures such as the use of greenery to act as a buffer should be considered.	N/A
R58	Lower Feltham West	Residential (C3) and Open Space.	37.9	N/A	Residential units should be set back from the south east corner of the site boundary along Bedfont road around 5m.
R59	Tesco Feltham	Retail (A1-A4) and Residential (C3)	41.2	N/A	Residential units should be set back 30m from the south of the site along High Street or begin from 4m high
R60	Land at Air Park Way	Business (B1a/b) and Residential (C3)	31.2	N/A	N/A
R61	Council Depot, Ashmead Road	Residential (C3).	30.4	N/A	N/A
R62	Manor Park, Feltham	Business (B1a/b) and Residential (C3)	42.1	N/A	Residential units should be set back around 25m from the north east corner of the site along high street or begin from the 4m high.
R63	80-86 High Street Feltham	Business (B1a/b) and Residential (C3)	37.1	N/A	N/A
R64	MOD Feltham	Residential (C3), Business (B1a/b), Open Space, Community Uses,	38.4	N/A	Residential units should be set back from south western corner of the site boundary near High Street around 5m
R65	Leisure West	Residential (C3), Retail (A1-A4), Leisure (D1), Community Uses (D2)	29.8	N/A	N/A
R66	Browells Lane	Business (B1a/b), Light Industrial (B1c), Residential (C3).	29.8	N/A	N/A

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary (µg/m ³)	Potential Measures to Meet 50µg/m ³ Target AQO for Amenity Areas	Potential Measures to Meet 38µg/m ³ Level Long Term AQO for Residential/School Receptors
R67	UPS House	Light Industrial (B1c), Industrial (B2/B8) and Residential (C3).	29.8	N/A	N/A
R68	Smith House, Elmwood Avenue	Residential (C3).	29.6	N/A	N/A
R69	Land at 2 High Street Feltham	Retail (A1-A4), Residential (C3)	43.7	N/A	<p>To ensure any proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 50m from Hounslow Road A244.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of Hounslow Road should begin from 7m. Any proposed residential units within 20m of Hounslow Road should begin from 7m. Any proposed residential units within 30m of Hounslow Road should begin from 4m. Any proposed residential units within 40m of Hounslow Road should begin from 4m.
R70	Royal Naval Association Club	Residential (C3).	30.7	N/A	N/A
R71	Feltham Magistrates Court	Residential (C3).	29.7	N/A	N/A
R72	St. Catherine's House and Car Park	Residential (C3).	46.6	N/A	<p>Residential units should be set back 40m from High street.</p> <p>Any proposed residential units within 10m of Hounslow Road should begin from 7m.</p> <p>Any proposed residential units within 20m of Hounslow Road should begin from 7m.</p> <p>Any proposed residential units within 30m of Hounslow Road should begin from 4m.</p>
R73	Land at Nene Gardens	Residential (C3) and Open Space	29.9	N/A	N/A
R74	Hounslow West Station	Retail (A1-A4), Residential (C3)	43.2	N/A	Residential units should be set back 20m from the south east corner of the site boundary along Bath Road.

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary ($\mu\text{g}/\text{m}^3$)	Potential Measures to Meet 50 $\mu\text{g}/\text{m}^3$ Target AQO for Amenity Areas	Potential Measures to Meet 38 $\mu\text{g}/\text{m}^3$ Level Long Term AQO for Residential/School Receptors
					<ul style="list-style-type: none"> Any proposed residential units within 10m of the South East corner of the site boundary along Bath Road should begin from 4m. Any proposed residential units within 20m of the South East corner of the site boundary along Bath Road should begin from 4m.
R75	Land to the rear of HCC Sports and Social Club	Residential (C3)	37.8	N/A	Residential units on the west boundary of the site should be set back 5m.
R76	Lampton House	Residential (C3)	56.1	Setback of 5m from the north corner boundary of the site should be considered.	<p>Residential units should be set back 30m from the north corner of the site.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of the North corner of the site boundary 10m. Any proposed residential units within 20m of the North corner of the site boundary 7m. Any proposed residential units within 30m of the North corner of the site boundary 4m.
R77	Land South of Western International Market	Minerals Extraction	90.4	Setback of 50m is suggested along the M4 for any future non-residential uses.	N/A
R78	Land at Hartlands Caravan Park	Traveller Pitches	32.8	N/A	N/A
R79	Baber Bridge Caravan Site	Travelling Showpeople Yards	34.7	N/A	N/A
R80	34 Staines Road	Retail (A1-A4), Residential (C3)	48.6	N/A	<p>Ground floor residential units should be set back 60m from the north east corner of the site boundary along Staines Road.</p> <ul style="list-style-type: none"> Any proposed residential units within 10m of the north east corner of the site boundary along Staines Road should begin from 7m. Any proposed residential units within 20 of the north east corner of the site boundary along Staines Road should begin from 7m. Any proposed residential units within 30m of the north east corner of the site boundary along Staines Road should begin from 7m. Any proposed residential units within 40m of the north east corner of the site boundary along

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary ($\mu\text{g}/\text{m}^3$)	Potential Measures to Meet 50 $\mu\text{g}/\text{m}^3$ Target AQO for Amenity Areas	Potential Measures to Meet 38 $\mu\text{g}/\text{m}^3$ Level Long Term AQO for Residential/School Receptors
					<p>Staines Road should begin from 7m.</p> <ul style="list-style-type: none"> Any proposed residential units within 50 of the north east corner of the site boundary along Staines Road should begin from 4m.
R81	80-82 Staines Road	Residential (C3)	34.0	N/A	N/A
R82	206-210 Hanworth Road	Residential (C3)	39.3	N/A	<p>Residential units should be set back 30m from the south west corner of the proposed site boundary along Hanworth road.</p> <ul style="list-style-type: none"> Proposed residential units within 10m of the south west corner of the proposed site boundary along Hanworth road should begin from 4m high Proposed residential units within 20m of the south west corner of the proposed site boundary along Hanworth road should begin from 4m high
R83	Vacant Land Clarence Terrace	Residential (C3) and Business (B1a/b).	32.9	N/A	N/A
R84	Hounslow Cavalry Barracks	Residential (C3), Retail (A1-A4, Business	33.4	N/A	N/A
R85	Builders Yard, 379-389 Staines Road	Residential (C3) with Business (B1a/b).	36.7	N/A	N/A
R86	Former Travis Perkins Staines Road	Residential (C3) with Business (B1a/b).	37.1	N/A	N/A
R87	Euro House, Hounslow	Residential (C3) with retail	43.1	N/A	Proposed residents are not exposed to poor air quality above the air quality objective, residential units should be set back 10m from Hanworth Road.
R88	Land at Bridge Road Depot	Residential (C3)	37.6	N/A	N/A
R89	Land at James Street	Residential (C3)	28.6	N/A	N/A
R90	Inwood Business Park	Residential (C3) with Industrial (B2/B8) and Light Industrial (B1c)	28.6	N/A	N/A
R91	Hounslow Bus Garage	Bus Garage (B2/B8) with ancillary residential (C3), retail, business (B1a/b) and open space.	37.0	N/A	N/A

Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary ($\mu\text{g}/\text{m}^3$)	Potential Measures to Meet 50 $\mu\text{g}/\text{m}^3$ Target AQO for Amenity Areas	Potential Measures to Meet 38 $\mu\text{g}/\text{m}^3$ Level Long Term AQO for Residential/School Receptors
R92	Upstage	Residential (C3) and Business (B1a/b).	37.0	N/A	N/A
R93	Land at Kingsley Road	Community Uses (D1) and Residential (C3).	31.6	N/A	N/A
R94	Vacan Lane R/O Princes Avenue, Gunnersbury	Residential (C3).	29.4	N/A	N/A
R95	Tesco Mogden Lane	Large Format Retail (A1) and Residential (C3)	52.04	A setback of 5m from north west corner of the proposed site boundary at the Tesco Roundabout should be considered.	<p>Set back 25m from the north west corner of the proposed site boundary at the Tesco Roundabout and 10m set back from Mogden Lane.</p> <ul style="list-style-type: none"> Proposed residential units within 10m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 7m high. With 10m of Mogden Lane, residential units should begin from 4m high Proposed residential units within 20m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 4m high. Proposed residential units within 25m of the north west corner of the proposed site boundary at the Tesco Roundabout should begin from 4m high.
R96	Europa House	Large Format Retail (A1) and Residential (C3)	37.7	N/A	residential units should be set back 5m from Church Street.
R97	30 Rugby Road	Light Industrial (B1c) and Industrial Use (B2/B8) with Residential Development (C3)	39.5	N/A	Residential units should be set back 5m from Rugby Road.
R98	Osterley Station Car Park	Residential Development (C3)	39.7	N/A	Residential units should be set back 5m from Great Wet Road.
R99	Feltham Coachworks	Residential (C3) and Business (B1)	41.7	N/A	Residential units should be set back 5m from A315 London Road
R100	Osterley Park Hotel	Residential (C3)	38.5	N/A	Residential units should be set back 5m from Great West Road
R101	Brentford Group Practice	Health Centre (D1) with residential (C3).	37.9	N/A	Residential units should be set back 5m from Boston Manor Road
R102	Victory Business Centre	Light Industrial (B1c) and Industrial Use (B2/B8).	41.2	N/A	N/A
R103	West Middlesex Hospital	Health (D1) with residential (C3), retail, business (B1a/b).	37.6	N/A	Residential units should be set back 5m from Twickenham Road
R104	Chiswick Health	Health Centre (D1) with	37.7	N/A	Residential units should be set back 5m from Fishers

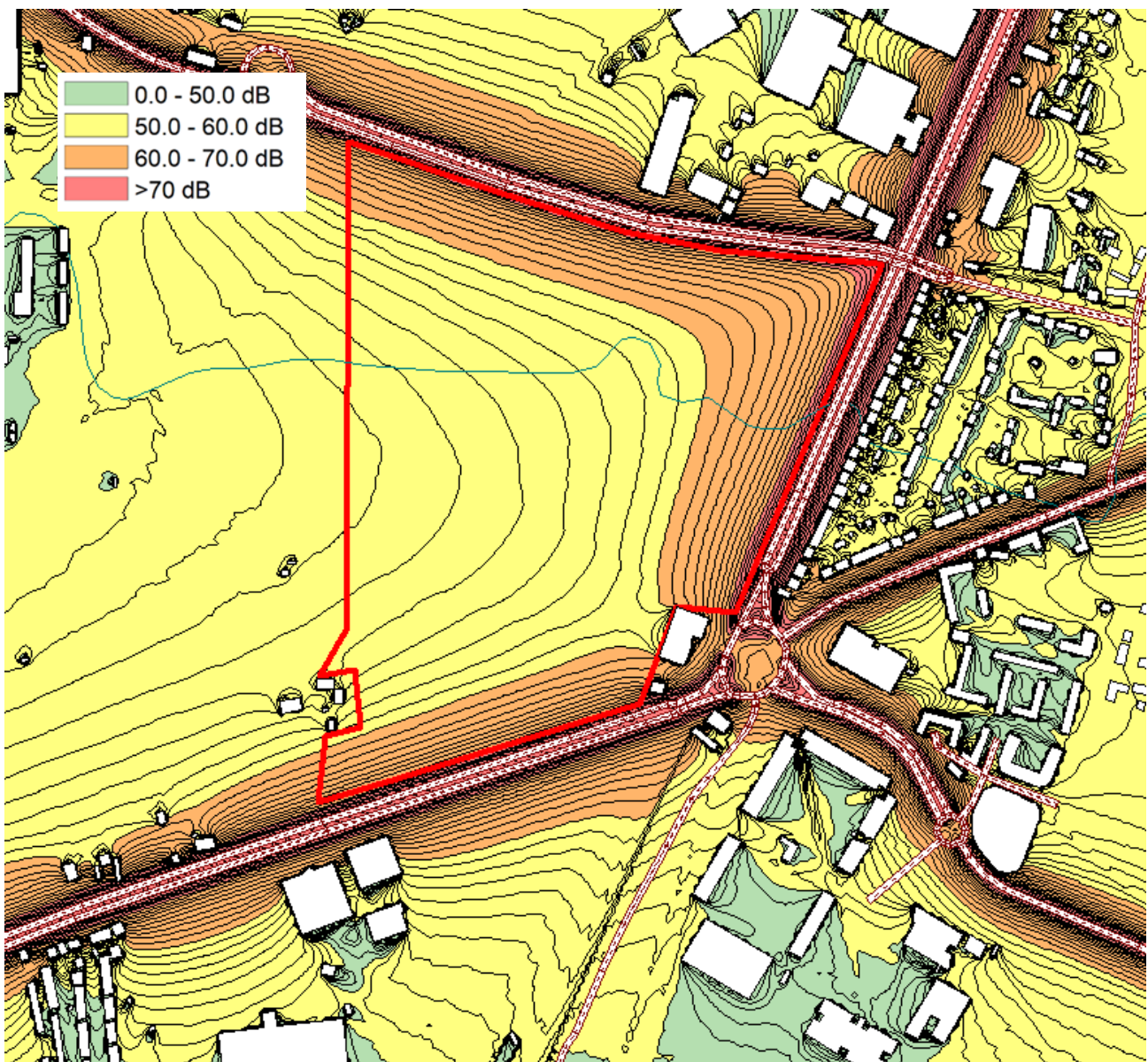
Receptor		Land Use Class	Worst Case NO ₂ Concentration within Site Boundary (µg/m ³)	Potential Measures to Meet 50µg/m ³ Target AQO for Amenity Areas	Potential Measures to Meet 38µg/m ³ Level Long Term AQO for Residential/School Receptors
	Centre	residential (C3).			Lane and Dolman Road.
R105	Chiswick Telephone Exchange	Business (B1a/b) and Residential (C3)	32.6	N/A	N/A
R106	Royal Mail, Chiswick Delivery Office	Business (B1a/b) and Residential (C3)	34.6	N/A	N/A
R107	Sainsbury's Chiswick	Large Formal Retail (A1) with Residential (C3)	72.97	A setback of 10m from Acton Lane should be considered.	<p>residential units should be set back 30m from Acton Lane</p> <ul style="list-style-type: none"> Proposed residential units within 10m of the Acton Lane should begin from 7m high. Proposed residential units within 20m of the Acton Lane should begin from 4m high. Proposed residential units within 30m of the Acton Lane should begin from 4m high.
R108	Empire House	Residential (C3) and retail.	59.4	A setback of 10m from Acton Lane should be considered	<p>Residential units should be set back 30m from Acton Lane and Chiswick High Road.</p> <ul style="list-style-type: none"> Proposed residential units within 10m of the Acton Lane and Chiswick High Road should begin from 7m high. Proposed residential units within 20m of the Acton Lane and Chiswick High Road should begin from 4m high. Proposed residential units within 30m of the Acton Lane and Chiswick High Road should begin from 4m high.

Appendix C: Designation Site Noise Considerations – WoB & RoB

The following designated sites have been considered with respect to noise affecting residential development sites within the West of Borough.

38 - Heathrow Gateway Business (B1a/b) with and Retail (A1-A4), Hotel (C1), Residential (C3), Community Use (D2) and Open Space.

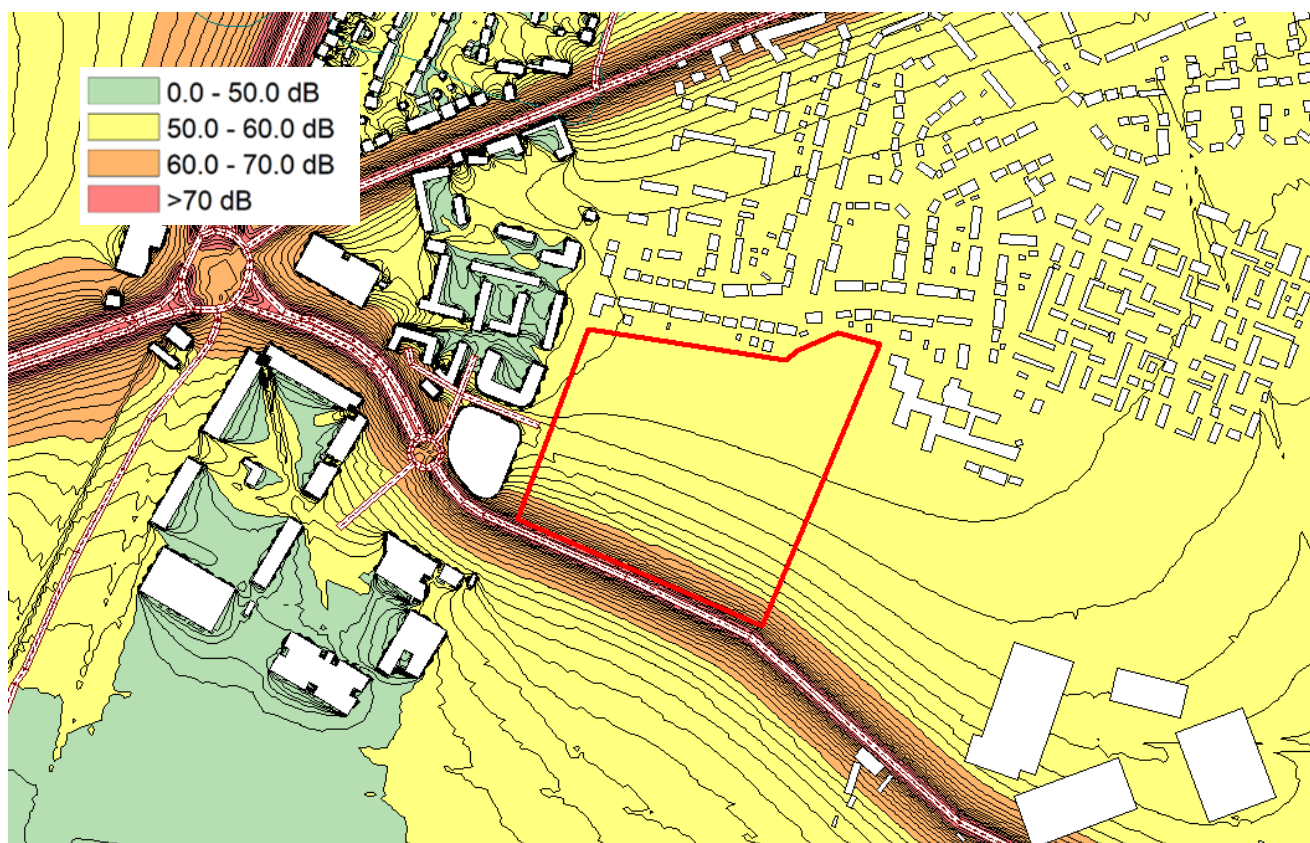
Proposal - Heathrow Gateway will be a major new neighbourhood in Hounslow, comprising new homes, open space and a new airport business hub providing high quality commercial office space centred around the new Bedfont Lakes Station and integrated with Bedfont lakes office park to the south.



The development site is located approximately 10m from the A30 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 77 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A30 at up to 60 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A30 may be appropriate.

39 - South Bedfont Residential (C3), and Retail (A1-A4), Open Space

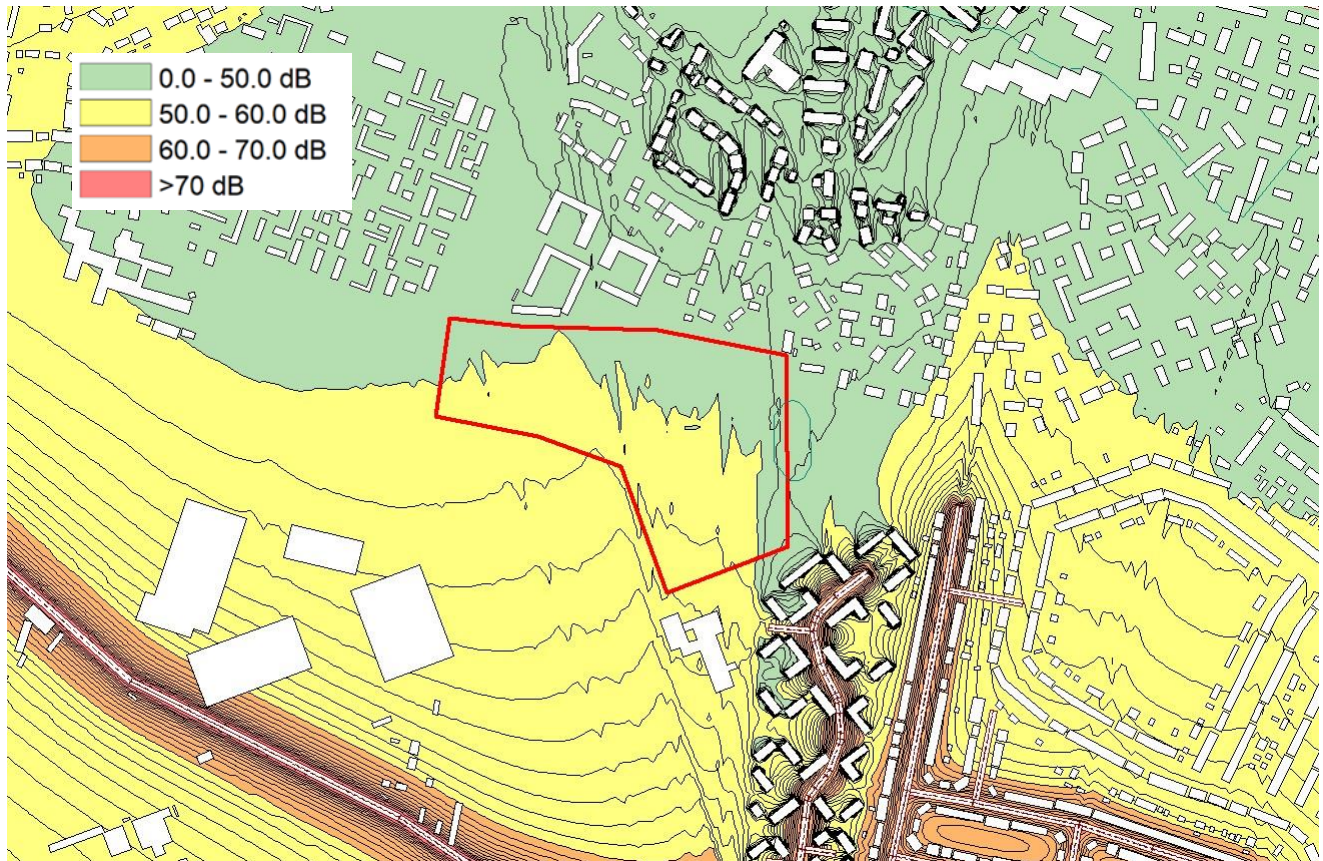
Proposal- South Bedfont will be a new residential neighbourhood close to the new Bedfont station, providing new homes integrated with open space.



The development site is located approximately 400m from the A30 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 51 and 72 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

40 - Bedfont Gardens Residential (C3), and Retail (A1-A4), Open Space.

Proposal- Bedfont Gardens will be a new residential neighbourhood which opens out onto new and improved parkland with supporting community facilities.

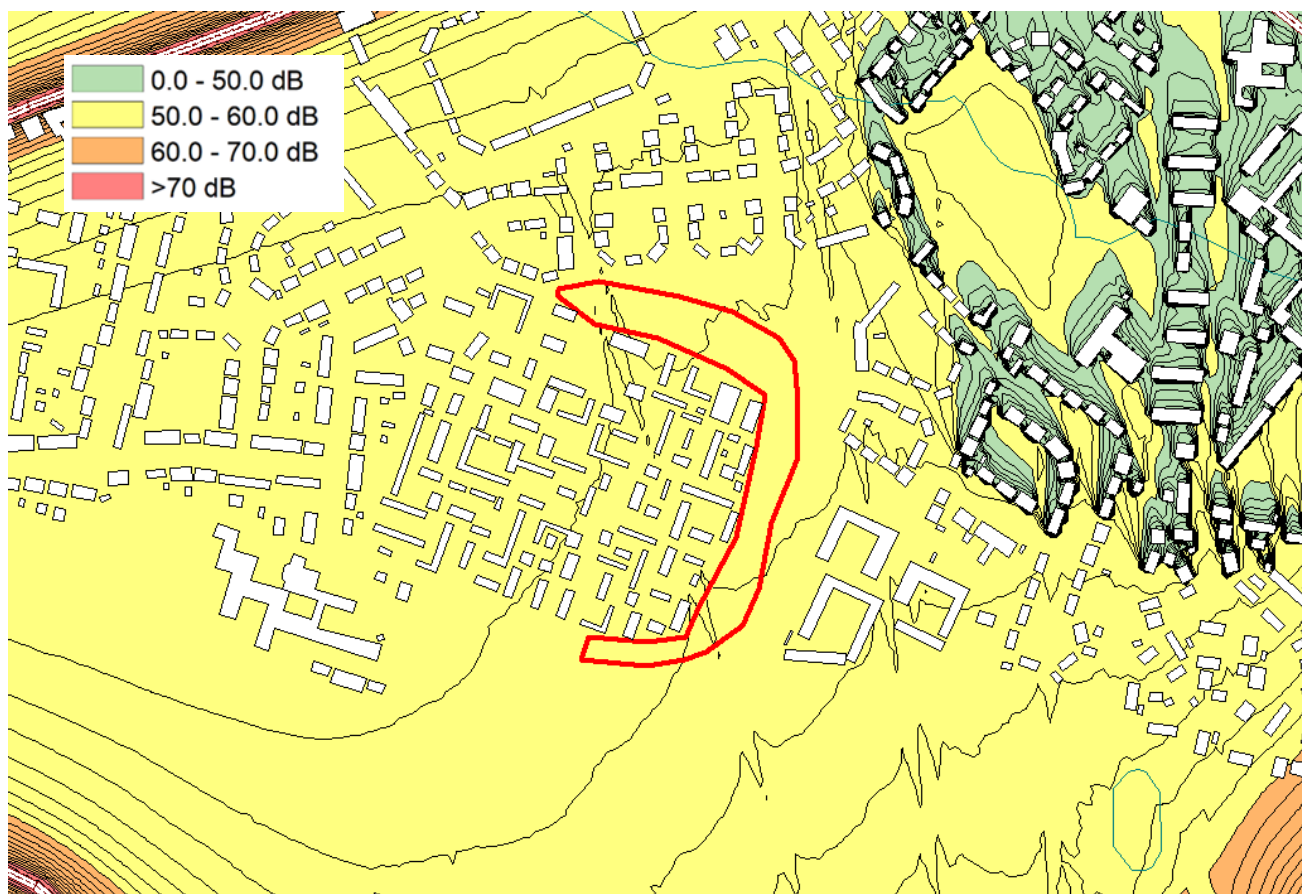


The development site is located approximately 400m from the Bedfont Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 49 and 57 dB L_{Aeq} within the development site. However, it should be noted that adjacent rail traffic and nearby commercial and industrial premises may affect noise levels within the potential development site.

As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the railway and nearby businesses have the potential to exceed the SOAEL (assuming no screening is provided by intervening structures) and as such the provision of winter gardens facing the railway may be appropriate.

41 - Bedfont Gardens, Land at Southville Crescent Residential (C3), Community Use (D2) and Open Space.

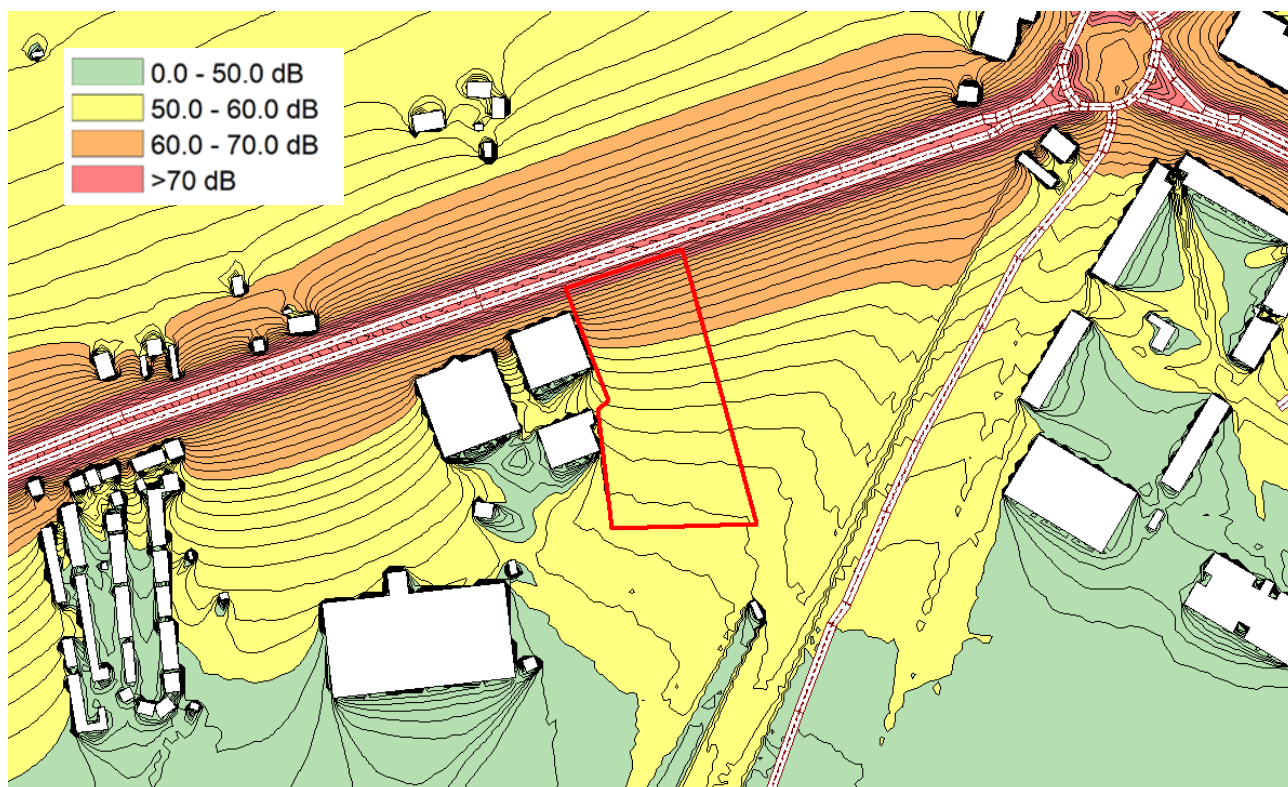
Proposal - Bedfont Gardens North will extend the existing urban area with new homes and improved community facilities.



The development site is located approximately 10m from the Bedfont Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Ambient noise levels within the site during the daytime are expected to range between 52 and 58 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

42 - Land at Bedfont Lakes (West) 753 Staines Road, Feltham Residential (C3) and Open Space.

Proposal - Bedfont Lakes West will be developed proceeding the provision of Bedfont Station with new homes and a new park on the adjacent Green Belt.



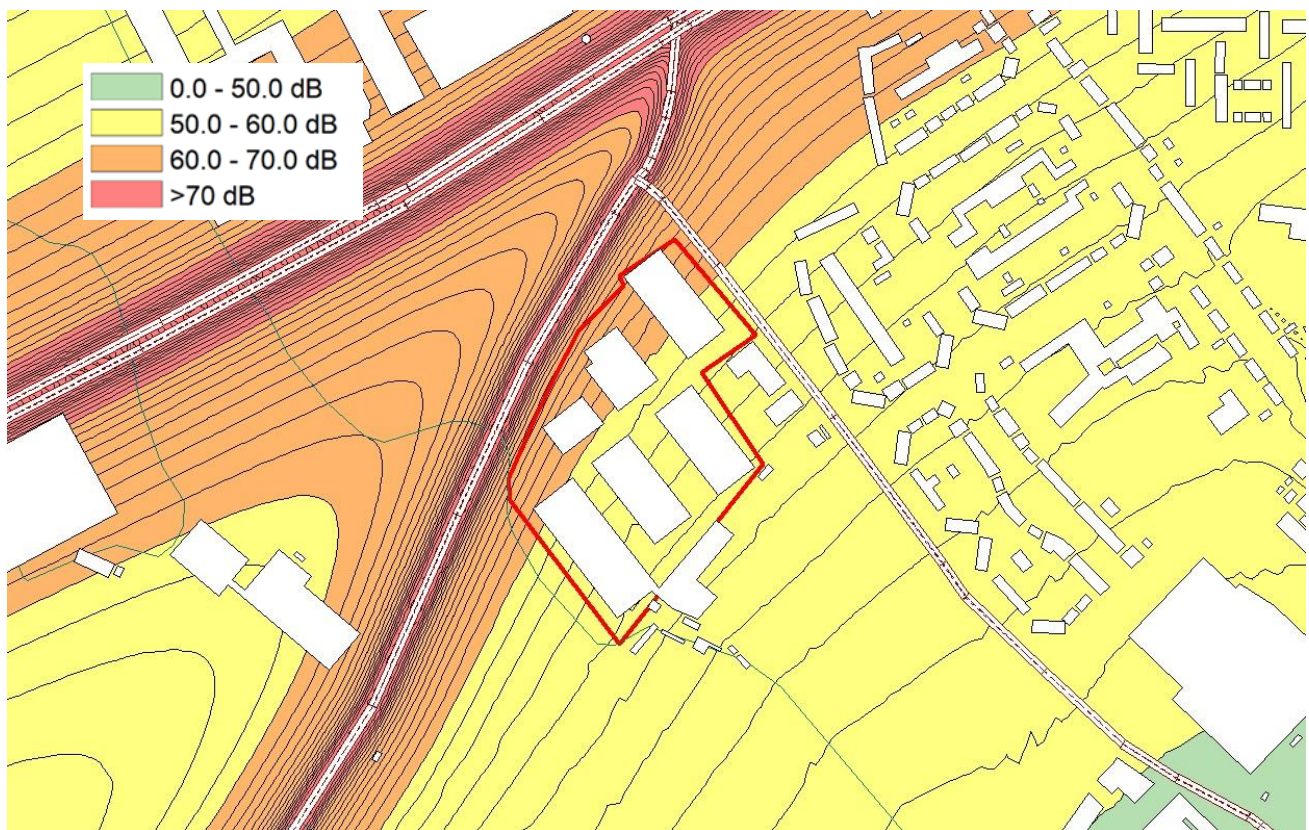
The development site is located approximately 10m from the A30 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 75 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A30 at up to 60 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A30 may be appropriate.

Furthermore, due to the proximity of commercial and industrial premises adjacent to the potential development site, additional consideration will be required to demonstrate that the introduction of sensitive uses of the development site would result in significant adverse impacts relating to noise that would place unreasonable restrictions on the continuing operation of existing businesses, in-line with the Agent of Change principle.

43 - Heathrow International Trading Estate Light Industrial (B1c),

Industrial (B2/B8).

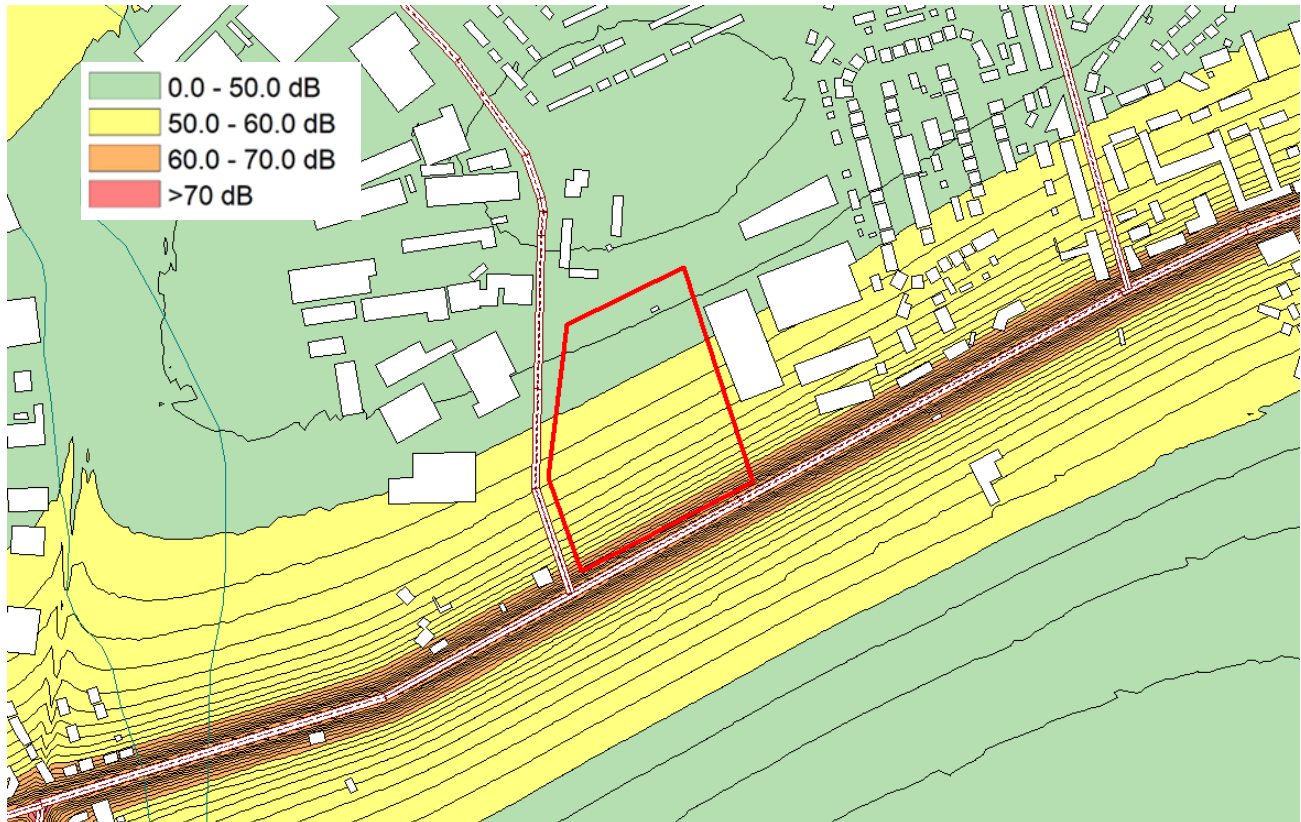
Proposal - Heathrow International Trading Estate will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.



The development site is located approximately 140m from the A30 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 55 and 68 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the existing industrial and commercial uses within the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

44 - Central Park Trading Estate Light Industrial (B1c), Industrial (B2/B8).

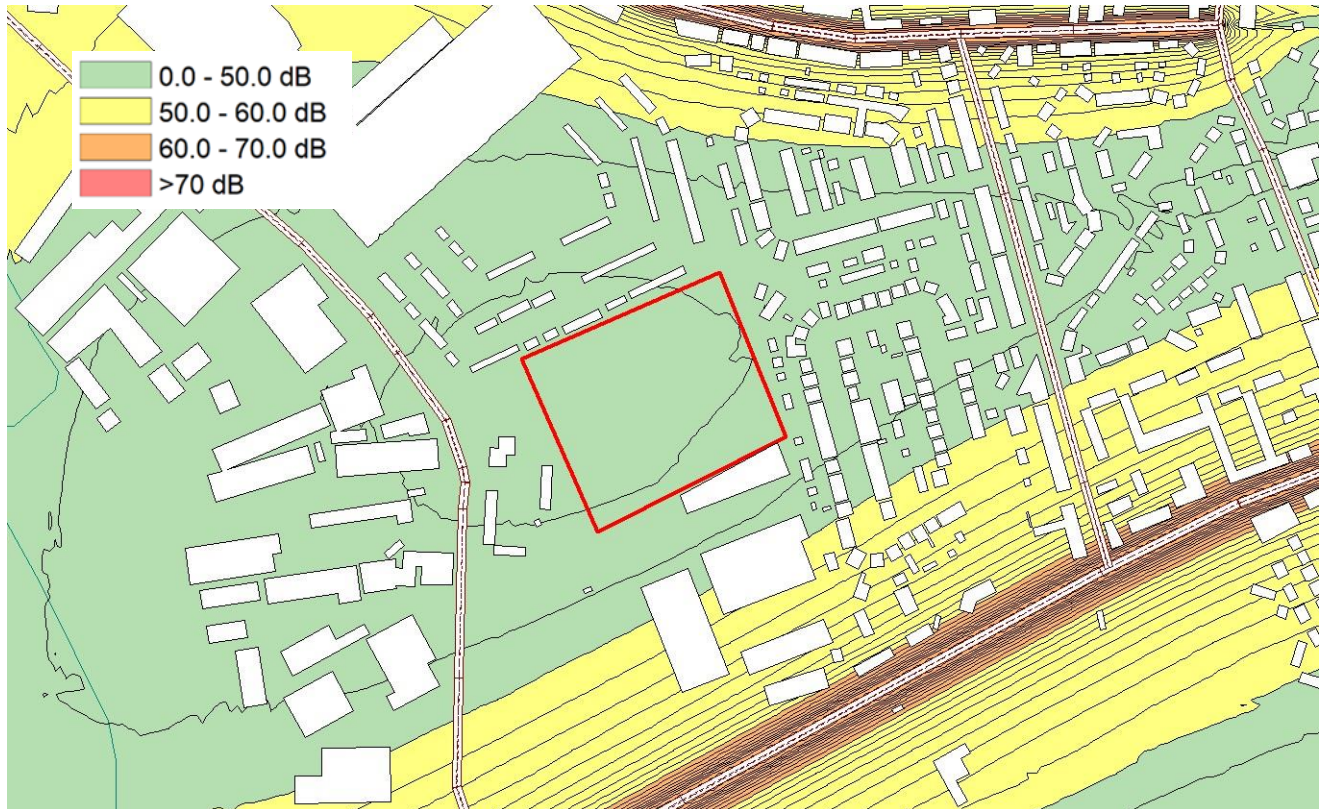
Proposal - Central Park Trading estate will be redeveloped and expanded to provide new industrial business space and units to support the borough's future employment needs.



The development site is located approximately 10m from Staines Road and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 48 and 70 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the existing industrial and commercial uses around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

45 - Land at Green Lane Industrial (B2/B8).

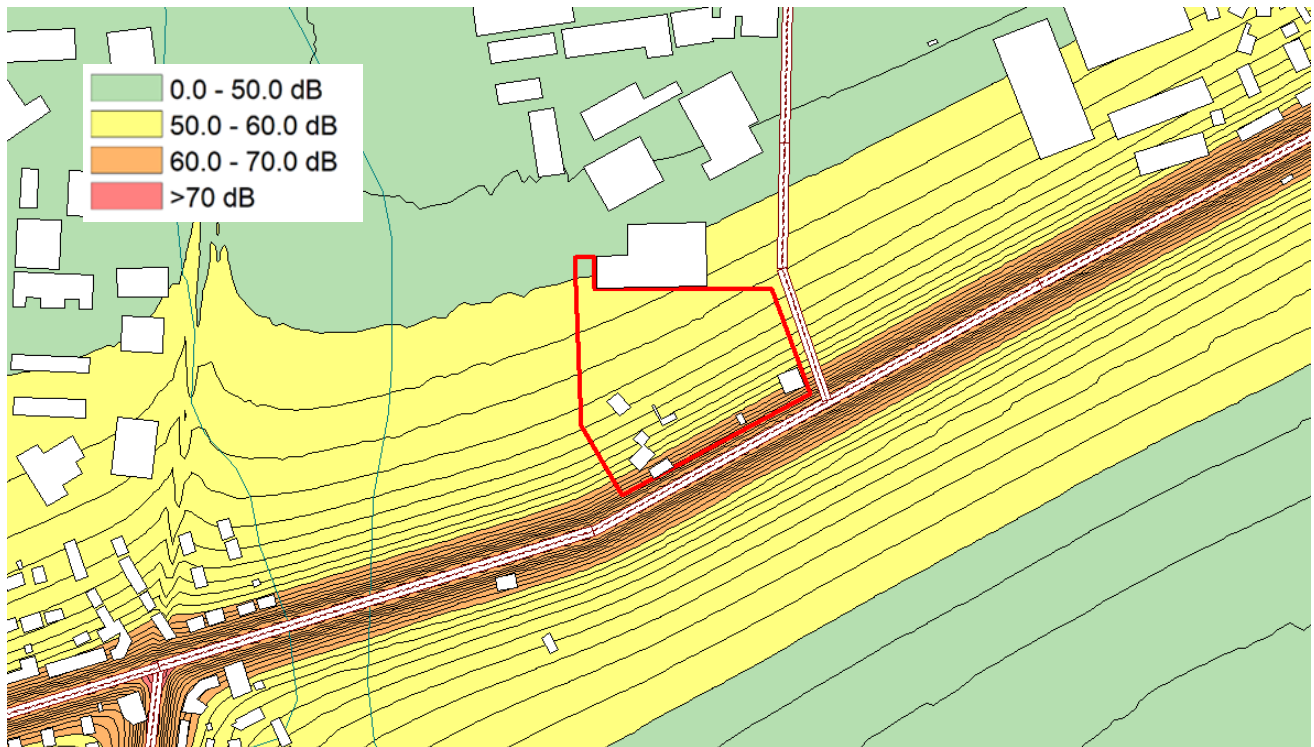
Proposal - Land at Green Lane will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.



The development site is located approximately 240m from Staines Road and within the Heathrow 66 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 47 and 49 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the existing industrial and commercial uses around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

46 - Ron Smith Recycling, Green Lane Waste Uses including; Light Industrial (B1c), Industrial (B2/B8).

Proposal - The site at Green Lane will be redeveloped to provide more intensive industrial use and a broader range of uses as well as improved access and exit from the site.



The development site is located approximately 10m from Staines Road and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 49 and 70 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the surrounding industrial and commercial uses which surround the development site and constraints on development that may arise, in-line with the agent of change principle.

47 - 150-152 Great South West Road, Cranford Industrial (B2/B8).

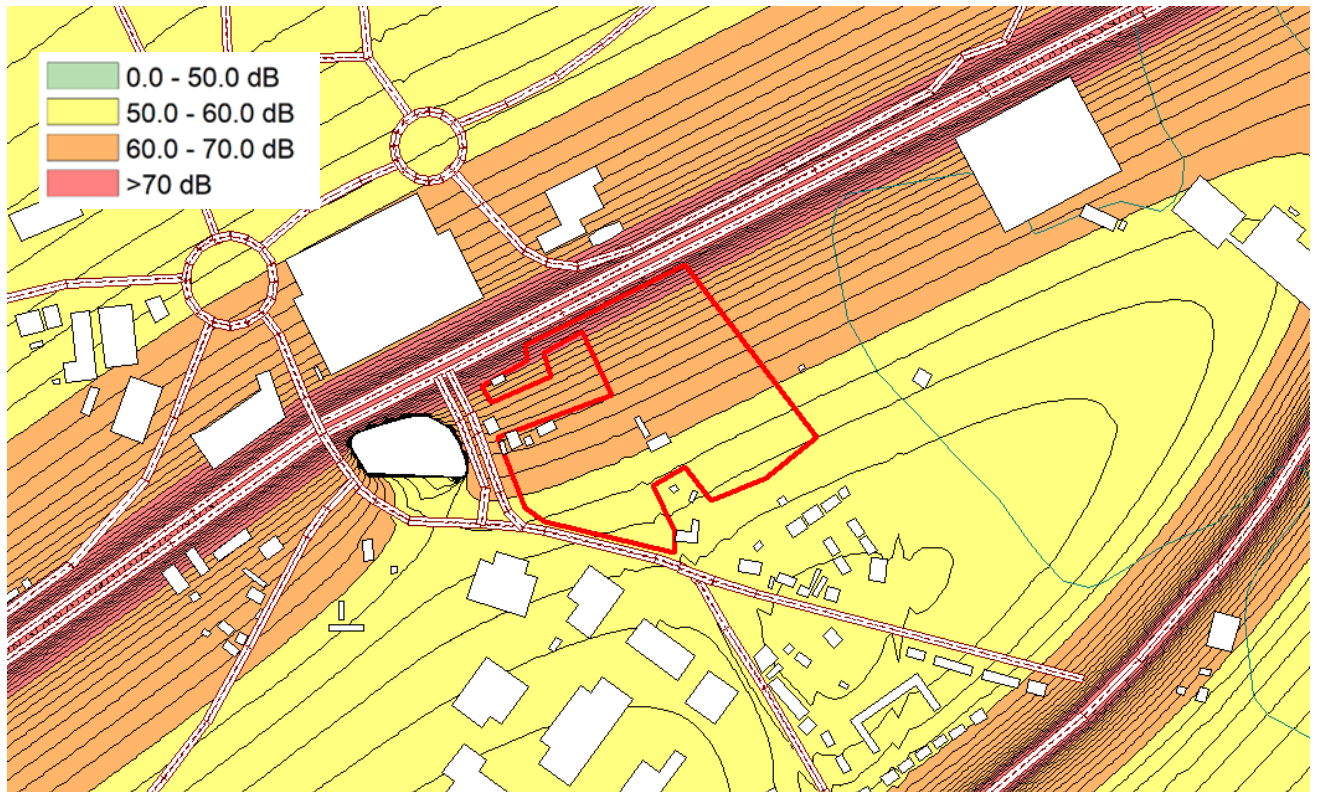
Proposal- 150-152 Great West Road will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.



The development site is located approximately 10m from the A30 and within the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 65 and 80 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the existing industrial and commercial uses around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

48 - Vacant Land at Dick Turpin Way Industrial (B2/B8).

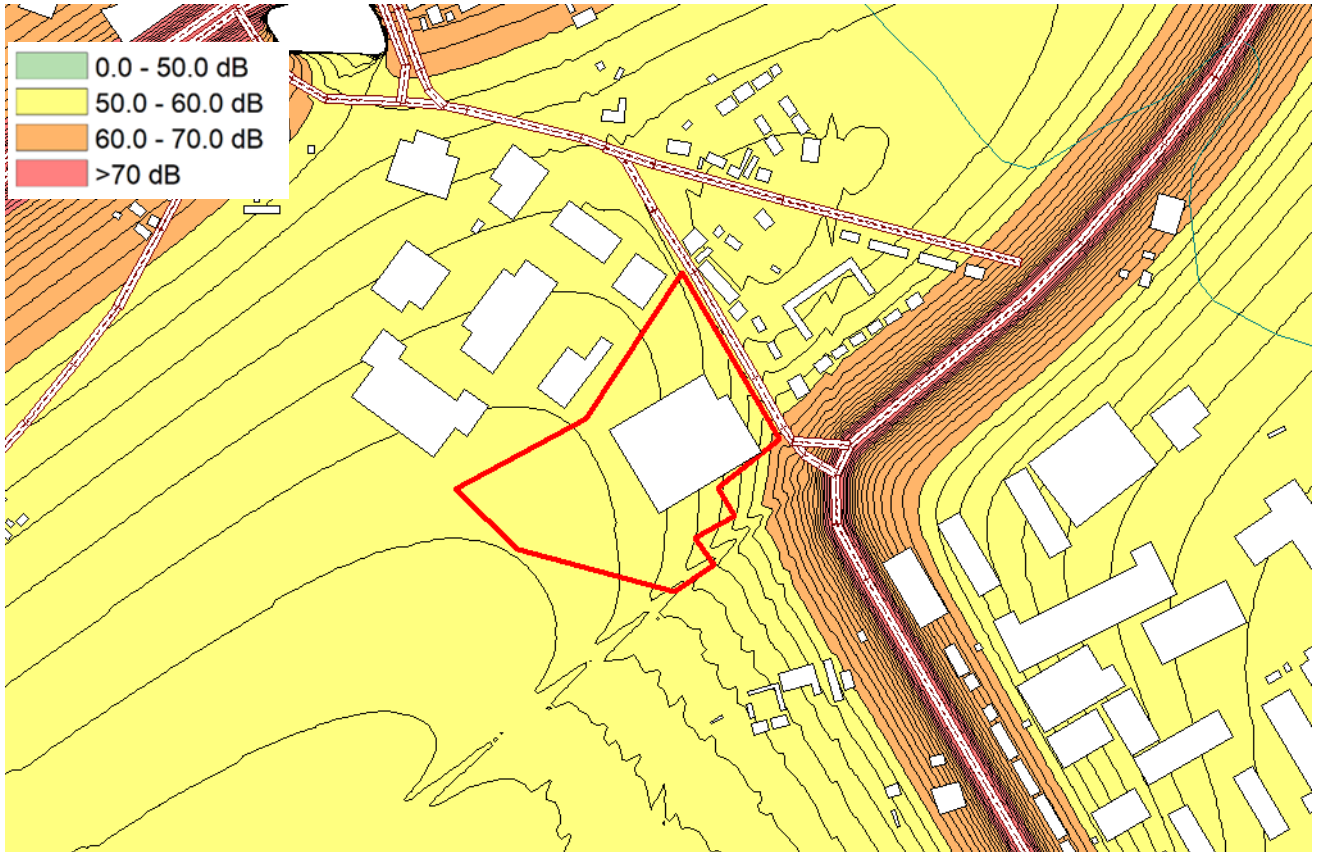
Proposal - The Site at Dick Turpin Way will be redeveloped to provide new industrial business space and units to support the borough's future employment needs.



The development site is located approximately 10m from the A30 and within of the Heathrow 69 dB L_{Aeq} noise contour and as such is unlikely to be suitable for permanent residential development. Road traffic noise within the site during the daytime ranges between 57 and 75 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the existing industrial and commercial uses around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

49 - Site at Faggs Road Light Industrial (B1c), Industrial (B2/B8).

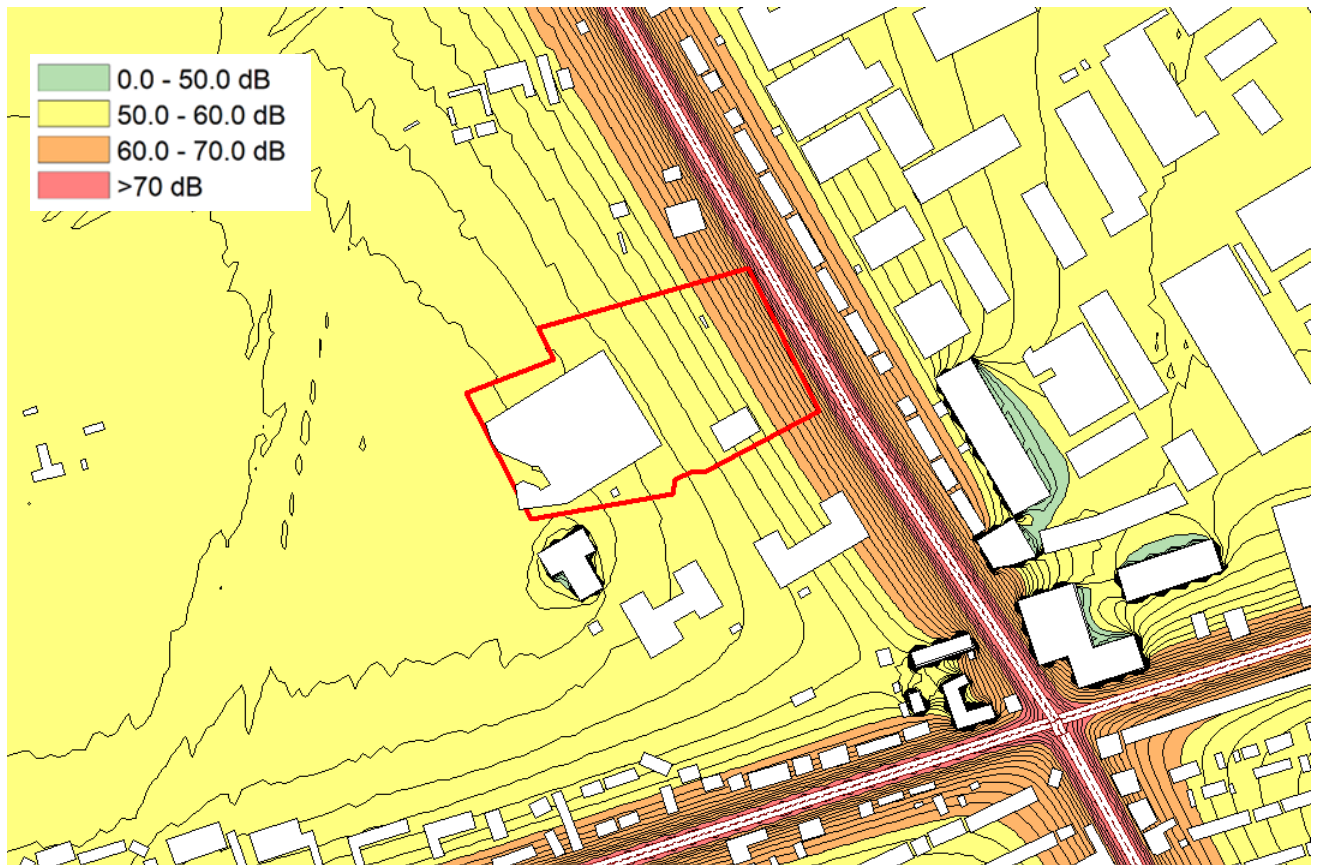
Proposal- The site at Faggs Road will be extended to provide additional industrial business space and units to support the borough's future employment needs.



The development site is located approximately 350m from the A30 and within of the Heathrow 69 dB L_{Aeq} noise contour and as such is unlikely to be suitable for permanent residential development. Road traffic noise within the site during the daytime ranges between 53 and 62 dB L_{Aeq} within the development site. Detailed consideration will also need to be given to the surrounding industrial and commercial uses which surround the development site and constraints on development that may arise, in-line with the agent of change principle.

50 - Tesco Dukes Green Avenue Large Format Retail (A1), Residential (C3) and open space.

Proposal- Tesco Dukes Green will be redeveloped to provide a new retail unit combined with new homes and open space.

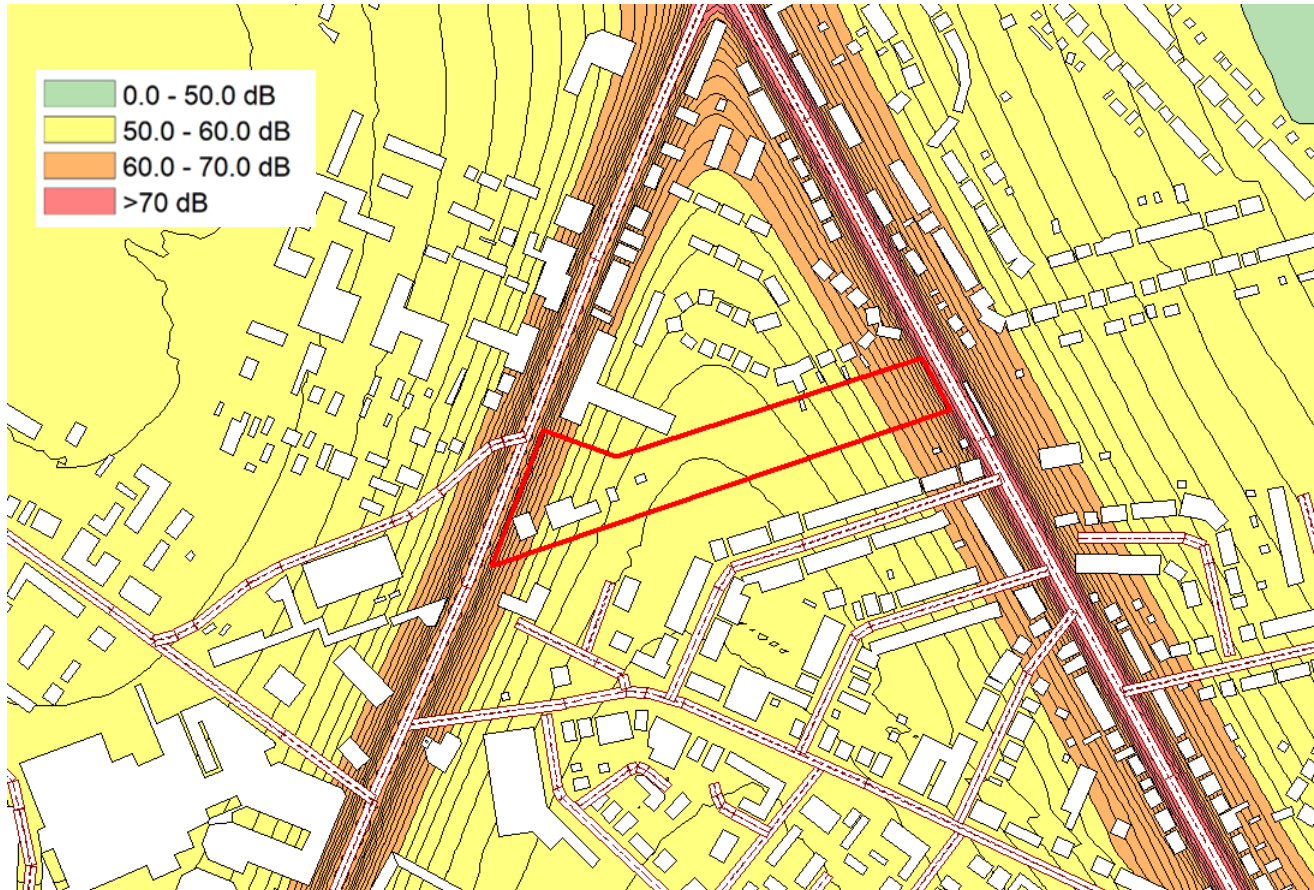


The development site is located approximately 10m from the A244 and within the Heathrow 63 dB L_{Aeq} noise contour which is likely to exceed the SOAEL. Road traffic noise within the site during the daytime ranges between 53 and 71 dB L_{Aeq} within the development site. As such, external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas across the development site are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Furthermore, potential residential development will be expected to consider the effects of the noise from the adjacent fire and ambulance stations as well as existing commercial uses that form part of the development site and nearby premises and the associated constraints on development that may arise, in-line with the agent of change principle. Similarly, potential commercial development will be expected to consider the effects of operational noise on existing sensitive residential and commercial premises.

51 - Network House Feltham Residential (C3), and Retail (A1-A4), Open Space.

Proposal- Network House will be redeveloped for housing as a part of the station quarter.

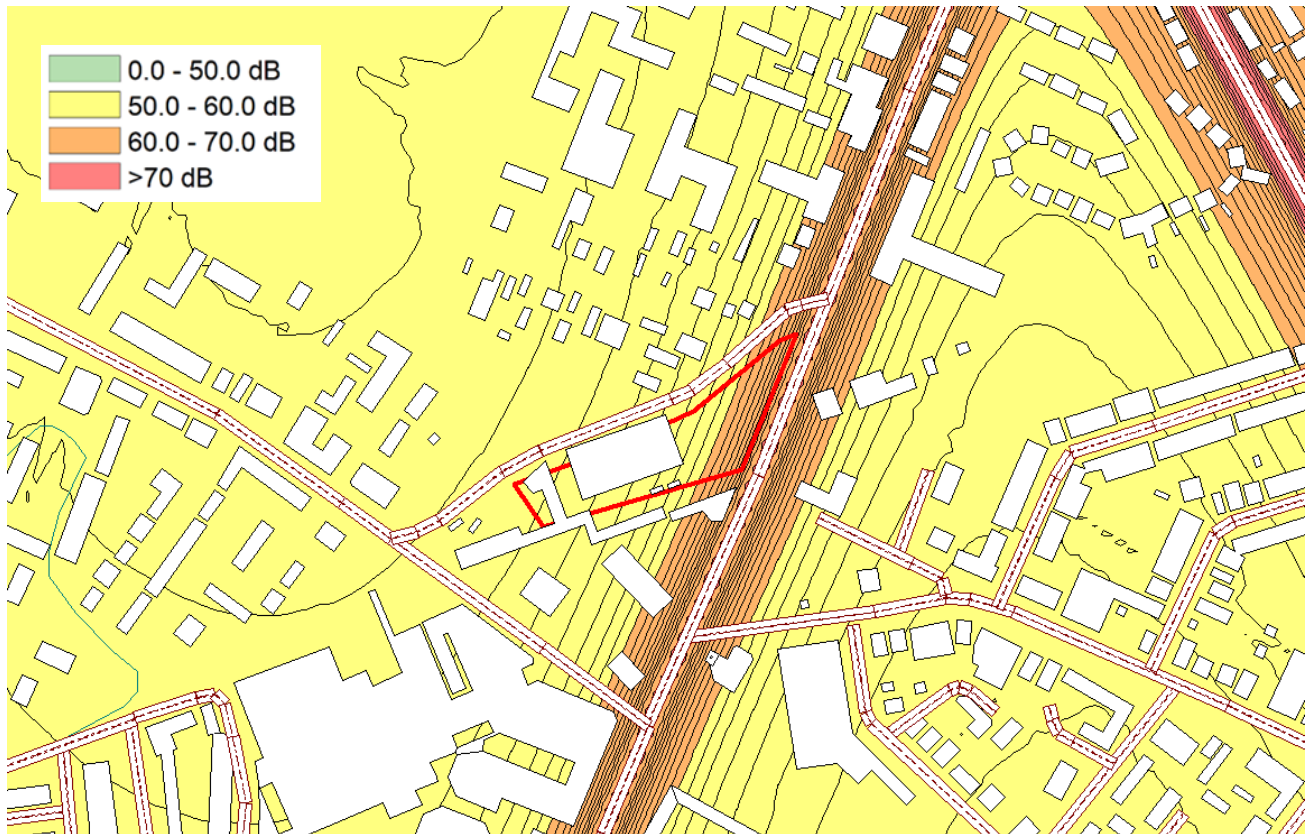


The development site is located approximately 10m from the A244 and adjacent railway line and is outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 54 and 72 dB L_{Aeq} within the development site.

As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the railway and A244 at up to 40 metres (vertically and horizontally) from the road and railway have the potential to exceed the SOAEL (assuming no screening is provided by intervening structures) and therefore potential developments would be required to demonstrate how noise levels could be controlled within internal and external areas of the development site.

52 - Lidl Feltham Retail (A1-A4), Residential (C3).

Proposal- Lidl Feltham will be redeveloped to provide a new supermarket combined with new homes as part of the station quarter.



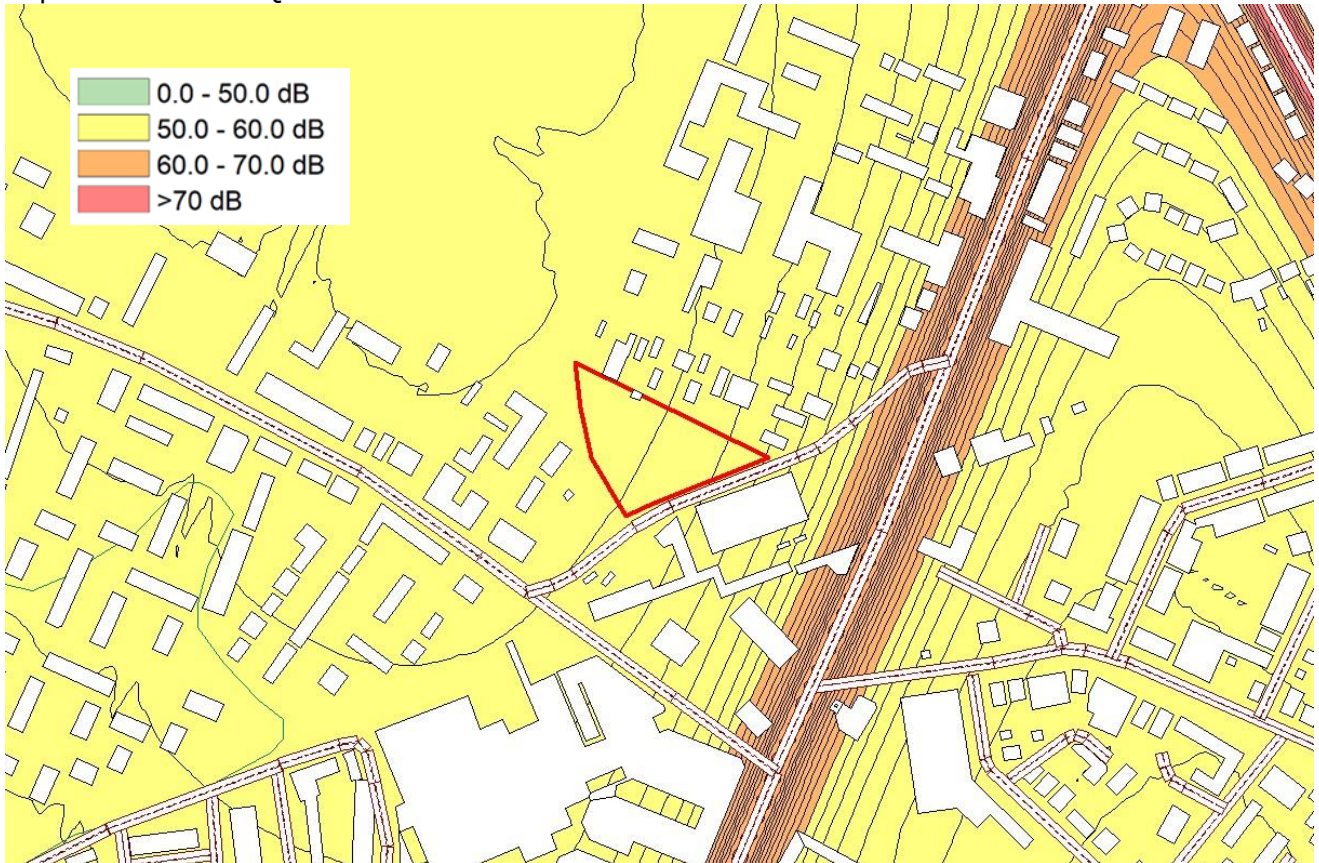
The development site is located approximately 10m from the A244 and adjacent railway line and is outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 58 and 68 dB L_{Aeq} within the development site.

As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the railway and A244 at up to 40 metres (vertically and horizontally) from the road and railway have the potential to exceed the SOAEL (assuming no screening is provided by intervening structures) and therefore potential developments would be required to demonstrate how noise levels could be controlled within internal and external areas of the development site.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

53 - New Road Triangle Residential (C3) and Open Space.

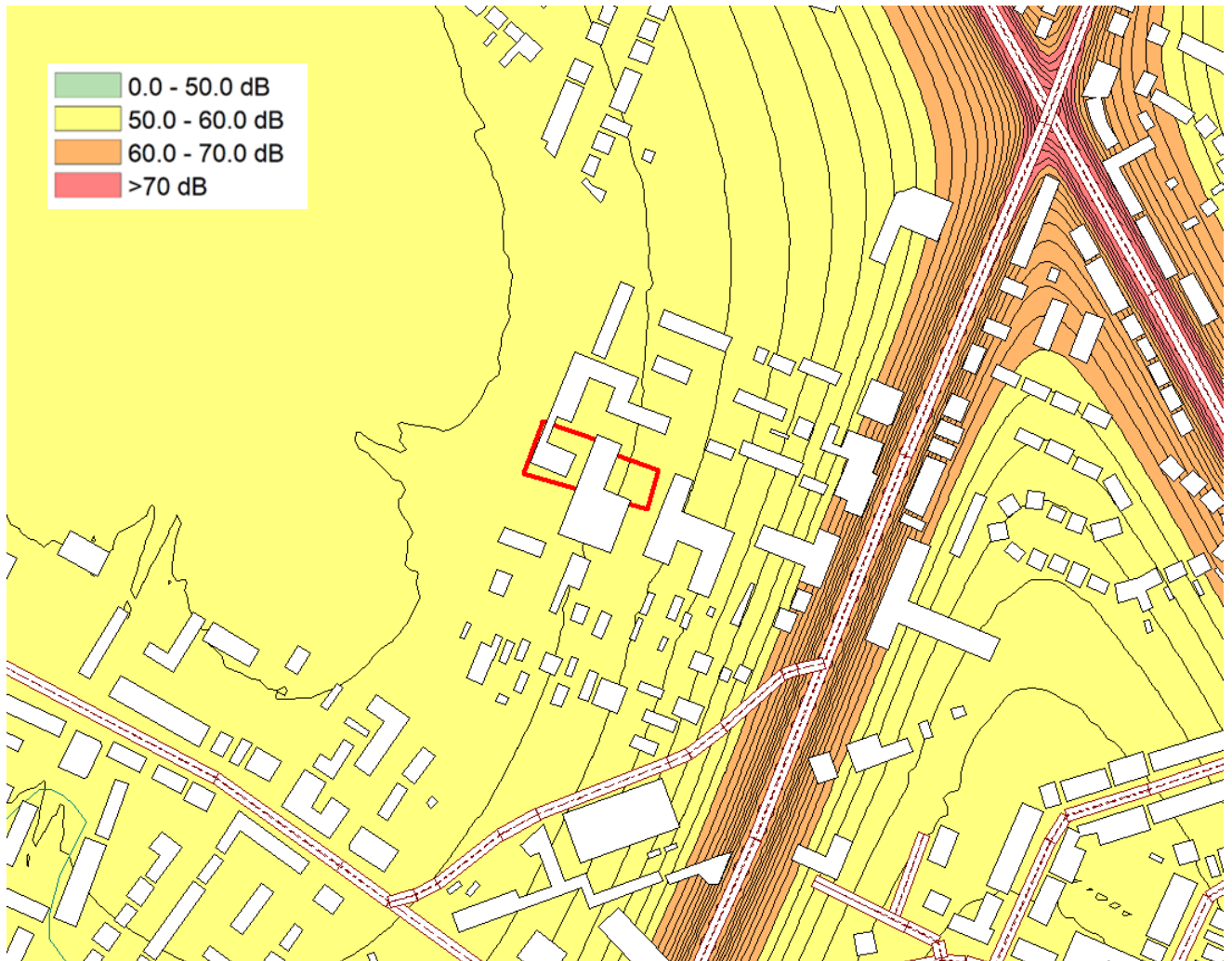
Proposal- New Road Car Park will be redeveloped for housing and create a new entrance to Feltham Arenas as part of the Station Quarter.



The development site is located approximately 80m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 56 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

54 - 61 Fern Grove Residential (C3).

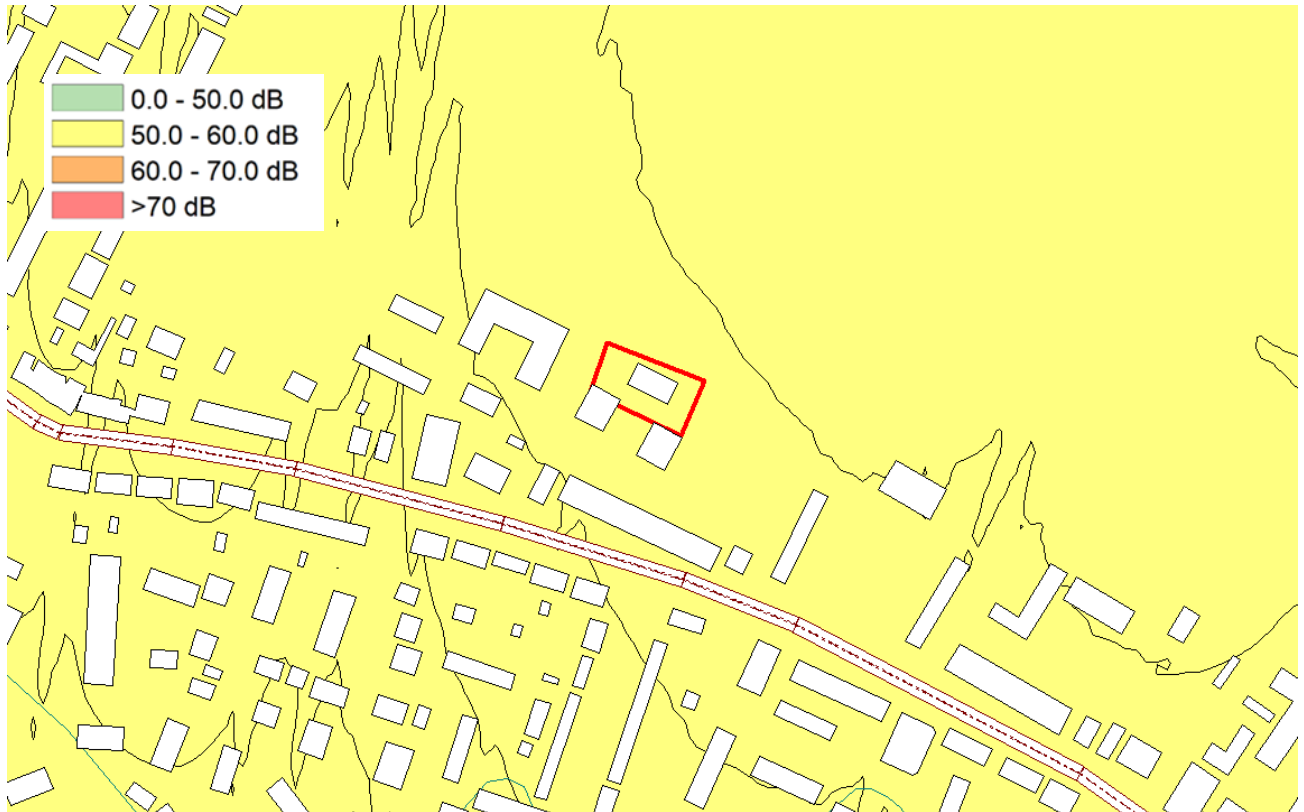


The development site is located approximately 80m from the A244 and outside of the Heathrow 60 dB LAeq noise contour. Road traffic noise within the site during the daytime ranges between 52 and 54 dB LAeq within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

55 - Scout Hut Bedfont Lane Residential (C3), community use (D1).

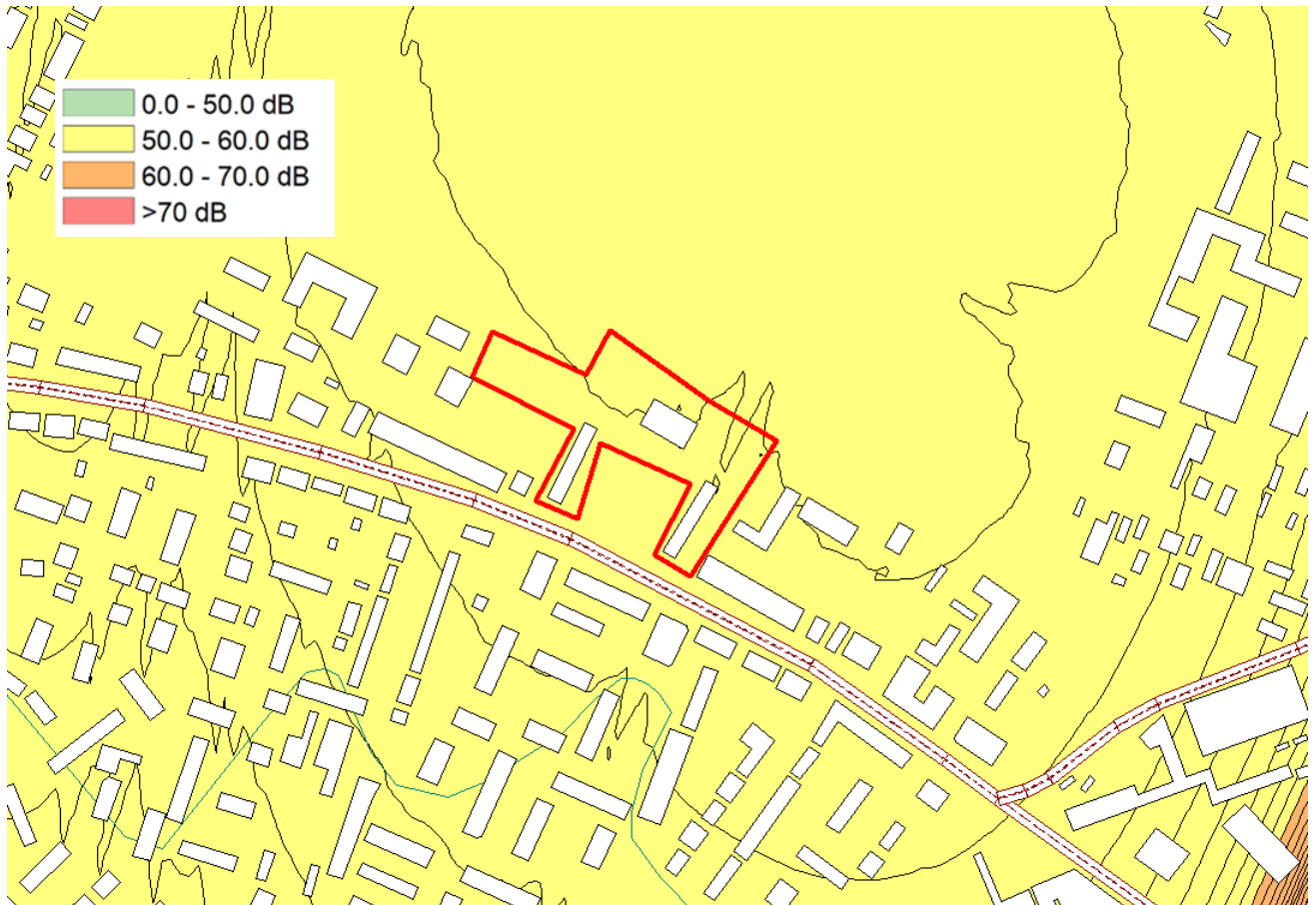
Proposal- The Scout Hut at Bedfont Lane will be redeveloped to deliver new housing.



The development site is located approximately 500m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 53 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to be below the SOAEL, however consideration of ambient noise levels would be required to demonstrate that noise levels can be reduced as far as practicable through site layout and barriers where appropriate.

56 - Land at Glebelands Road Residential (C3)

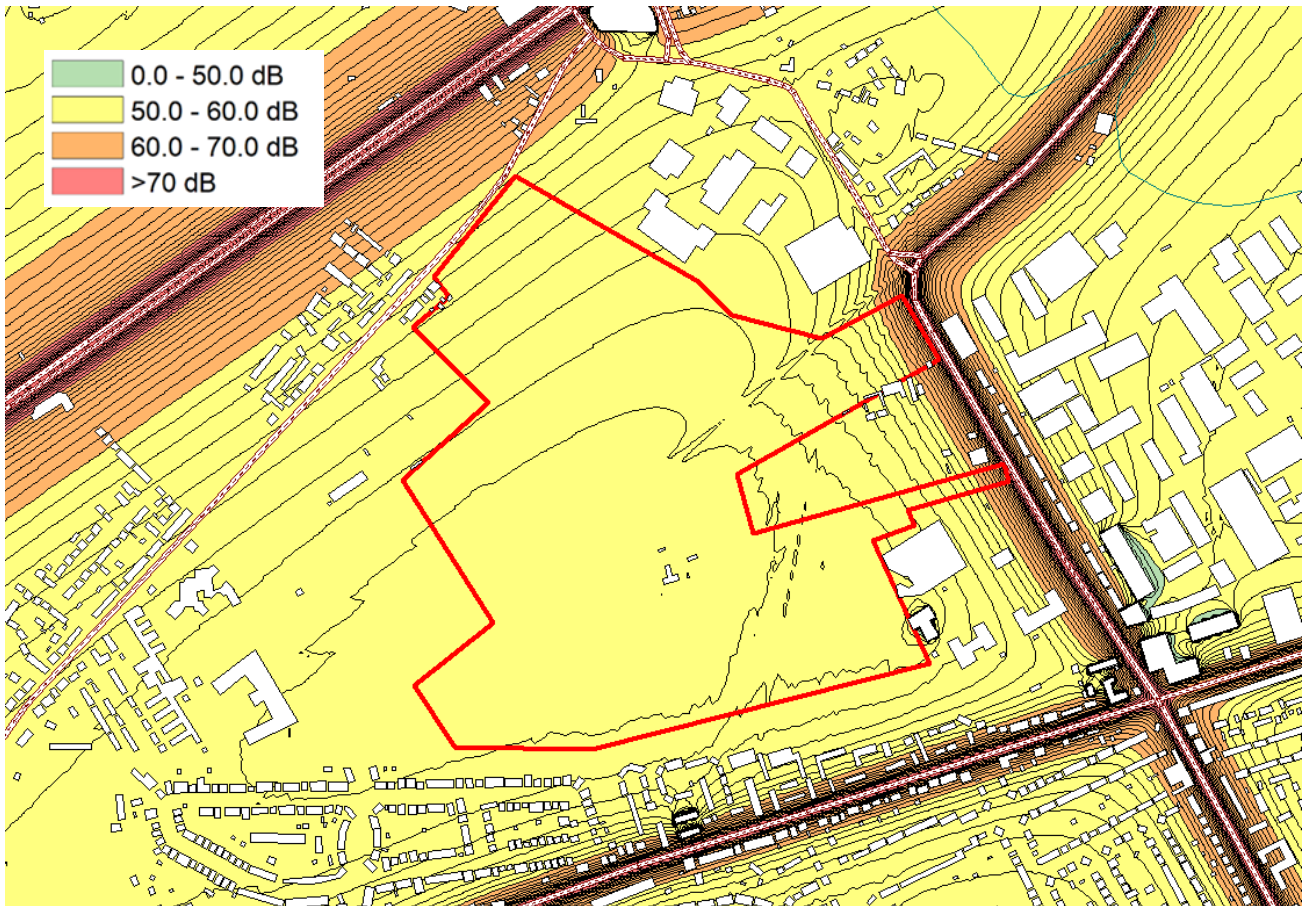
Proposal- Sites at Glebelands road within the existing development will be redeveloped to provide new homes via sensitive infill development.



The development site is located approximately 350m from the A244 and outside of the Heathrow 60 dB LAeq noise contour. Road traffic noise within the site during the daytime ranges between 52 and 53 dB LAeq within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to be below the SOAEL, however consideration of ambient noise levels would be required to demonstrate that noise levels can be reduced as far as practicable through site layout and barriers where appropriate.

57 - Airport Business Park Industrial (B2, B8).

Proposal- Airport business park will form a major new industrial area to support the Hounslow's employment needs over the plan period, combining modern, high density warehousing with high quality infrastructure.

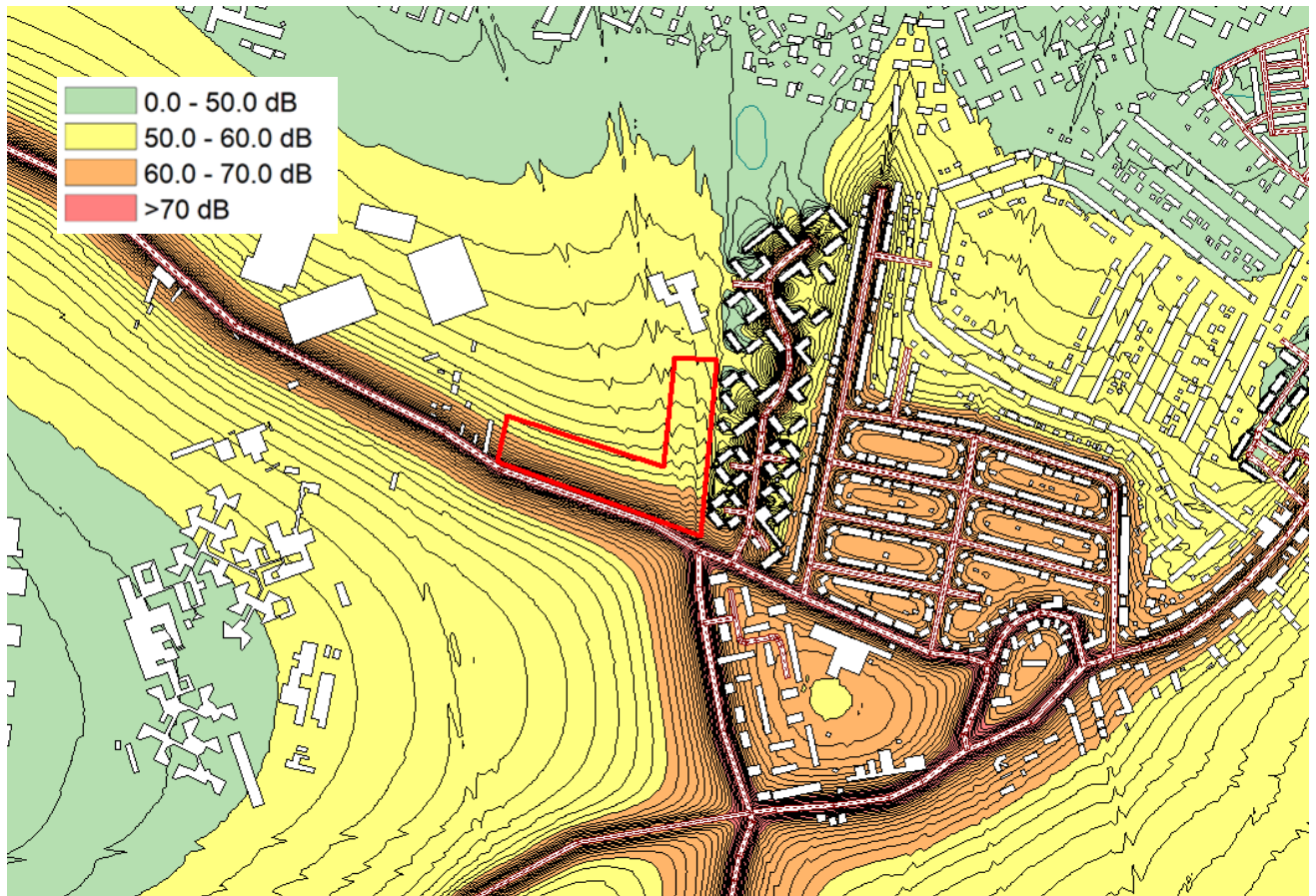


The development site is located approximately 40m from the A30 and within the Heathrow 60-72 dB L_{Aeq} noise contours and as such is unlikely to be suitable

for permanent residential development. Road traffic noise within the site during the daytime ranges between 53 and 71 dB L_{Aeq} within the development site. Although existing ambient noise levels are high, detailed consideration will also need to be given to existing residential properties and surrounding industrial and commercial uses which surround the development site in-line with the agent of change principle.

58 - Lower Feltham West Residential (C3) and Open Space

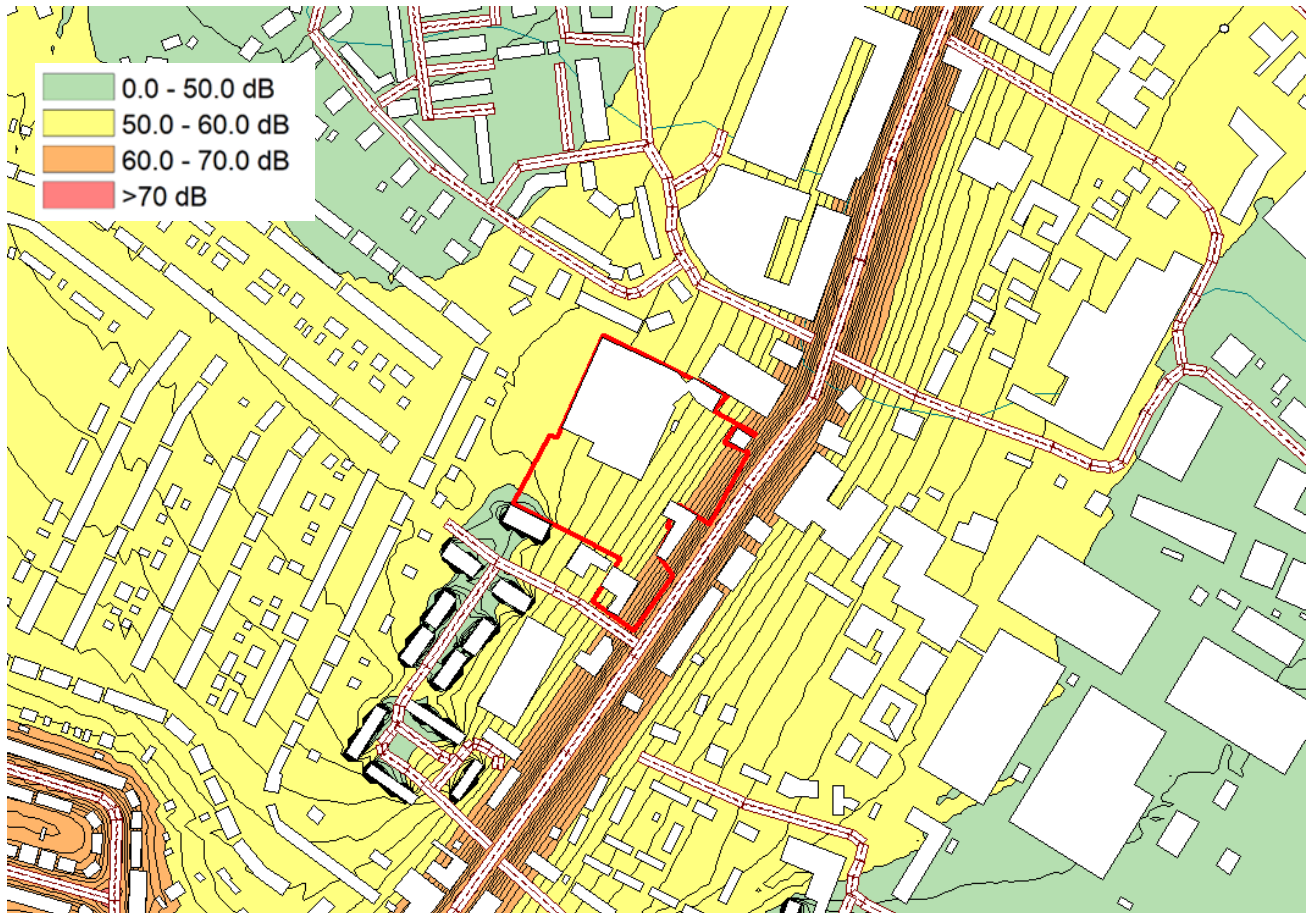
Proposal - Lower Feltham West will be redeveloped to provide an improved and more accessible Raleigh Park and new homes.



The development site is located approximately 10m from the Bedfont Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 54 and 69 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the Bedfont Road at up to 40metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the Bedfont Road may be appropriate.

59 - Tesco Feltham Retail (A1-A4), Residential (C3)

Proposal - Tesco Feltham will be redeveloped to provide a new large floorplate retail unit (A1) with under-store parking, housing (C3) and a new public open space



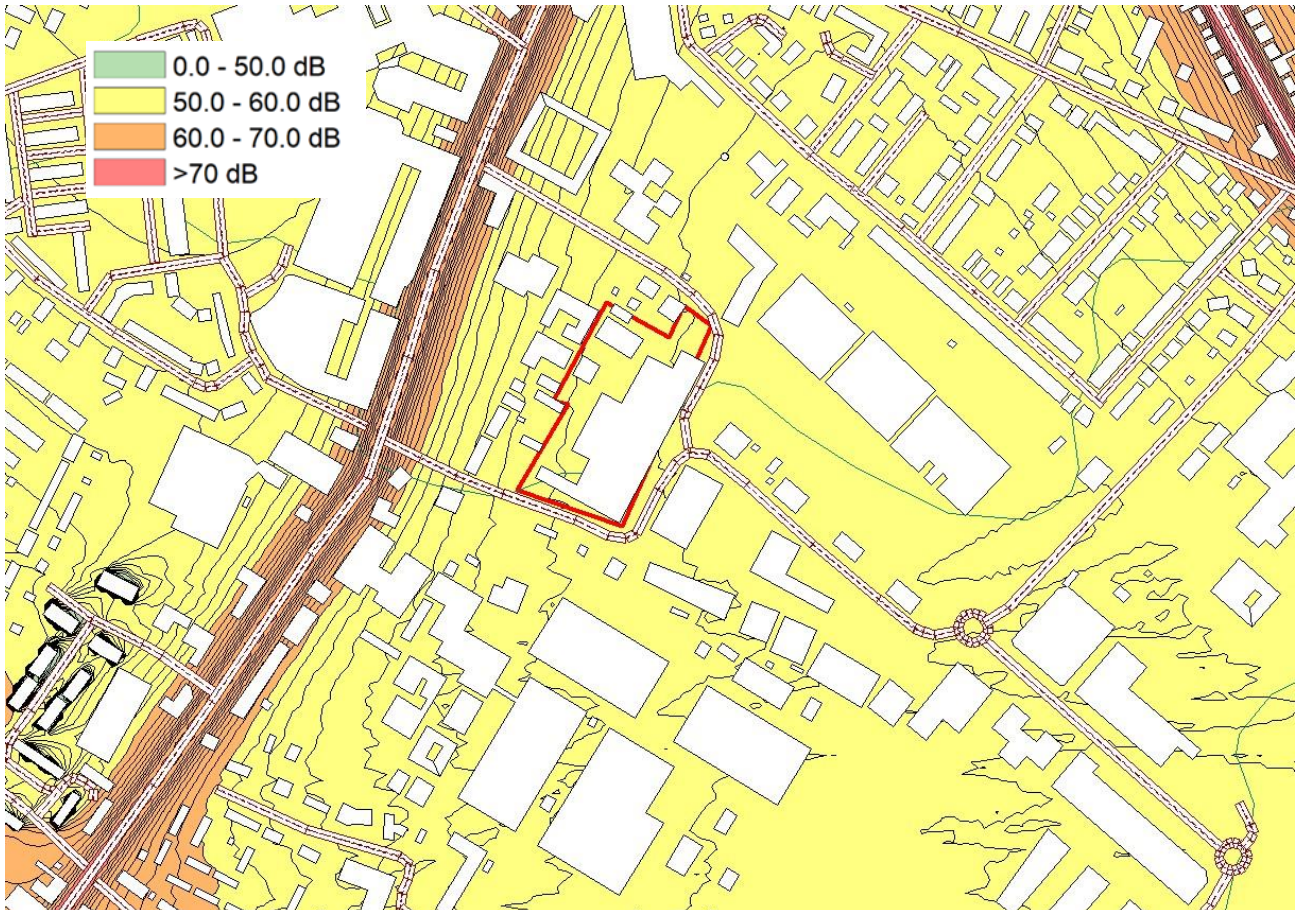
The development site is located approximately 50m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 48 and 66 dB L_{Aeq} within the development site.

As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the railway and A244 at up to 40 metres (vertically and horizontally) from the road and railway have the potential to exceed the SOAEL (assuming no screening is provided by intervening structures) and therefore potential developments would be required to demonstrate how noise levels could be controlled within internal and external areas of the development site.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

60 - Land at Air Park Way Business (B1a/b) and Residential (C3)

Proposal - Air Park way will be redeveloped to deliver new homes as part of the redevelopment of MOD Feltham.

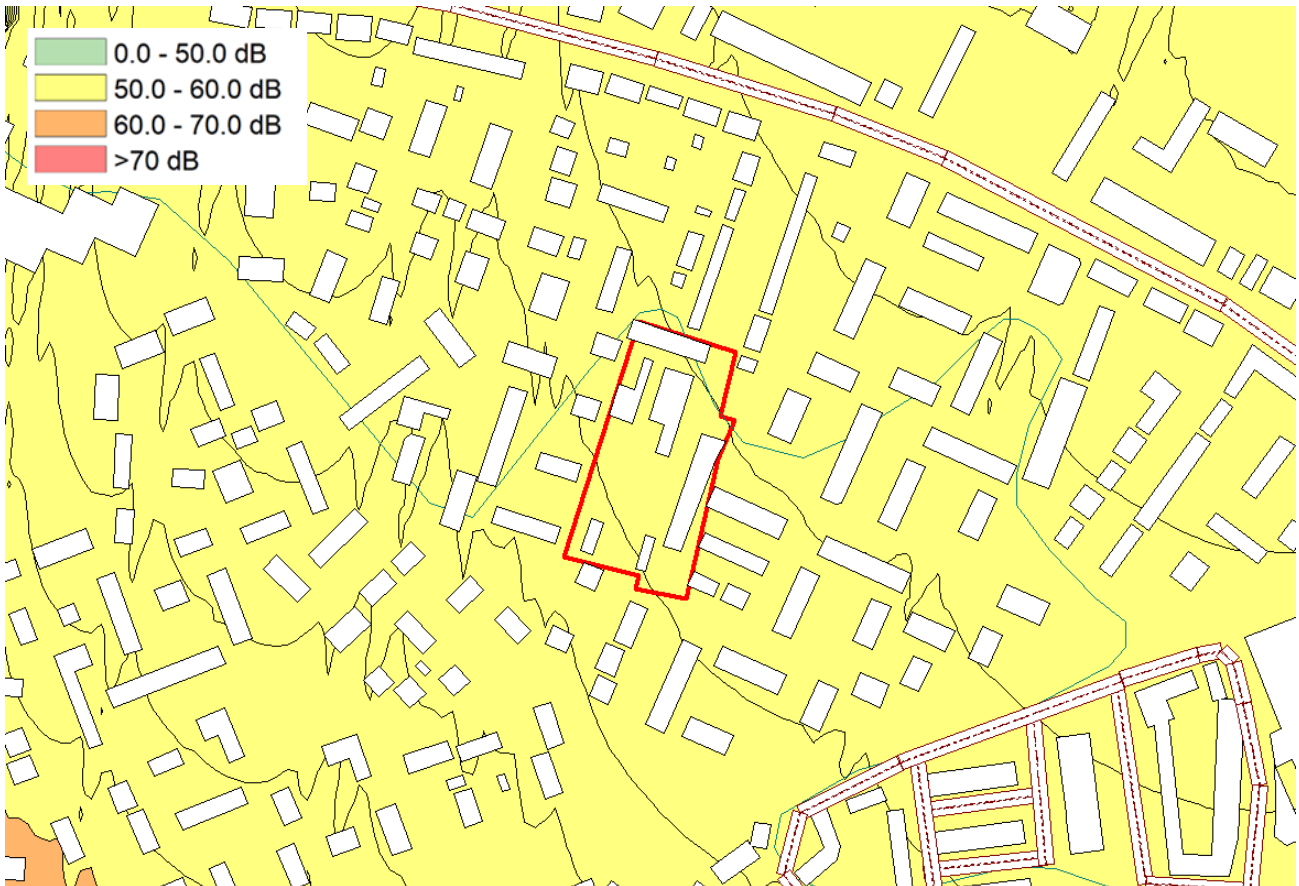


The development site is located approximately 125m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 53 and 58 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

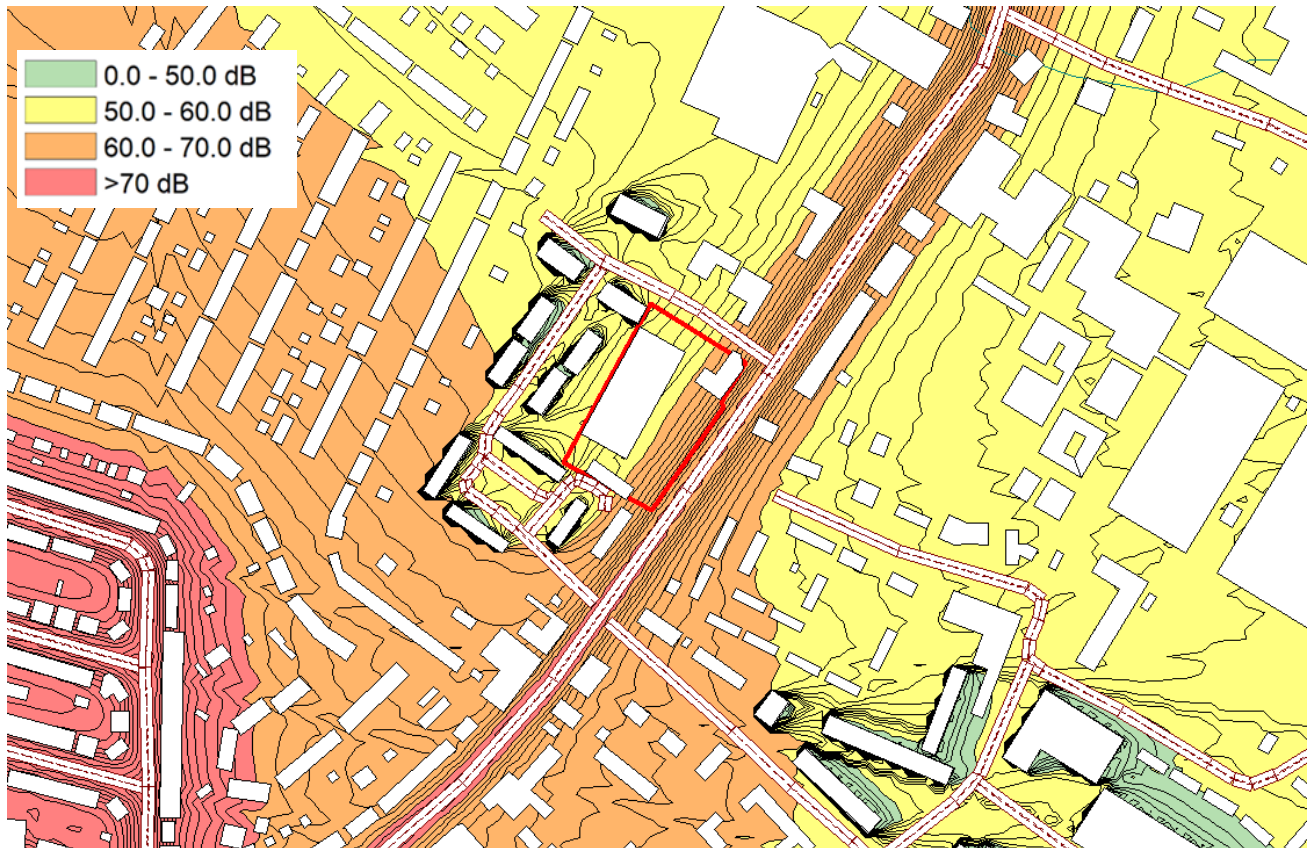
61 - Council Depot, Ashmead Road Residential (C3)

Proposal - Ashmead Depot will be redeveloped to provide new homes. The development site is located approximately 500m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 55 dB L_{Aeq} within the development site. As such consideration will need to be given to site layout and measures to reduce noise levels as far as practicable to demonstrate the suitability of the site for residential development.



62 - Manor Park, Feltham Business (B1a/b) and Residential (C3)

Proposal - Manor Park will be redeveloped to intensify the use of the site to provide new retail units and homes.

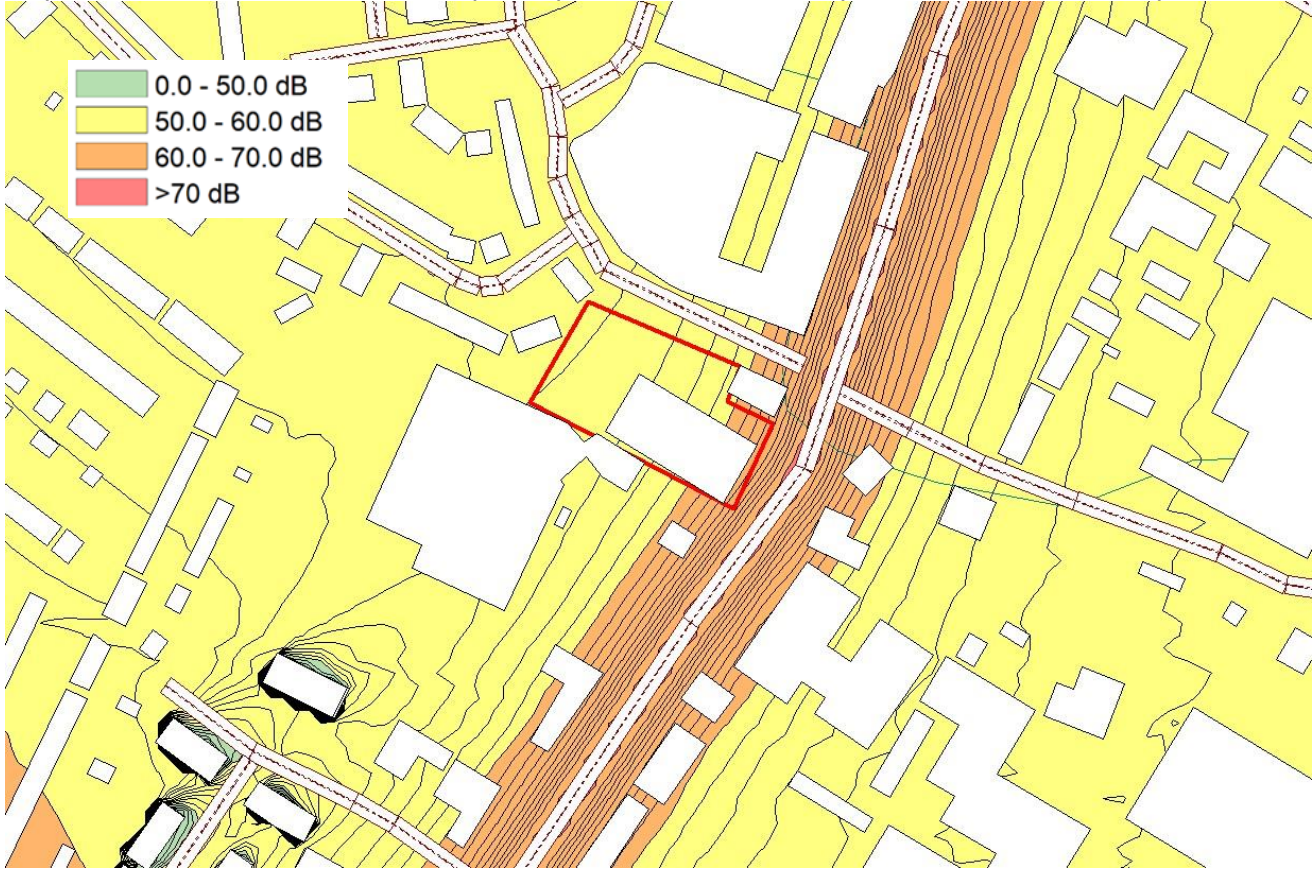


The development site is located approximately 10m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 68 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A244 at up to 40 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A244 may be appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

63 - 80-86 High Street Feltham Business (B1a/b) and Residential (C3)

Proposal - The Aldi Site will be redeveloped to provide new retail floorspace and residential development.

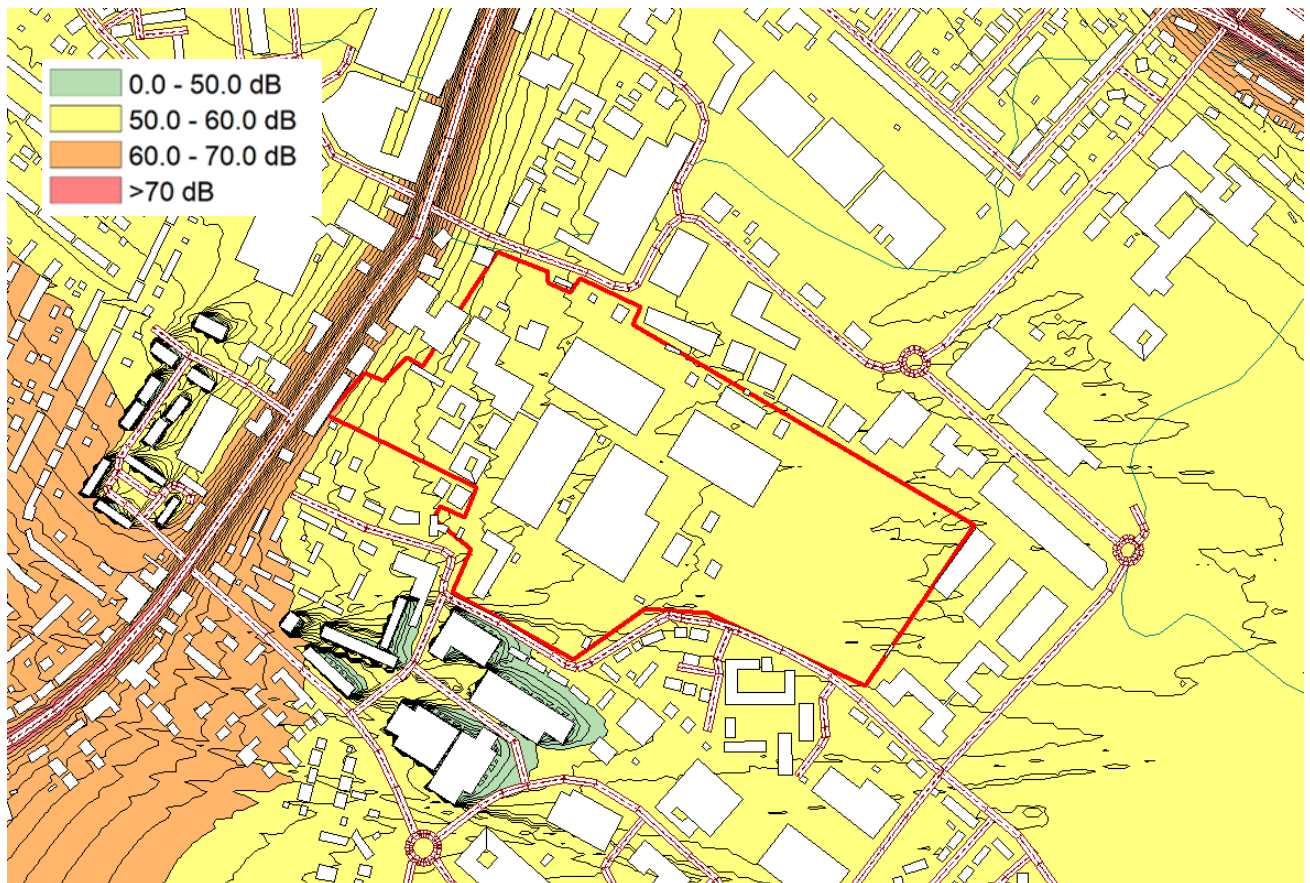


The development site is located approximately 10m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 55 and 67 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A244 at up to 40 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A244 may be appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

64 - MOD Feltham Residential (C3), Business (B1a/b), open space, community uses, and other supporting uses.

Proposal - MOD Feltham will be redeveloped into a major new residential area of Feltham, with a new school, public open space, and community uses.



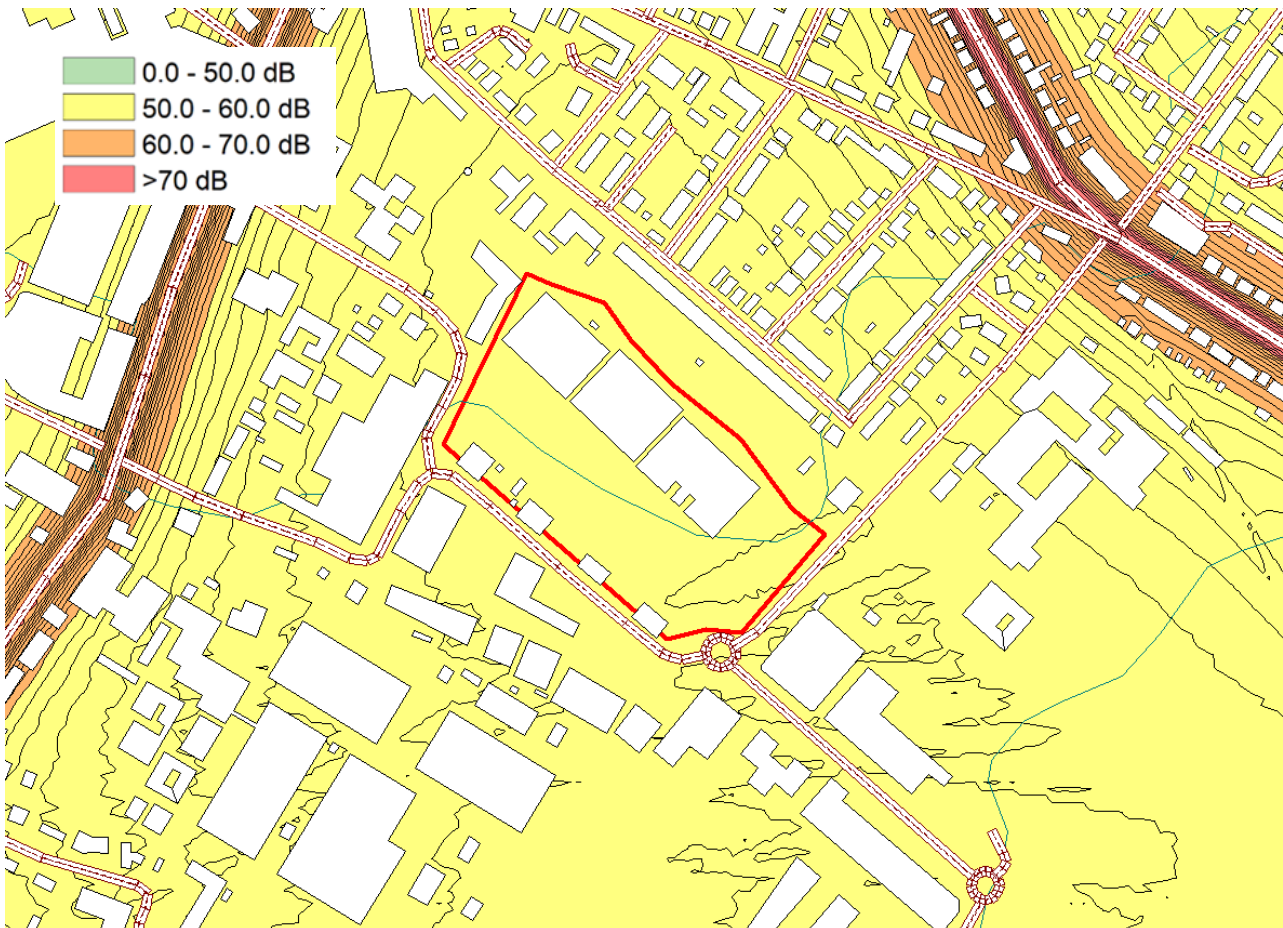
The development site is located approximately 20m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 55 and 61 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

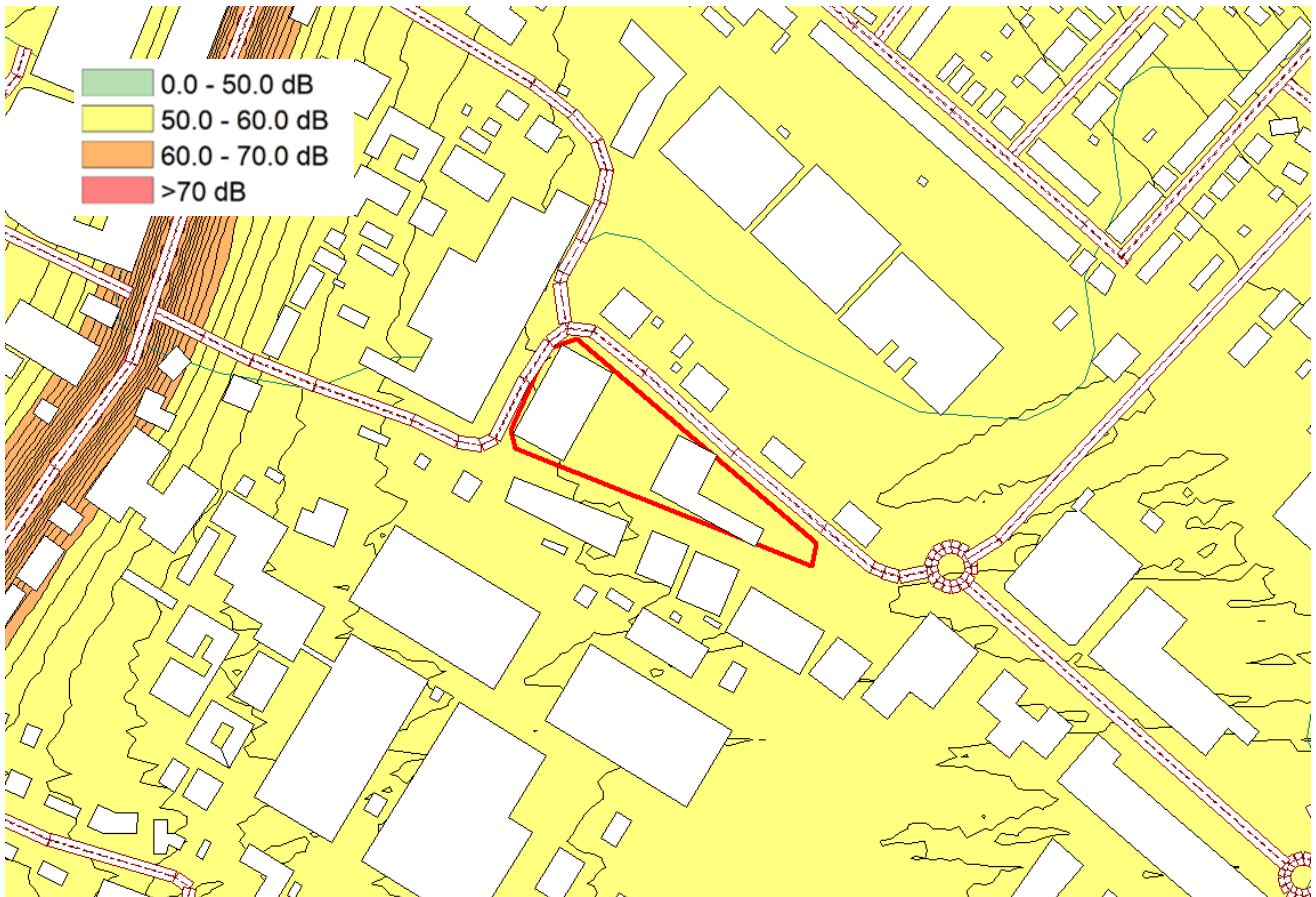
65 - Leisure West Residential (C3), Retail (A1-A4), Leisure (D1), Community Uses (D2), Open Space.

Proposal - Leisure West will be redeveloped to introduce residential uses alongside new and improved leisure and entertainment facilities which support Feltham as a key town centre in West London. The development site is located approximately 200m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 55 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.



66 - Browells Lane Business (B1a/b), Light Industrial (B1c), Residential (C3).



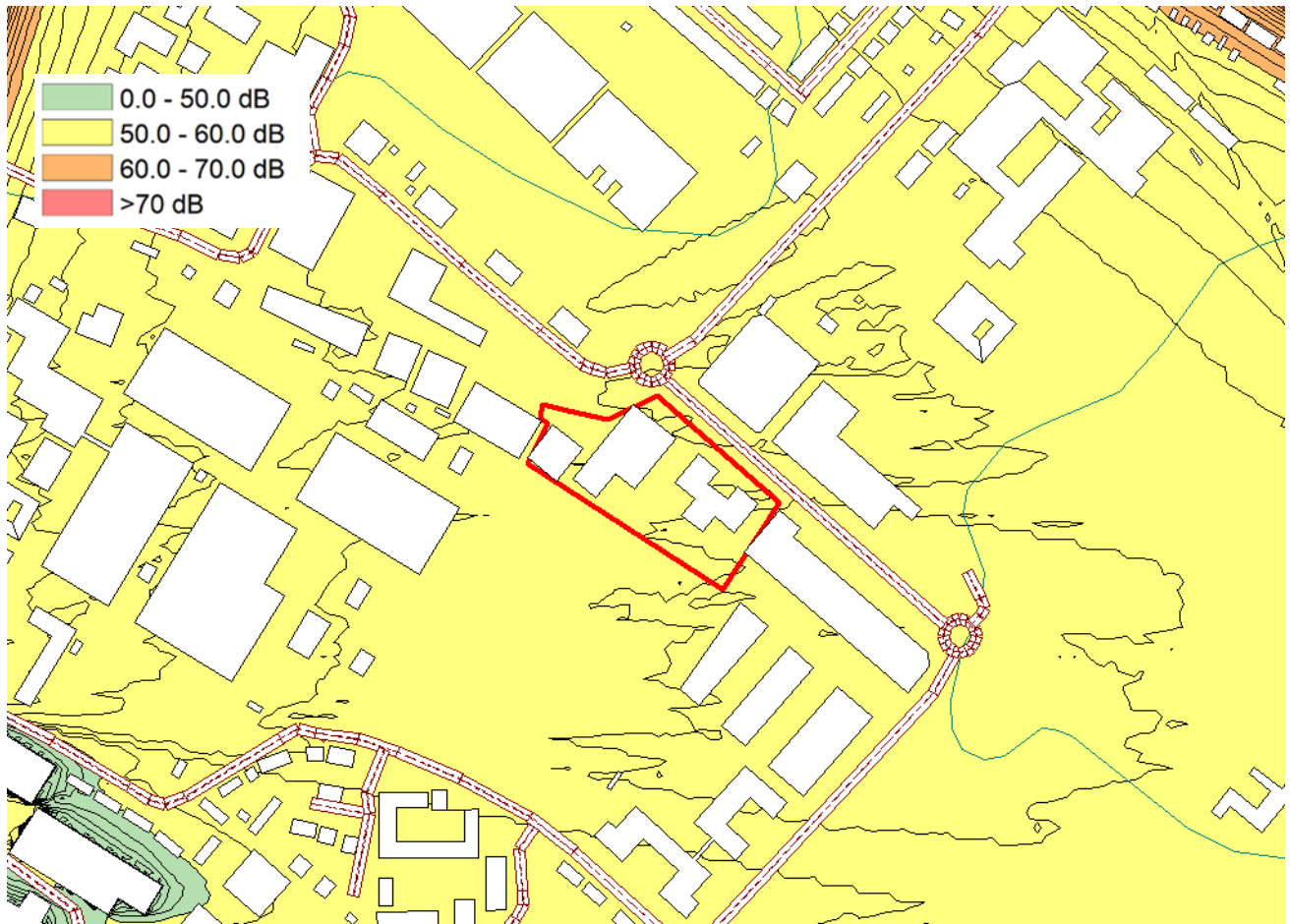
Proposal - Land at Browells lane will be redeveloped to intensify business uses on the site and provide new homes.

The development site is located approximately 200m from the A244 and outside of the Heathrow 60 dB LAeq noise contour. Road traffic noise within the site during the daytime ranges between 51 and 54 dB LAeq within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

67 - UPS House Light Industrial (B1c), Industrial (B2/B8) and Residential (C3).

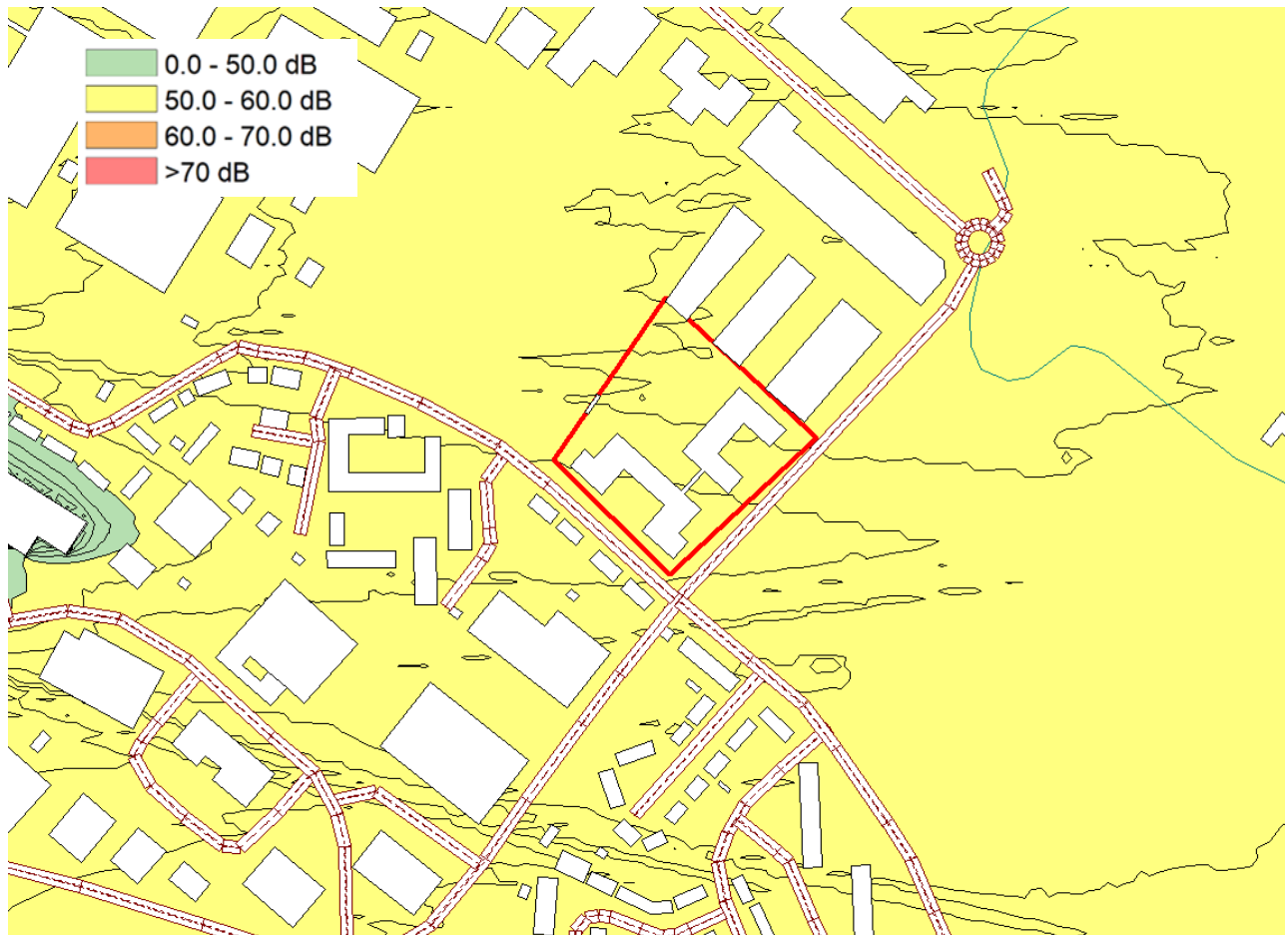
Proposal - UPS house will be redeveloped to intensify industrial uses and new homes as part of the redevelopment of MOD Feltham.



The development site is located approximately 400m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 53 and 56 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

68 - Smith House, Elmwood Avenue Residential (C3)

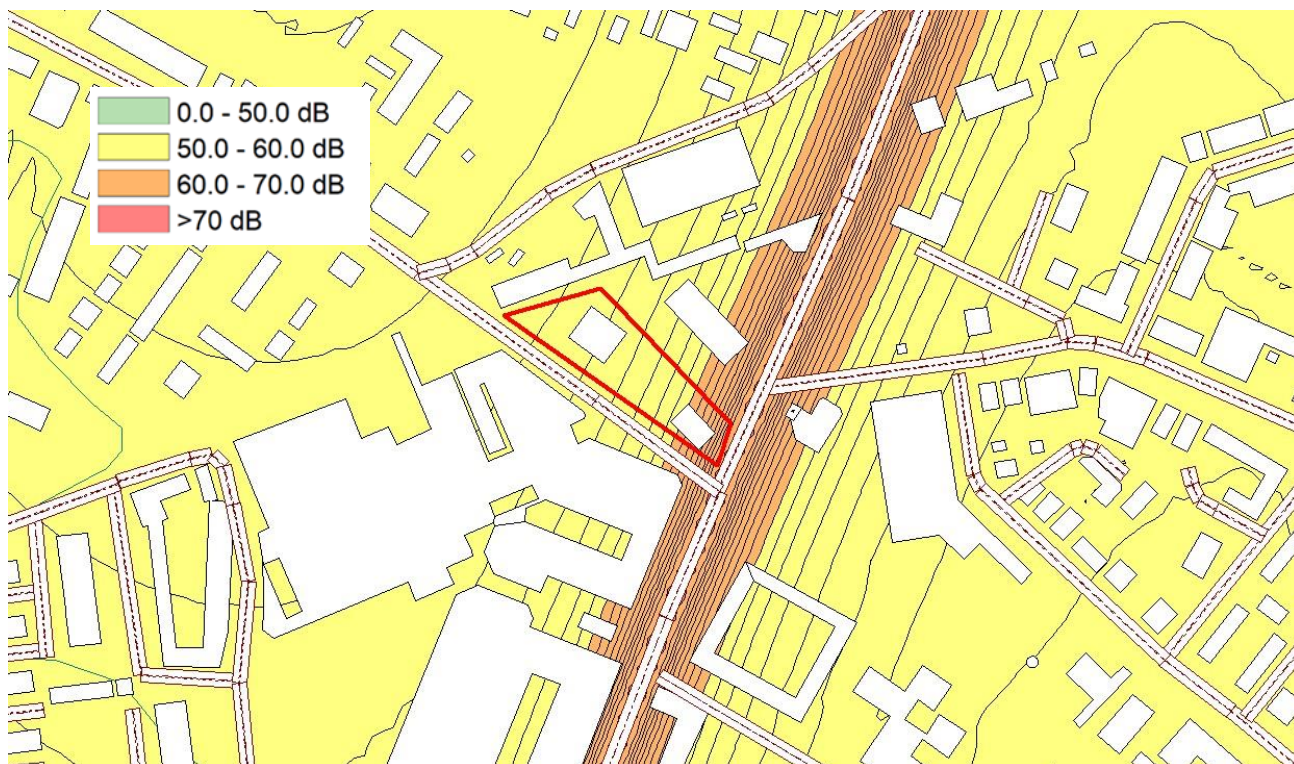


Proposal - Smith House will be redeveloped to provide new homes and facilitate new public access to Hanworth Park as part of the redevelopment of MOD Feltham. The development site is located approximately 600m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 54 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

69 - Land at 2 High Street Feltham Retail (A1-A4), Residential (C3)

Proposal - Land at 2 High Street Feltham will be redeveloped to provide a new part of Feltham High Street, combining retail units at ground floor with residential development as part of the Station quarter.

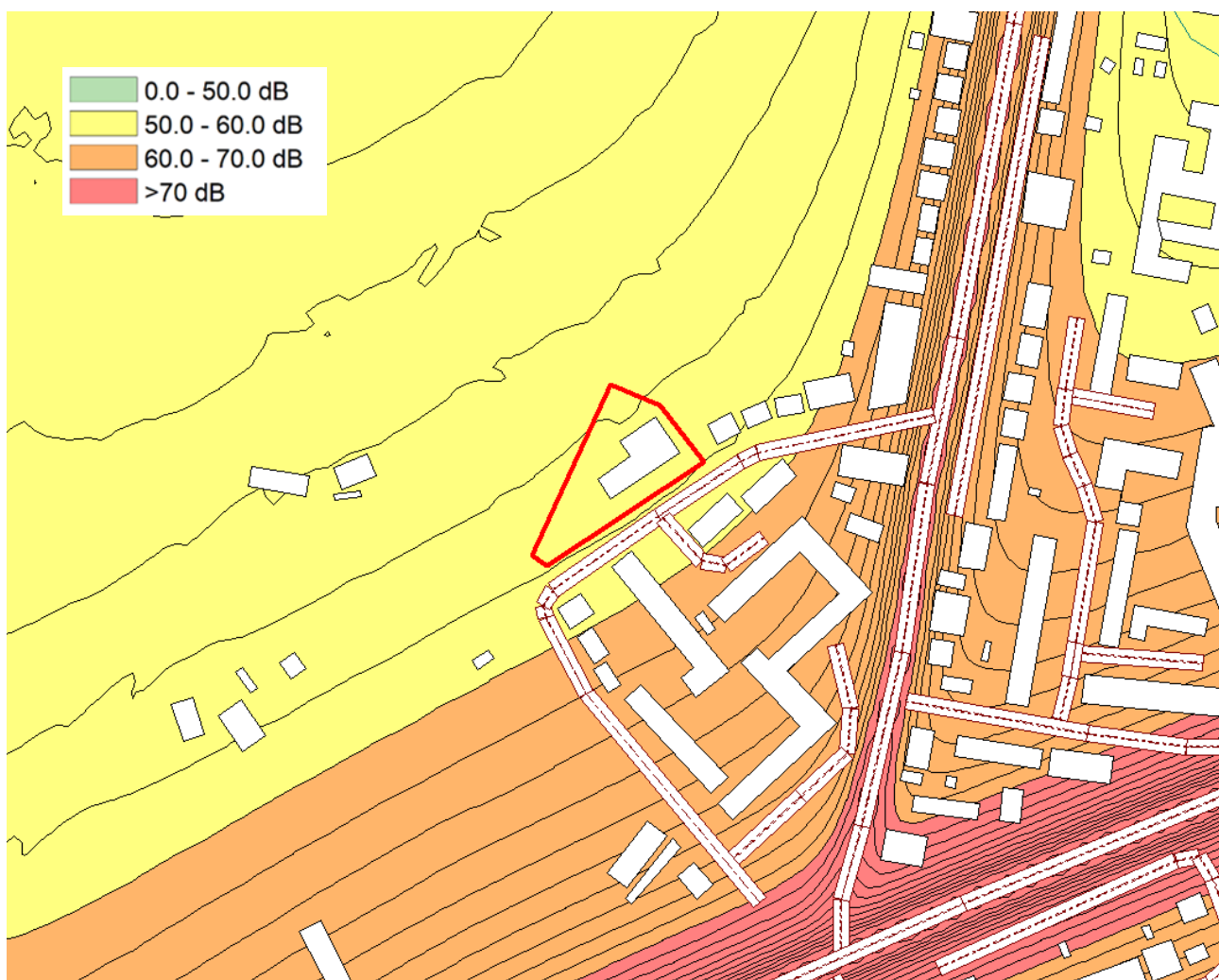


The development site is located approximately 10m from the A244 and outside of the Heathrow 60 dB LAeq noise contour. Road traffic noise within the site during the daytime ranges between 54 and 69 dB LAeq within the development site.

As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the railway and A244 at up to 40 metres (vertically and horizontally) from the road and railway have the potential to exceed the SOAEL (assuming no screening is provided by intervening structures) and therefore potential developments would be required to demonstrate how noise levels could be controlled within internal and external areas of the development site.

Detailed consideration will also need to be given to the existing industrial and commercial uses within and around the development site and existing residential properties that may be sensitive to changes in land-use, in-line with the agent of change principle.

70 - Royal Naval Association Club Residential (C3)

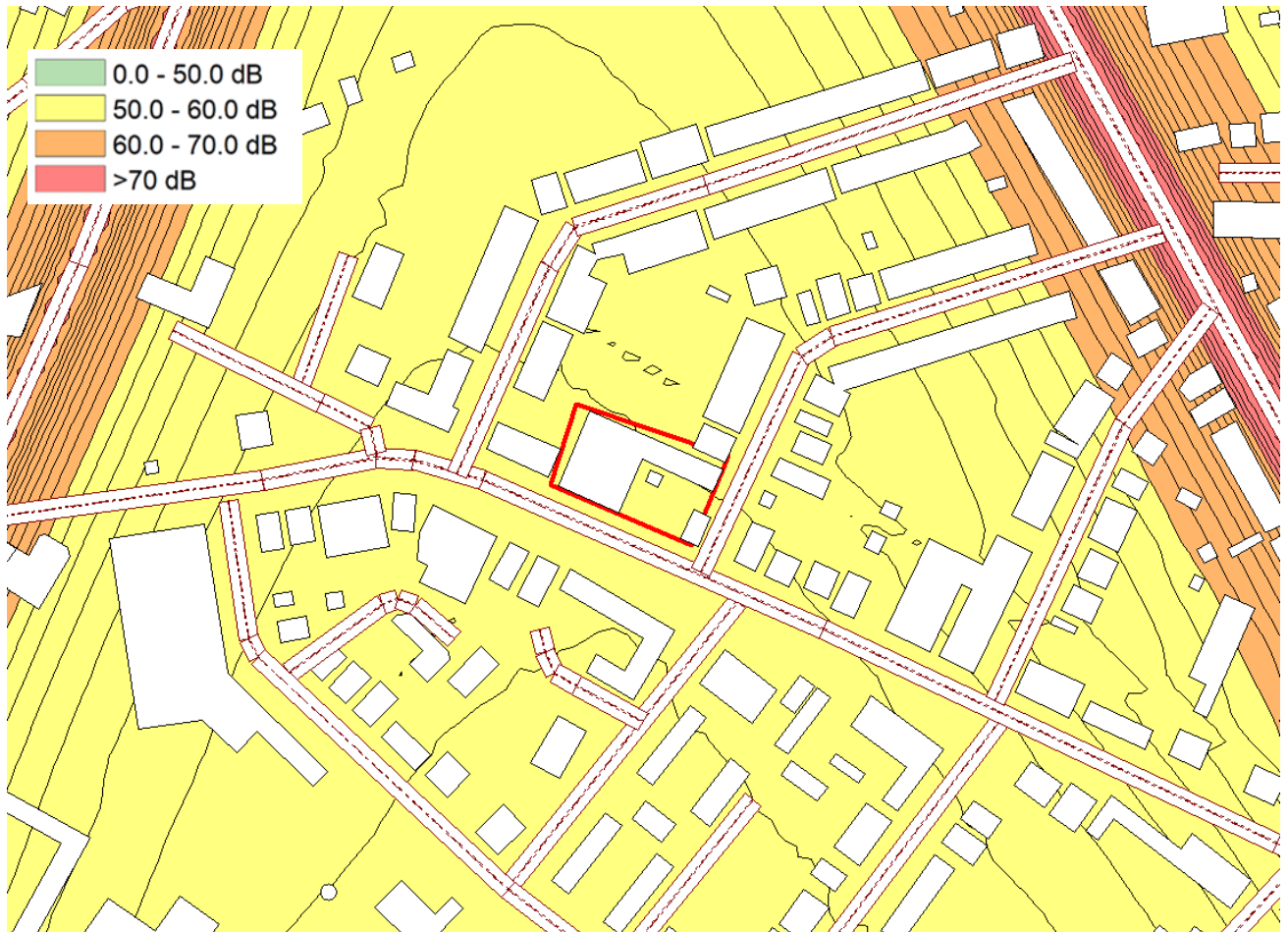


Proposal - The Naval Club will be redeveloped to provide additional new homes and improved access to Hanworth Park.

The development site is located approximately 50 m from the A316 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 57 and 60 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through sitte layout and barriers where appropriate.

71 - Feltham Magistrates Court Residential (C3)

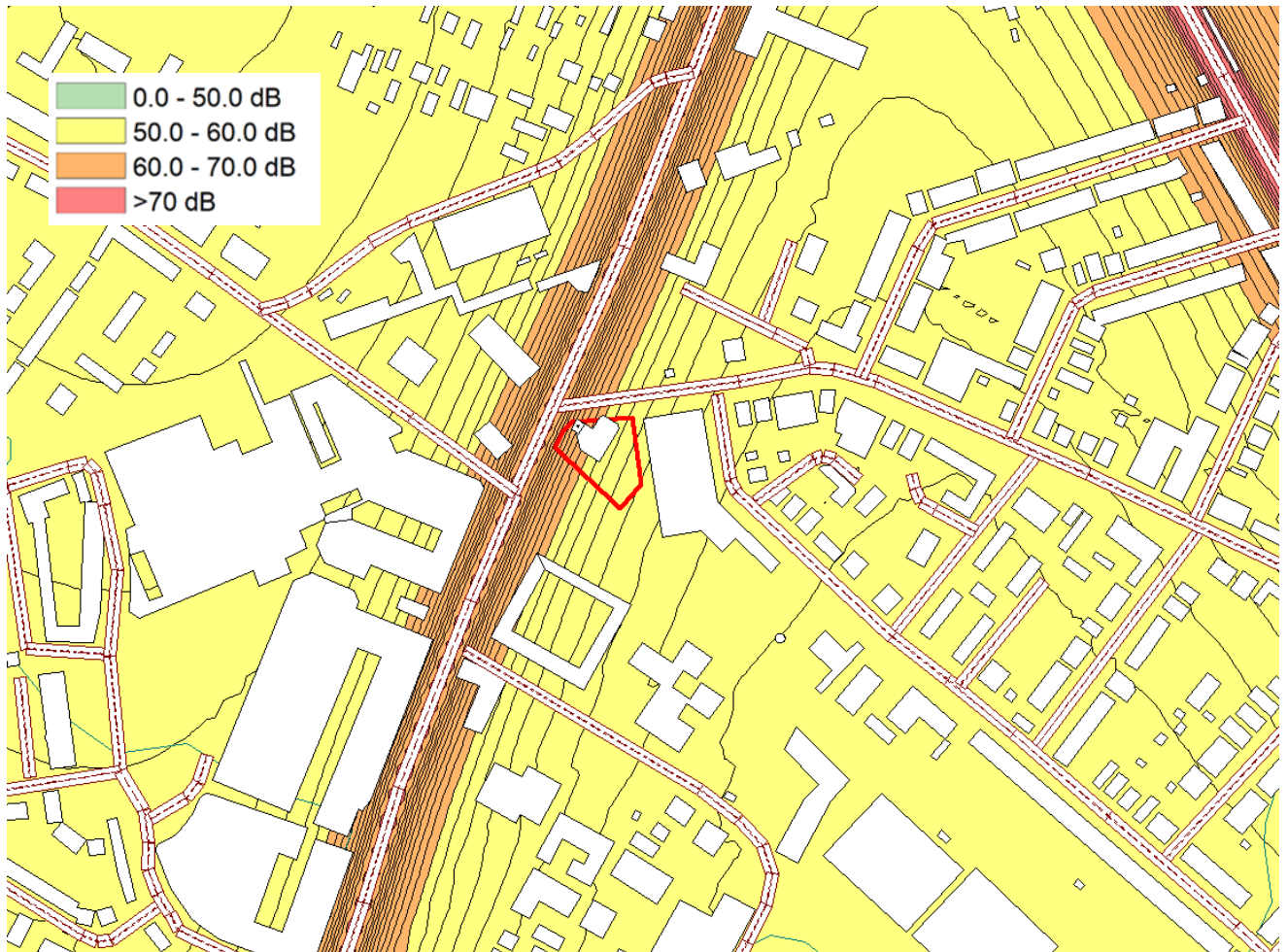
Proposal - Feltham Magistrates Court will be redeveloped to provide new homes and conserve this historic building.



The development site is located approximately 200m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 53 and 55 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

72 - St. Catherine's House and Car Park Residential (C3)

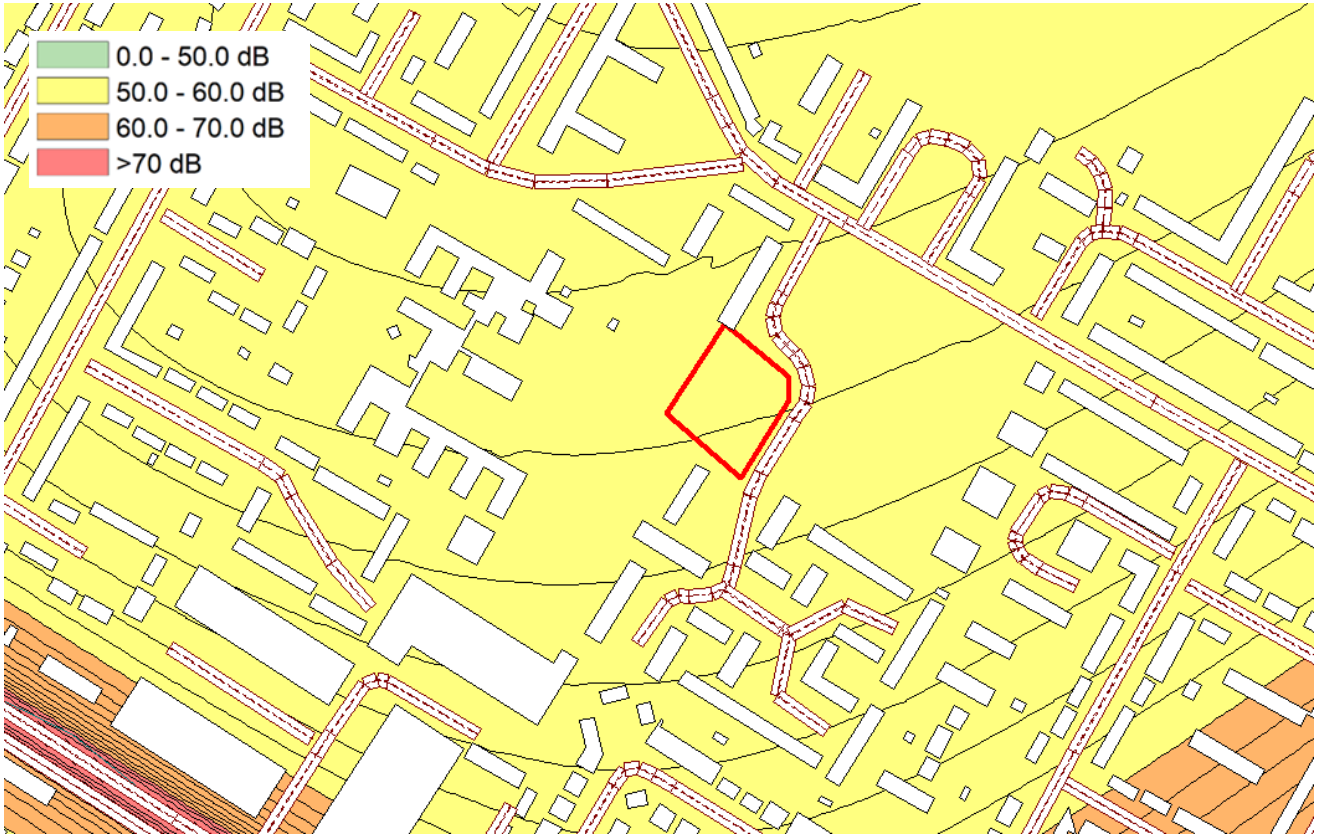
Proposal - St Catherine's House will be redeveloped to provide a new, high quality residential development which incorporates the listed St Catherine's tower.



The development site is located approximately 20m from the A244 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 55 and 68 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate, including consideration of existing premises, including adjacent school.

Potential balcony areas facing the A244 at up to 20 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A244 may be appropriate.

73 - Land at Nene Gardens Residential (C3) and Open Space

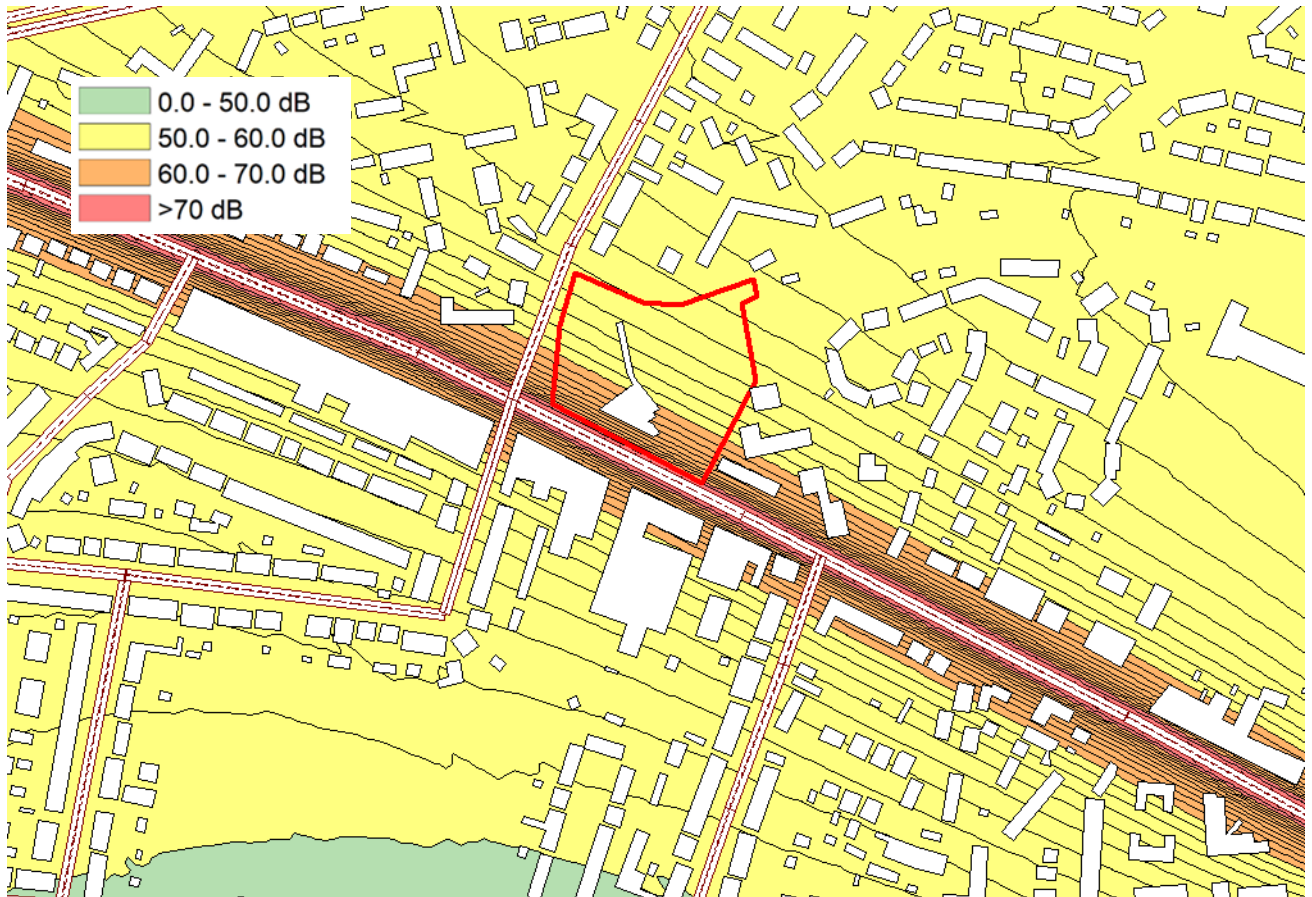


Proposal - Vacant Land at Nene Gardens will be redeveloped to provide new homes and open space.

The development site is located approximately 450m from the A316 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 54 and 56 dB L_{Aeq} within the development site. As such it is expected that potential residential development would be required to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

74 - Hounslow West Station Retail (A1-A4), Residential (C3)

Proposal - Hounslow West station will be redeveloped to provide an improved station with retail and new homes.



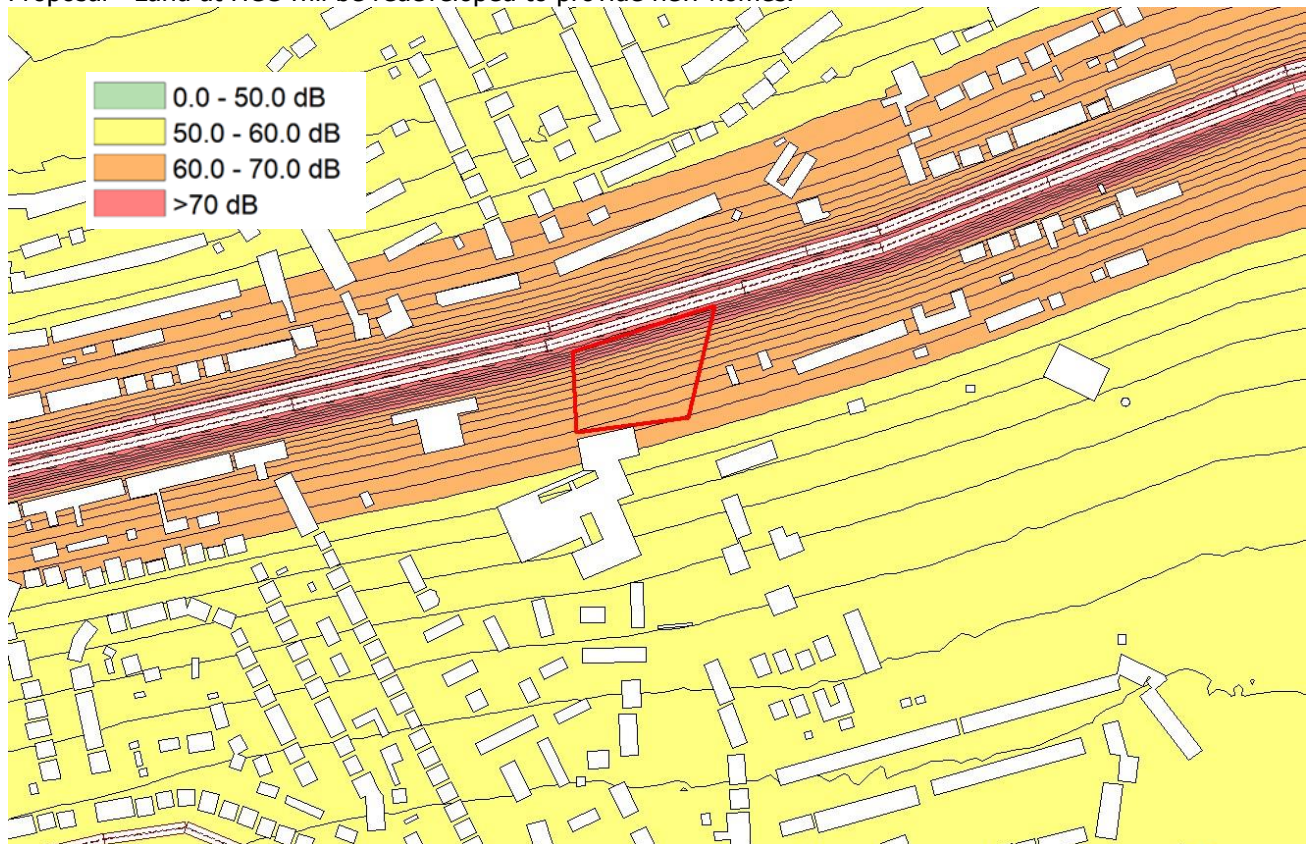
The development site is located approximately 100m from the A4 within the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 54 and 72 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Potential balcony areas facing the A4 at up to 100 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Additional consideration will also need to be given to the operation of the existing London Underground Station and nearby businesses, in-line with the agent of change principle.

75 - Land to the rear of HCC Sports and Social Club Residential (C3)

Proposal - Land at HCC will be redeveloped to provide new homes.

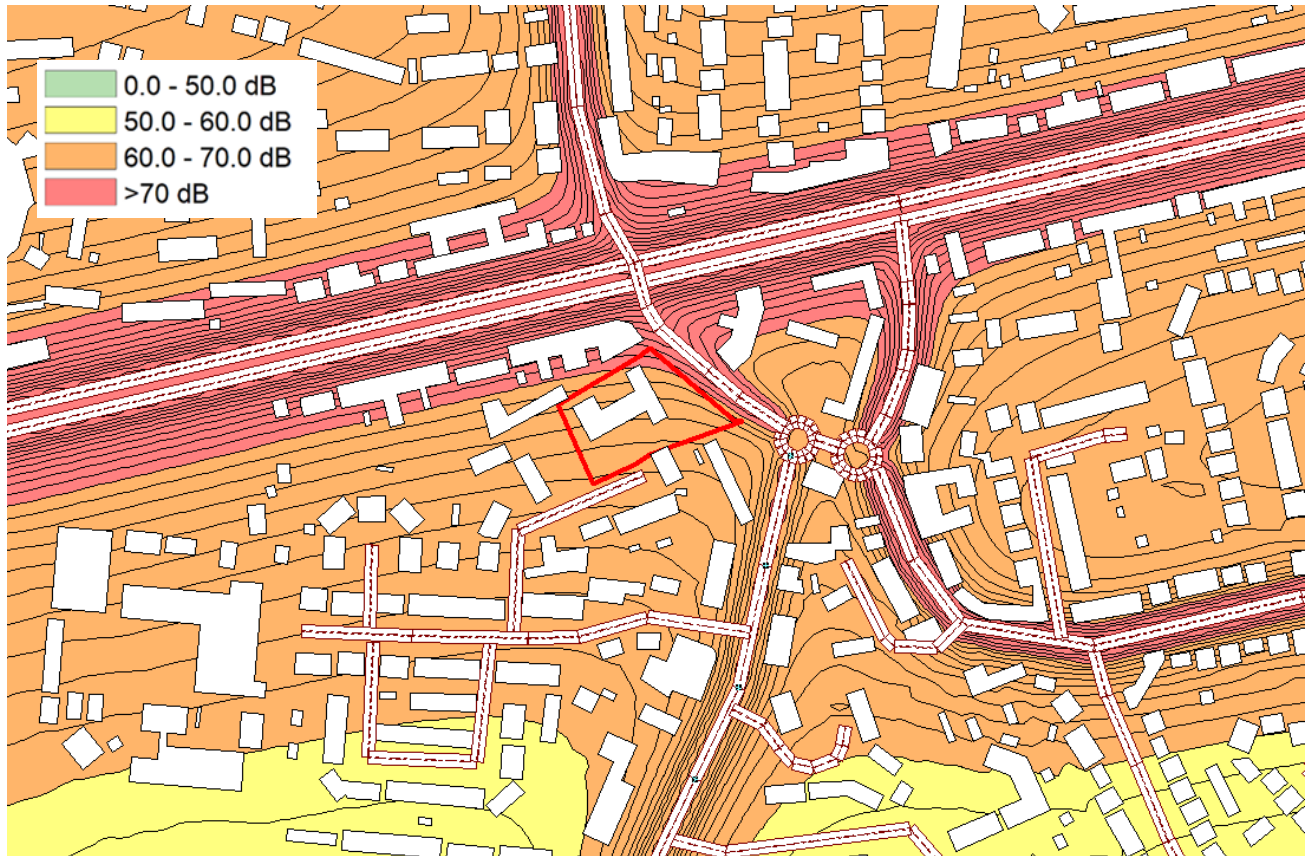


The development site is located approximately 30m from the A4 and is adjacent to an existing underground line and school and is within the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 78 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Potential balcony areas facing the A4 at up to 60 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

76 - Lampton House Residential (C3)

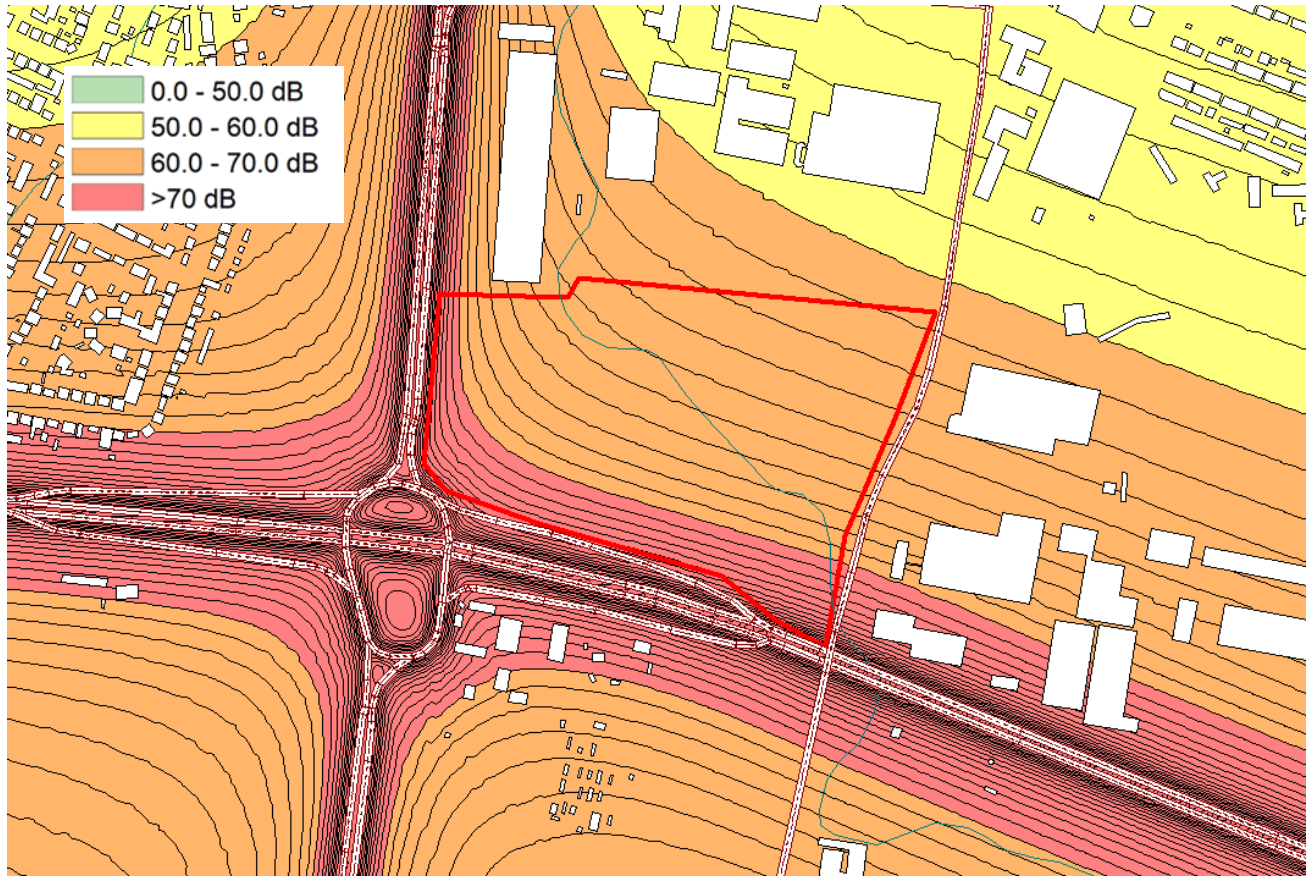
Proposal - Lampton house will be redeveloped to provide new homes.



The development site is located approximately 30m from the A4 and within the Heathrow 63 dB L_{Aeq} noise contour and therefore may exceed the SOAEL. Road traffic noise within the site during the daytime ranges between 65 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. As potential balcony areas are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter may be appropriate.

77 - Land South of Western International Market Minerals Extraction

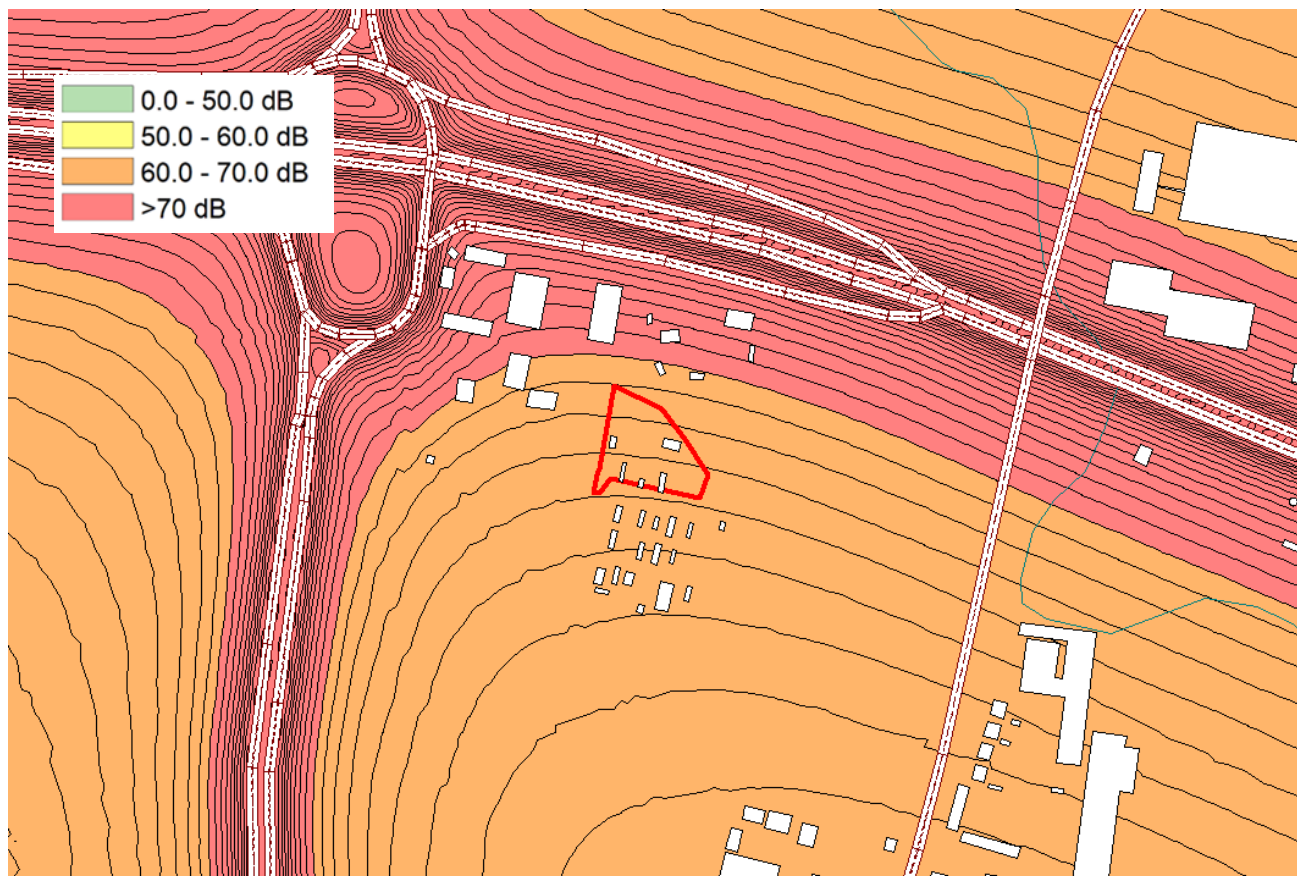
Proposal - Land South West of Western International Market will be utilised for mineral extraction, with redevelopment to industrial uses in the long term.



The development site is located approximately 10m from the M4 and outside of the Heathrow 57 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 83 dB L_{Aeq} within the development site. As such, noise-sensitive development such as residential use is unlikely to be suitable within the development site. Despite the elevated ambient noise levels, detailed consideration will also need to be given to the surrounding commercial uses and nearby residential properties which surround the development site and constraints on development that may arise with mineral extraction or industrial premises, in-line with the agent of change principle.

78 - Land at Hartlands Caravan Park Traveller Pitches

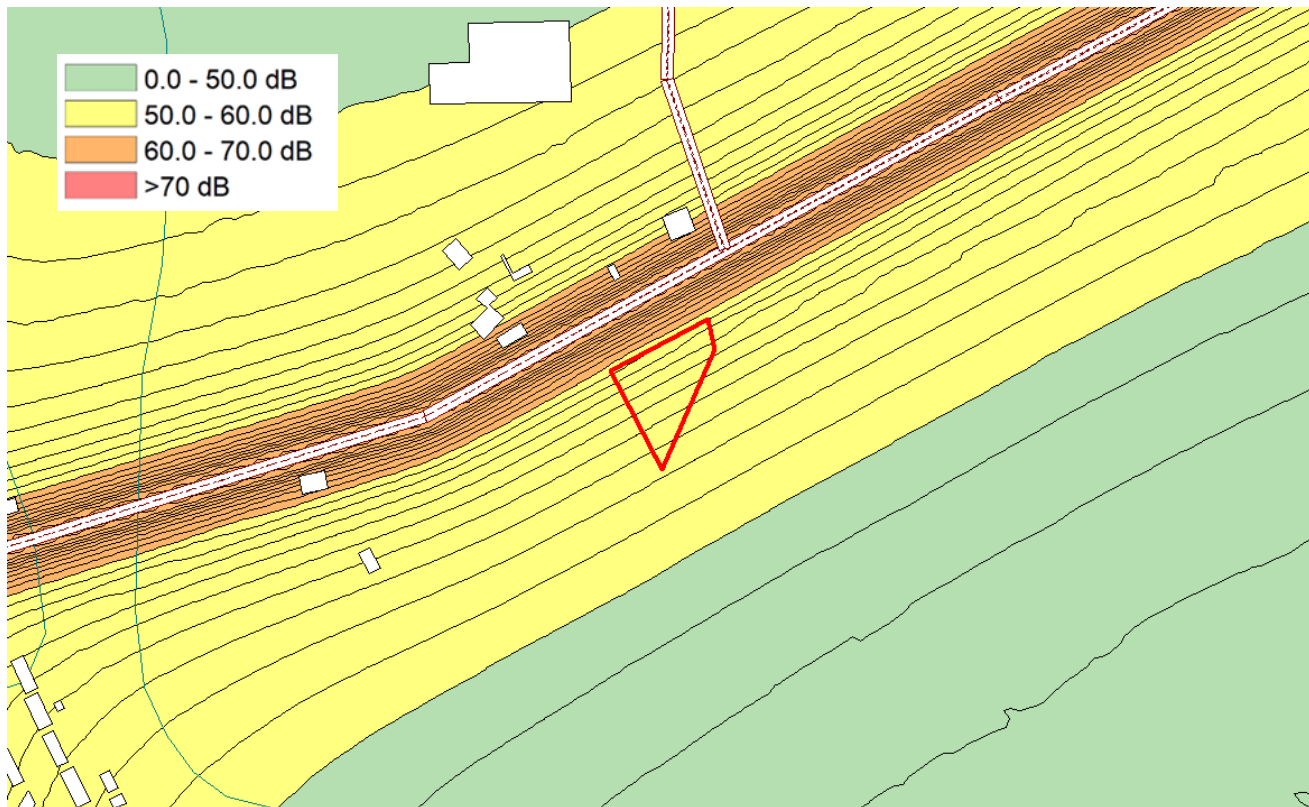
Proposal - Hartlands will be expanded to meet the needs of Gypsies and Travellers in Hounslow.



The development site is located approximately 30m from the M4 and outside of the Heathrow 57 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 66 and 70 dB L_{Aeq} within the development site. As such the SOAEL may be exceeded and the layout of pitches and external amenity spaces within the development site are expected to require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

79 - Baber Bridge Caravan Site Travelling Showpeople Yards

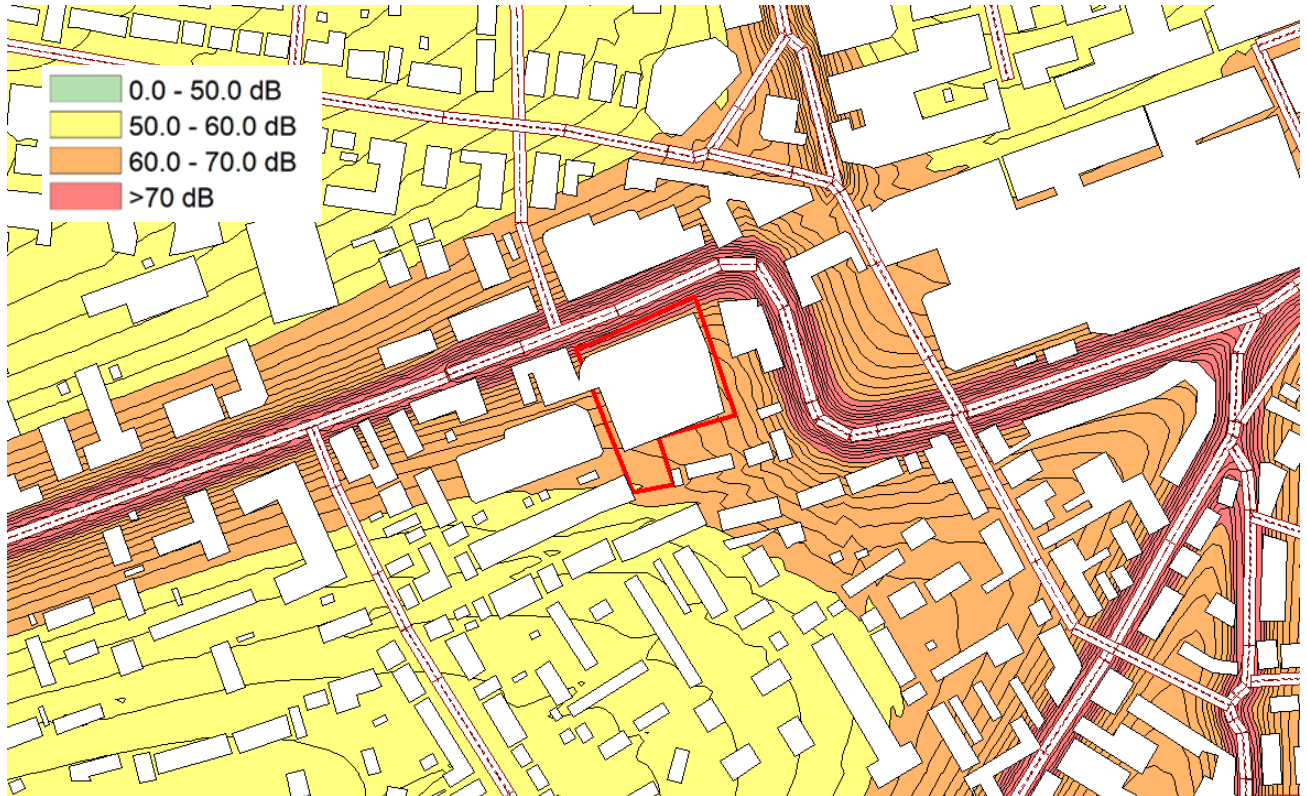
Proposal - Baber Bridge will be redeveloped and expanded to provide for the needs of the Travelling Showpeople in Hounslow.



The development site is located approximately 20m from Staines Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 62 and 69 dB L_{Aeq} within the development site. As such the SOAEL may be exceeded and the layout of pitches and external amenity spaces within the development site are expected to require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

80 - 34 Staines Road Retail (A1-A4), Residential (C3)

Proposal - 34 Staines Road will be redeveloped to provide a new, single large retail unit, with new homes.

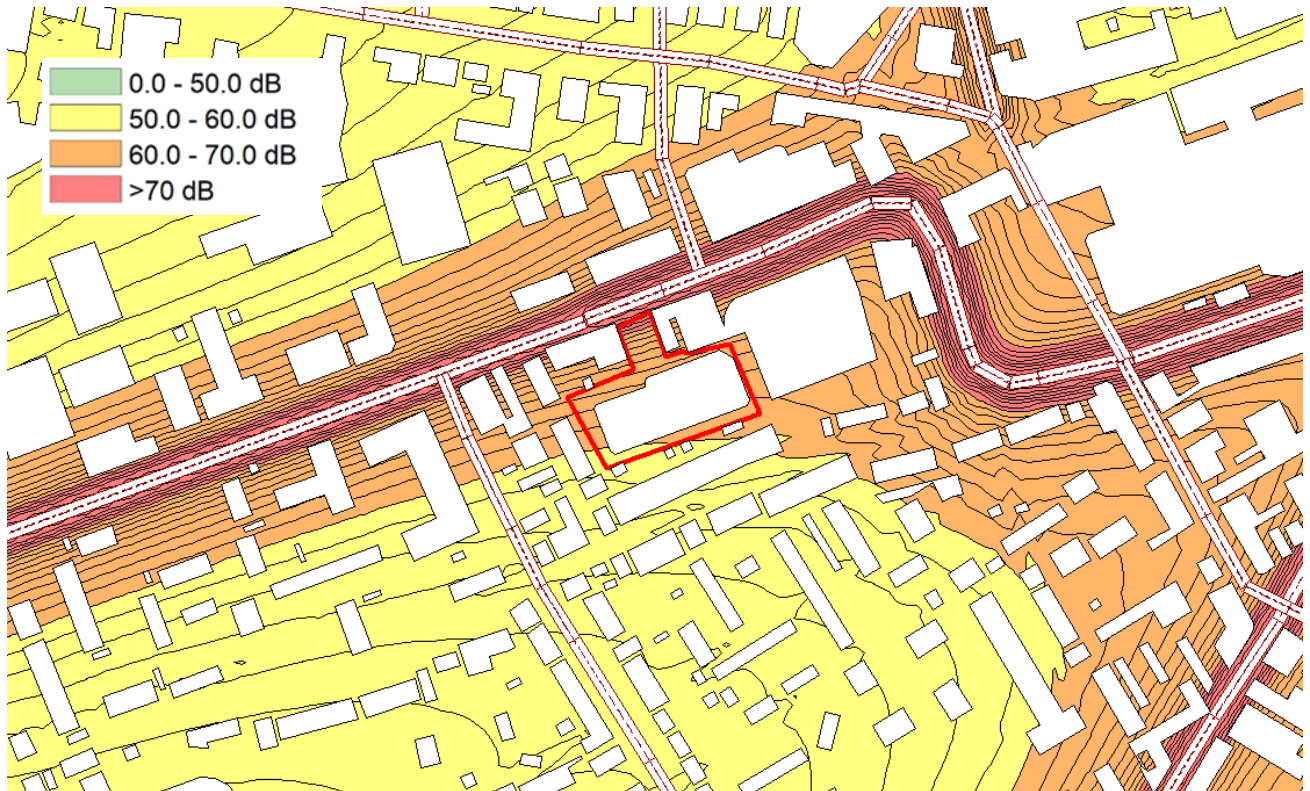


The development site is located adjacent to the A315 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A315 at up to 100 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Additional consideration will also need to be given to the operation of nearby businesses in-line with the agent of change principle.

81 - 80-82 Staines Road Residential (C3)

Proposal - 80-82 Staines road will be redeveloped to provide new homes.



The development site is located adjacent to the A315 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A315 at up to 100 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Additional consideration will also need to be given to the operation of nearby businesses in-line with the agent of change principle.

82 - 206-210 Hanworth Road Residential (C3)

Proposal - 206-210 Hanworth road will be redeveloped to provide new homes.

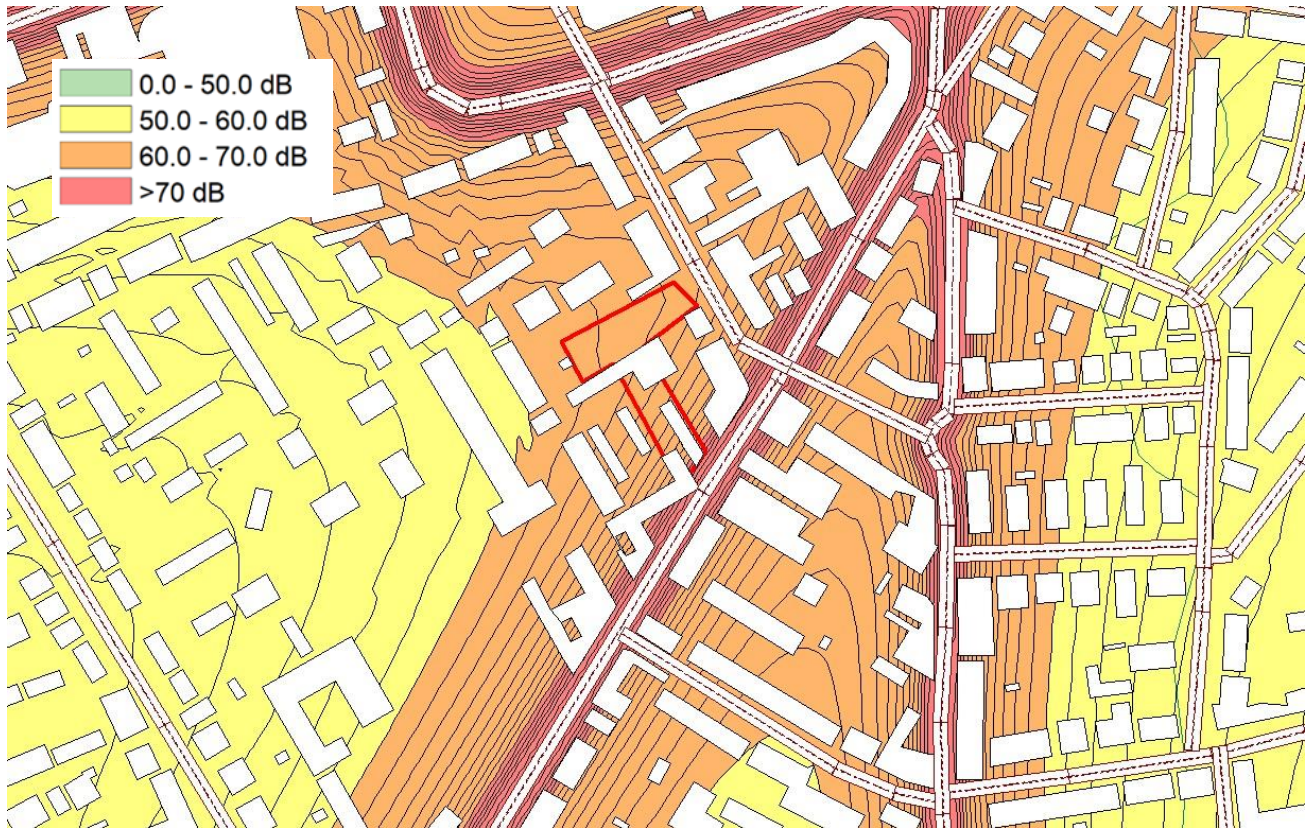


The development site is located adjacent to the A315 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 62 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A315 at up to 100 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Additional consideration will also need to be given to the operation of nearby businesses in-line with the agent of change principle.

83 - Vacant Land Clarence Terrace Residential (C3), Business (B1a/b).

Proposal - Vacant Land at Clarence Terrace will be redeveloped to provide business floorspace and to provide new homes.

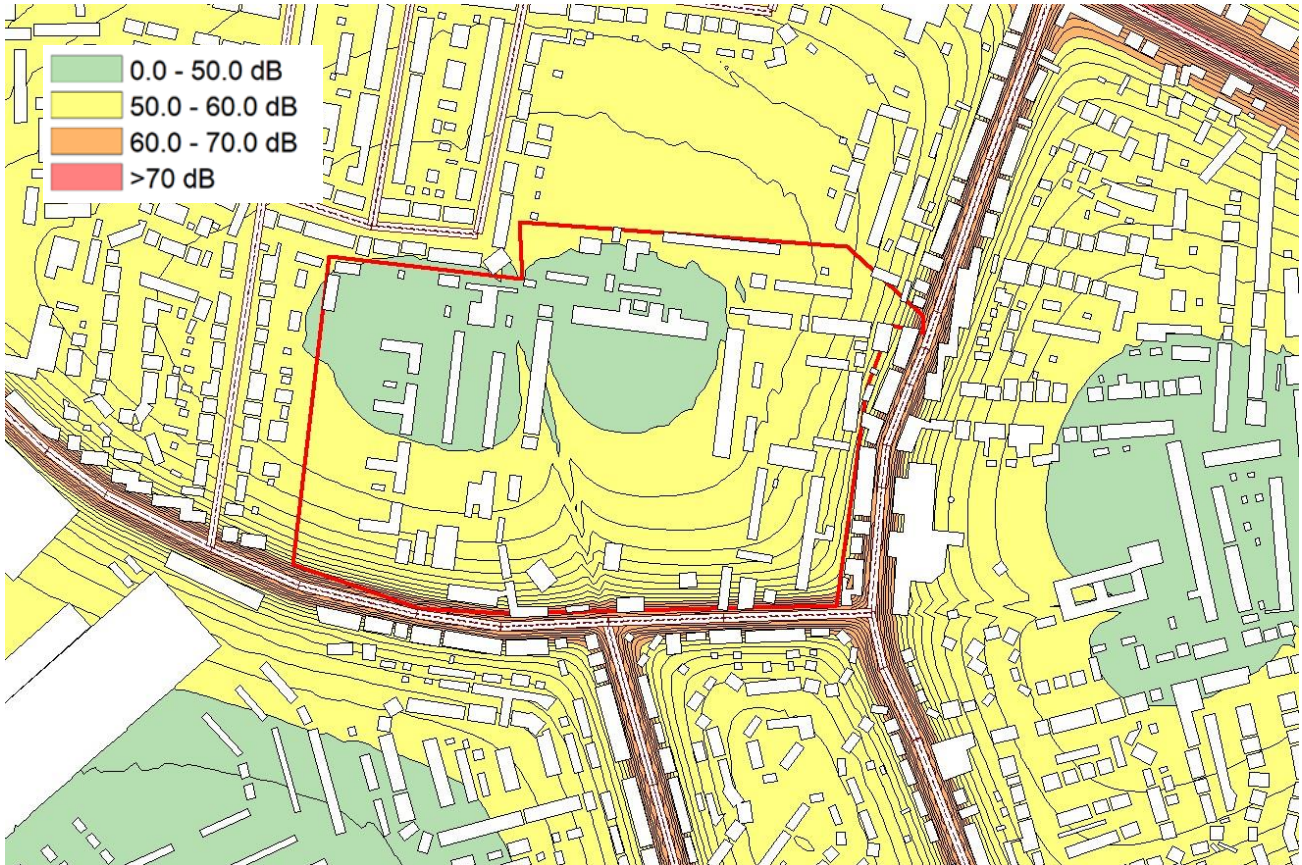


The development site is located adjacent to the A315 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 62 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the A315 at up to 100 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

Additional consideration will also need to be given to the operation of nearby businesses in-line with the agent of change principle.

84 - Hounslow Cavalry Barracks Residential (C3), Retail (A1-A4, Business (B1a/b), Community (D1), Leisure (D2) and Open Space.

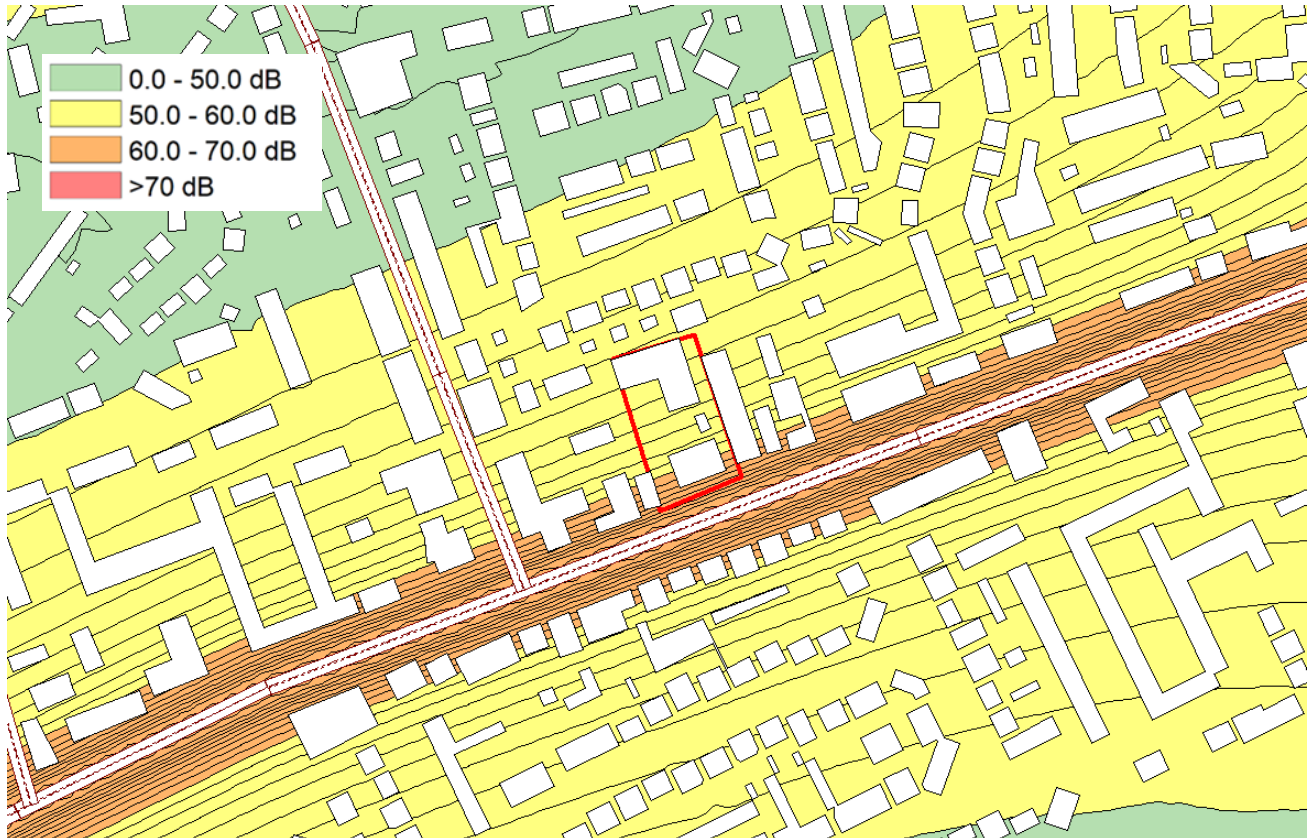
Proposal - Hounslow Cavalry Barracks will be redeveloped to provide a new residential area which protects and enhances the historic buildings, and introduces a range of new uses to the site to support new homes.



The development site is located approximately 600m from the A30 and within the Heathrow 63 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 48 and 62 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

85 - Builders Yard, 379-389 Staines Road Residential (C3) with Business (B1a/b).

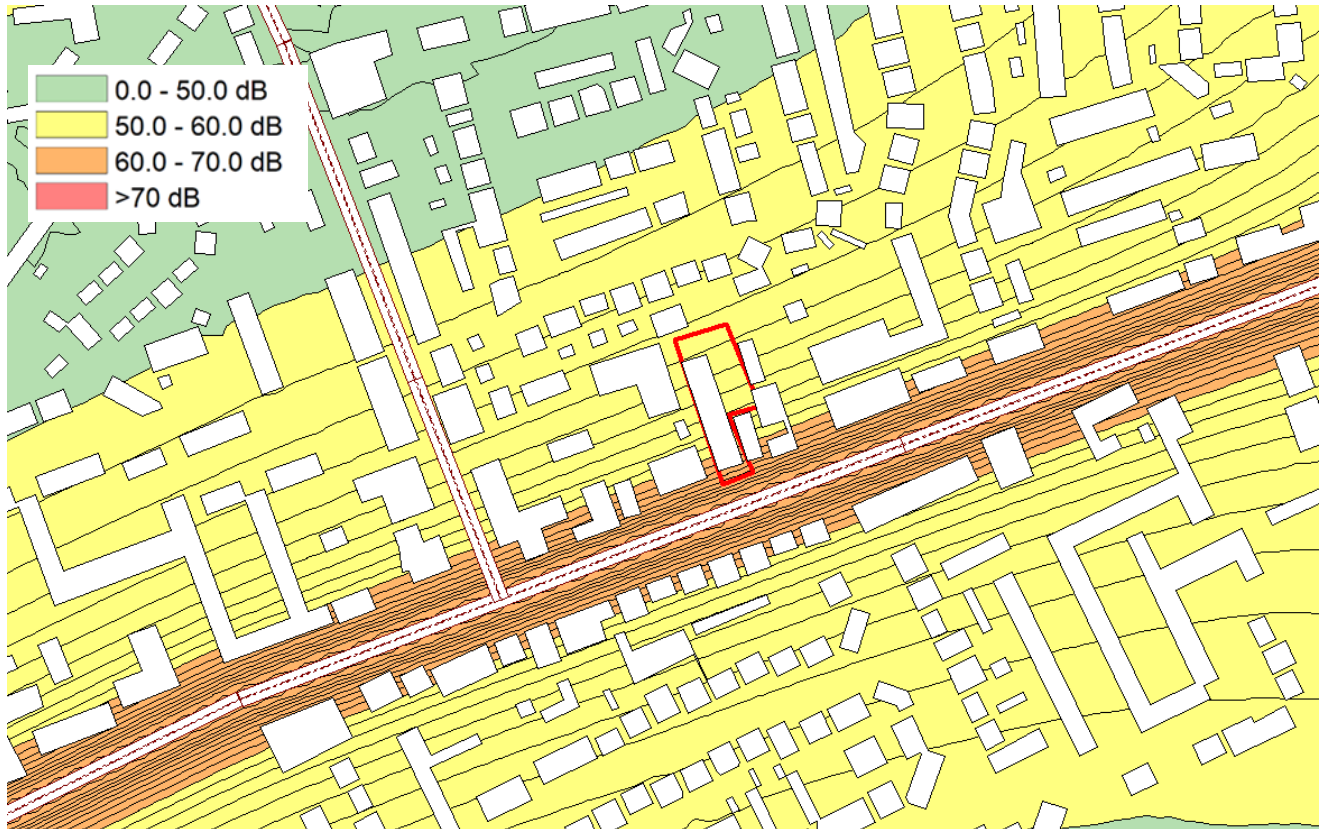
Proposal - 379-389 Staines Road will be redeveloped to provide existing business floorspace and introduce new homes which integrate with the surrounding area.



The development site is located approximately 10m from Staines Road and outside of the Heathrow 60 dB LAeq noise contour. Road traffic noise within the site during the daytime ranges between 53 and 66 dB LAeq within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas facing the Staines Road at up to 10 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens facing the A244 may be appropriate.

86 - Former Travis Perkins Staines Road Residential (C3) with Business (B1a/b).

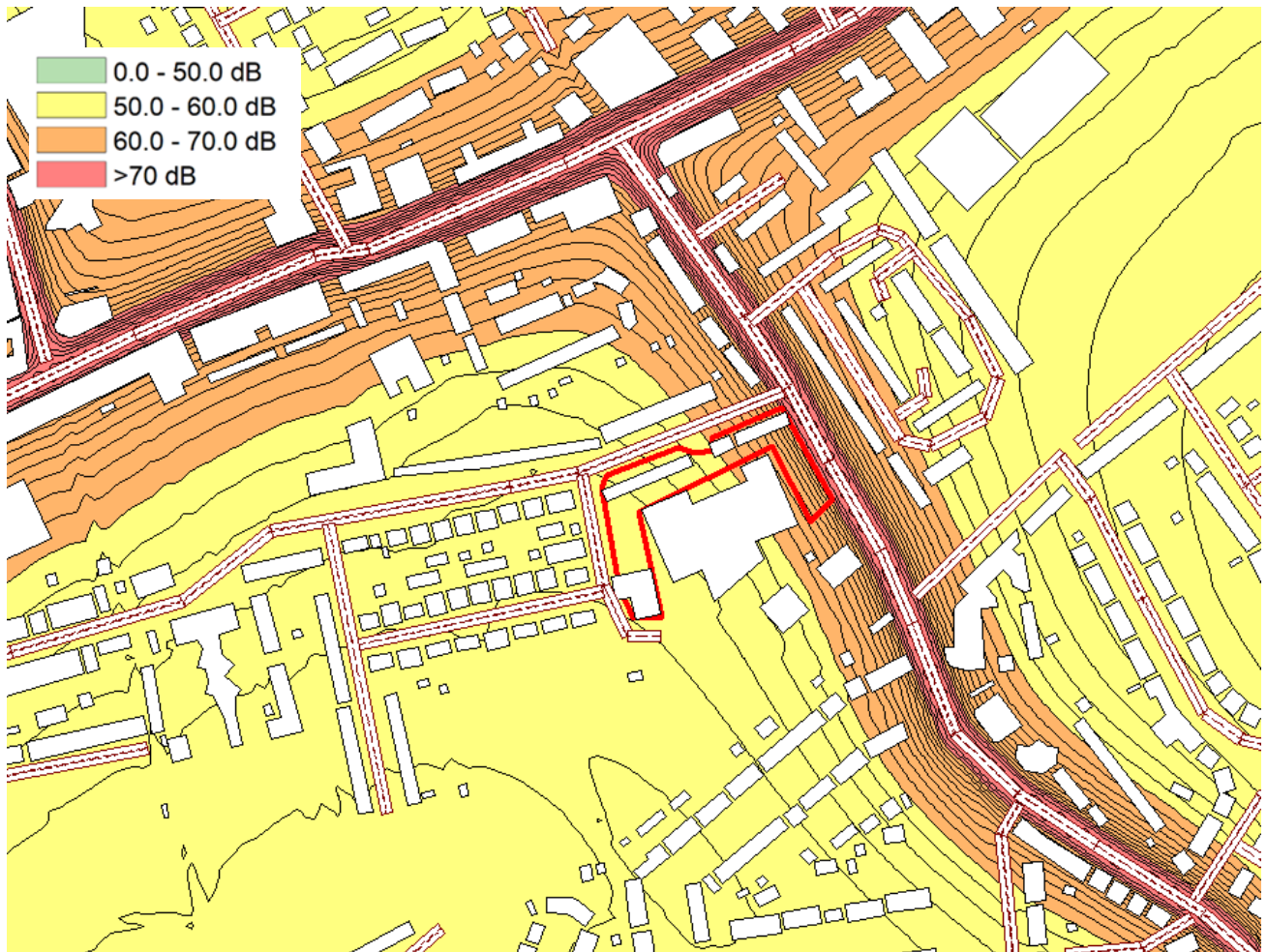
Proposal - The former Travis Perkins site on Staines Road will be redeveloped to provide existing business floorspace and introduce new homes which integrate with the surrounding area.



The development site is located approximately 10m from Staines Road and within the Heathrow 66 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 52 and 65 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Potential balcony areas are expected to exceed the SOAEL (assuming no screening is provided by intervening structures) and it is unlikely that solid barriers or balustrades alone will be sufficient to control noise within these spaces and as such the provision of winter gardens may be appropriate.

88 - Land at Bridge Road Depot Residential (C3).

Proposal - Redevelopment of boundaries of site for residential development with an appropriate buffer between this and employment uses on the site, and which should be sheltered away from industrial frontages, access and servicing.

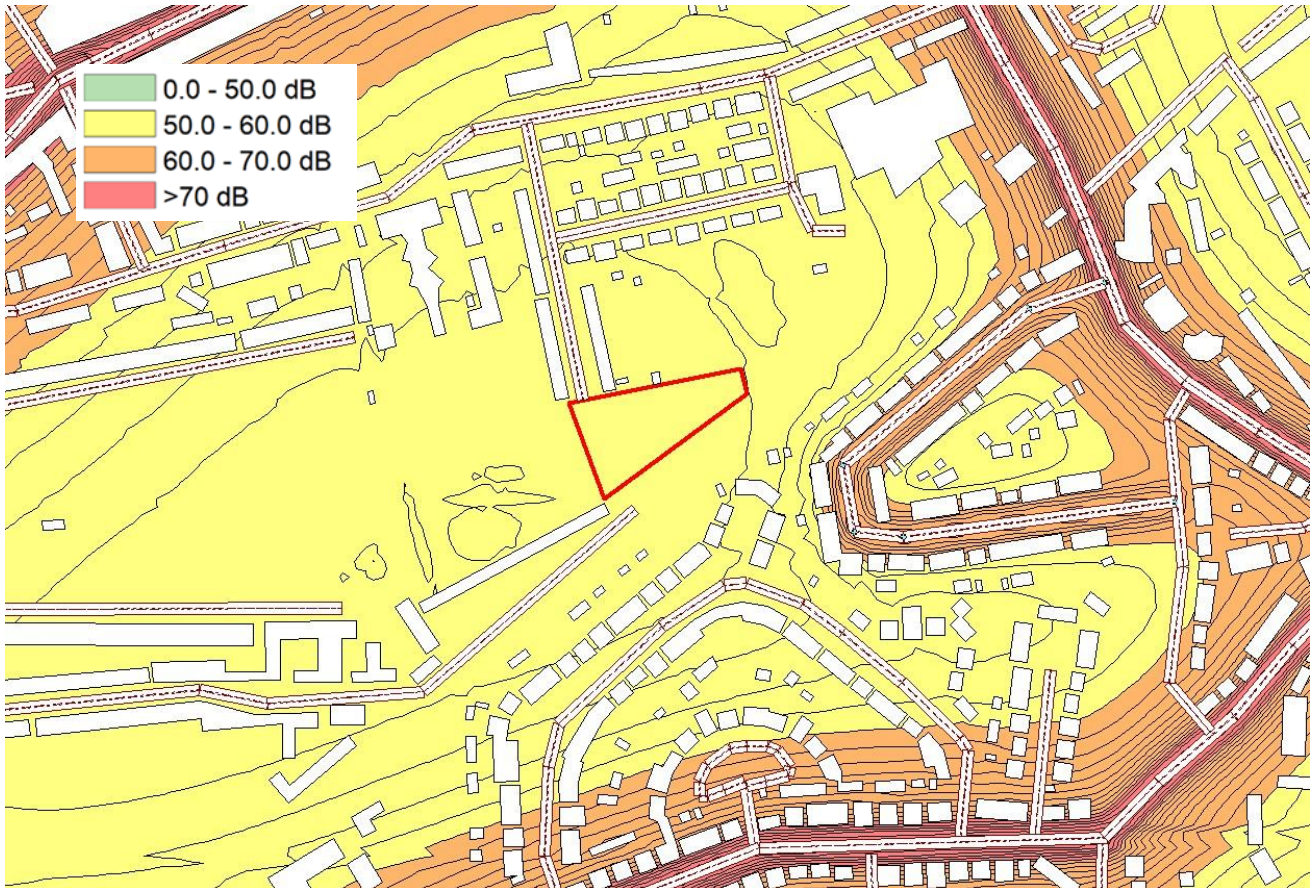


The development site is located approximately 200m from the A315 London Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 56 and 71 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Potential balcony areas facing Bridge Road at up to 60 metres (vertically and horizontally) from the road are expected to exceed the SOAEL (assuming no screening is provided by intervening structures). Additional consideration will also need to be given to existing commercial premises associated with the wider depot site to prevent to imposition of unreasonable restrictions to established noise-generating facilities.

89 - Land at James Street Residential (C3)

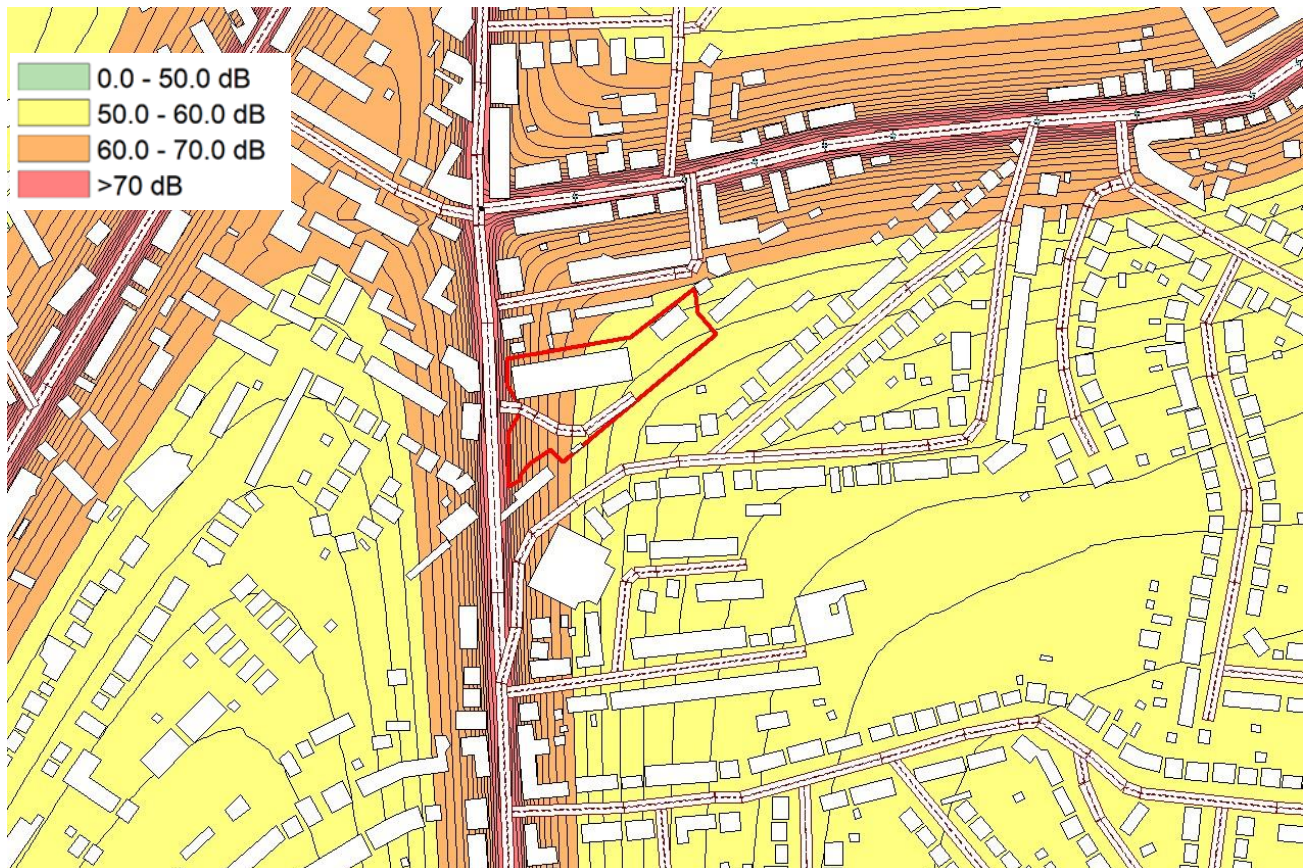
Proposal- Redevelopment of the site to introduce residential development. Development should provide an attractive and sensitive boundary to adjacent open space which maintains a sense of openness and enables greater access for occupiers of both new and existing development, including provision of public access through and across the site.



The development site is located approximately 330m from London Road and outside of the Heathrow 60 dB L_{Aeq} noise contour, however it is located adjacent to an existing railway line. Road traffic noise within the site during the daytime ranges between 55 and 56 dB L_{Aeq} within the development site. As such although external amenity spaces such as balconies or gardens within the development site have the potential to exceed the BS 8233 upper guideline value, it is expected that the layout and design of future development would require consideration to demonstrate that noise levels can be reduced through site layout and the provision of barriers where appropriate.

90 - Inwood Business Park Residential (C3) with Industrial (B2/B8) and Light Industrial (B1c)

Proposal - Redevelopment of the site to introduce residential uses as part of a mixed-use development. Proposed industrial and residential mixed use buildings and plots should accord with the design approaches identified in the GLA Industrial Intensification and Co-Location Practice Note (2018). New development should seek to optimise density while ensuring that the development steps up from existing surrounding height in order to form a sensitive and legible change in character.

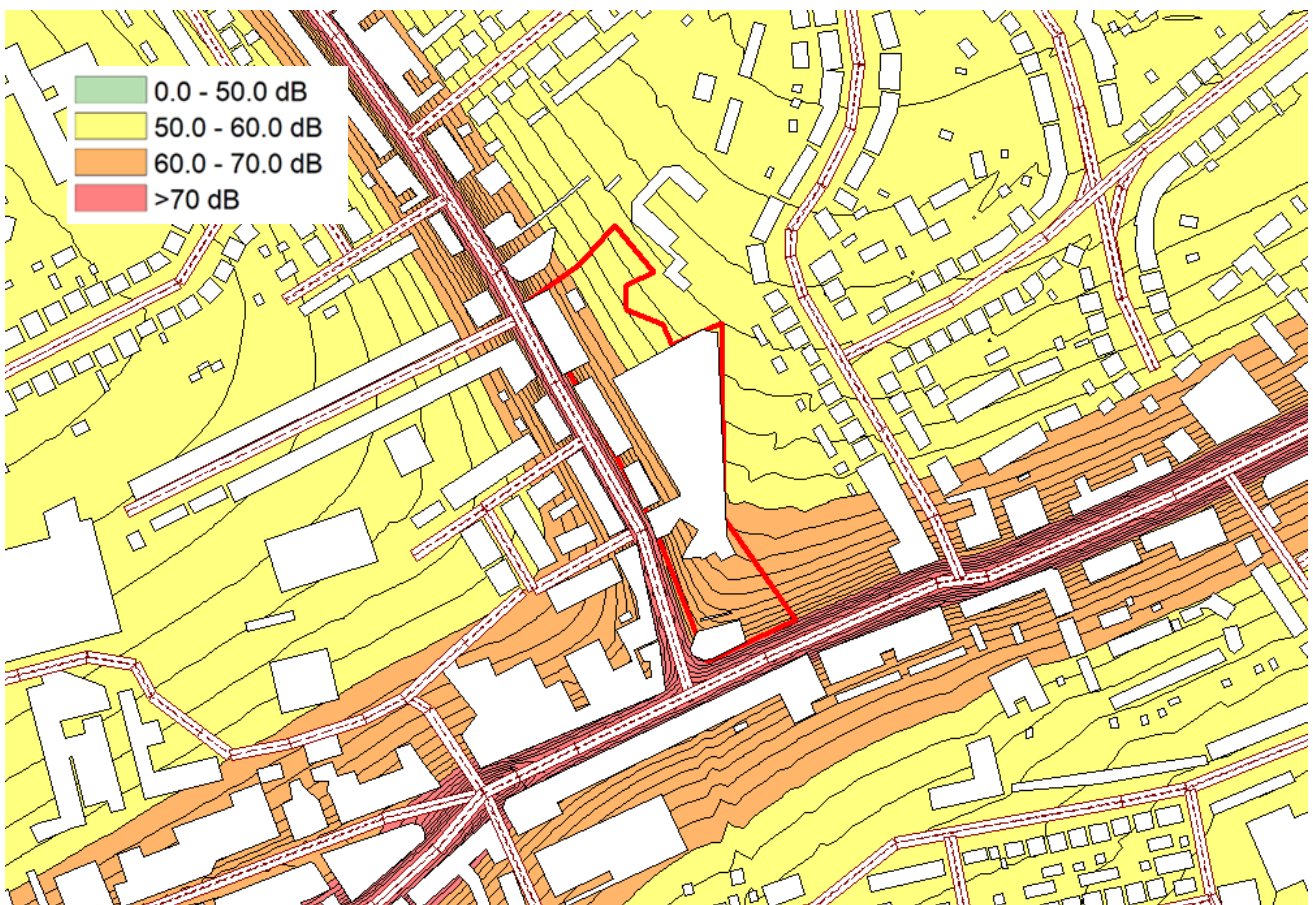


The development site is located approximately 10m from Whitton Road and outside of the Heathrow 60 dB L_{Aeq} noise contour, however it is located adjacent to Hounslow Station and railway line. Road traffic noise within the site during the daytime ranges between 56 and 69 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

91 - Hounslow Bus Garage

Bus Garage (B2/B8) with ancillary residential (C3), retail, business (B1a/b) and open space.

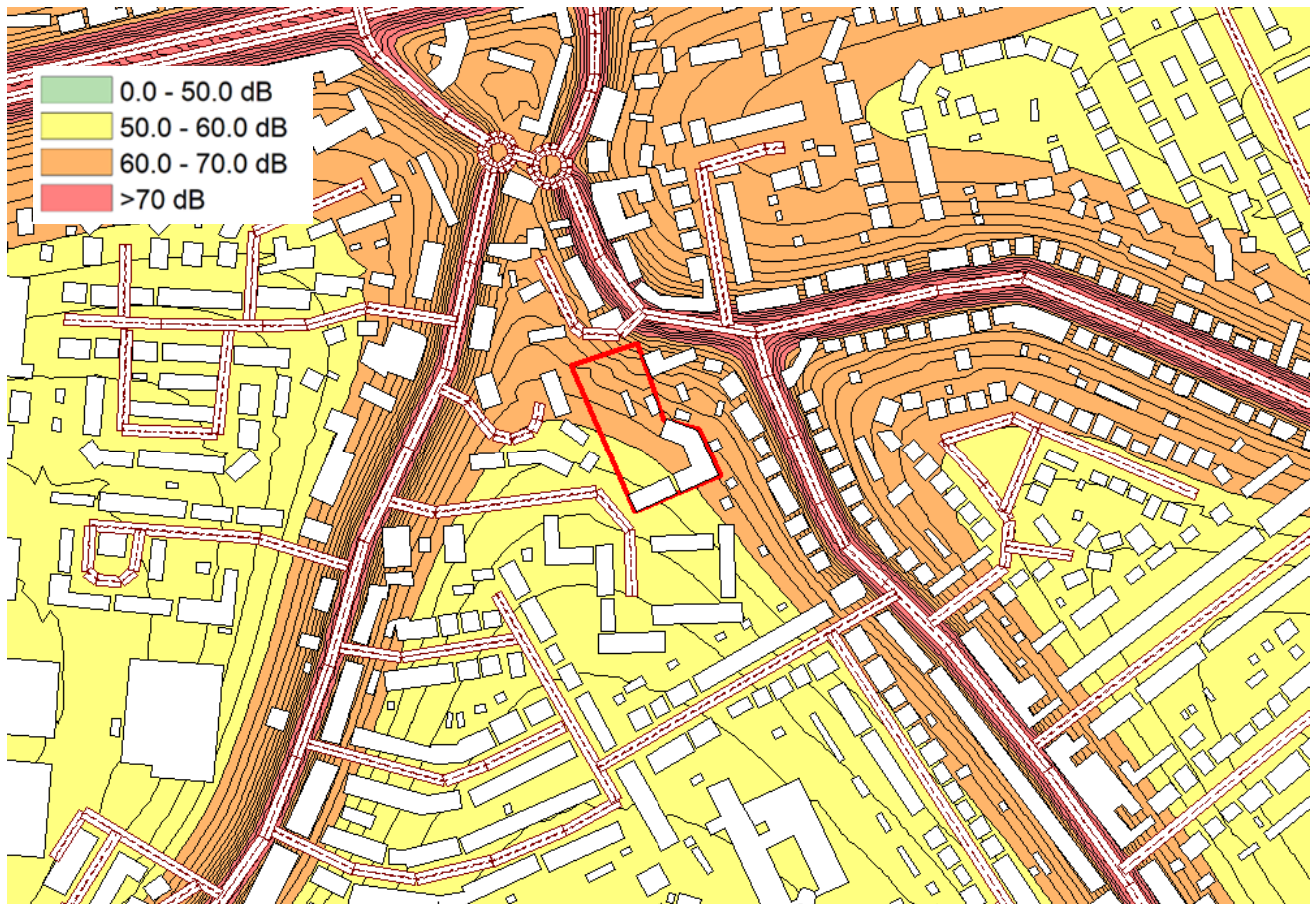
Proposal - Redevelopment of the Bus Garage and Interchange to provide a new, high capacity bus garage with ancillary office space, retail units, residential development and open space. The proposed bus garage should be appropriately located within the site in order to create a consistent and visible commercial frontage against Kingsley Road; Layout of the proposed residential development should ensure this is located so that it is sheltered from the bus garage in such a way as to contribute to the animation of streets but protect resident and visitor's amenity, and buildings should accord with the design approaches identified in the GLA Industrial Intensification and Co-Location Practice Note (2018).



The development site is located approximately 10m from London Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 56 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate with particular consideration given to ongoing commercial uses within and surrounding the development site.

92 - Upstage Residential (C3) and Business (B1a/b).

Proposal - Intensification and diversification of existing industrial uses should be appropriately located within the site in order to form an effective buffer between this and other non-employment uses on the site. Residential uses should integrate with adjacent sites, with industrial and residential mixed-use buildings and plots according with the design approaches identified in the GLA Industrial Intensification and Co-Location Practice Note (2018).

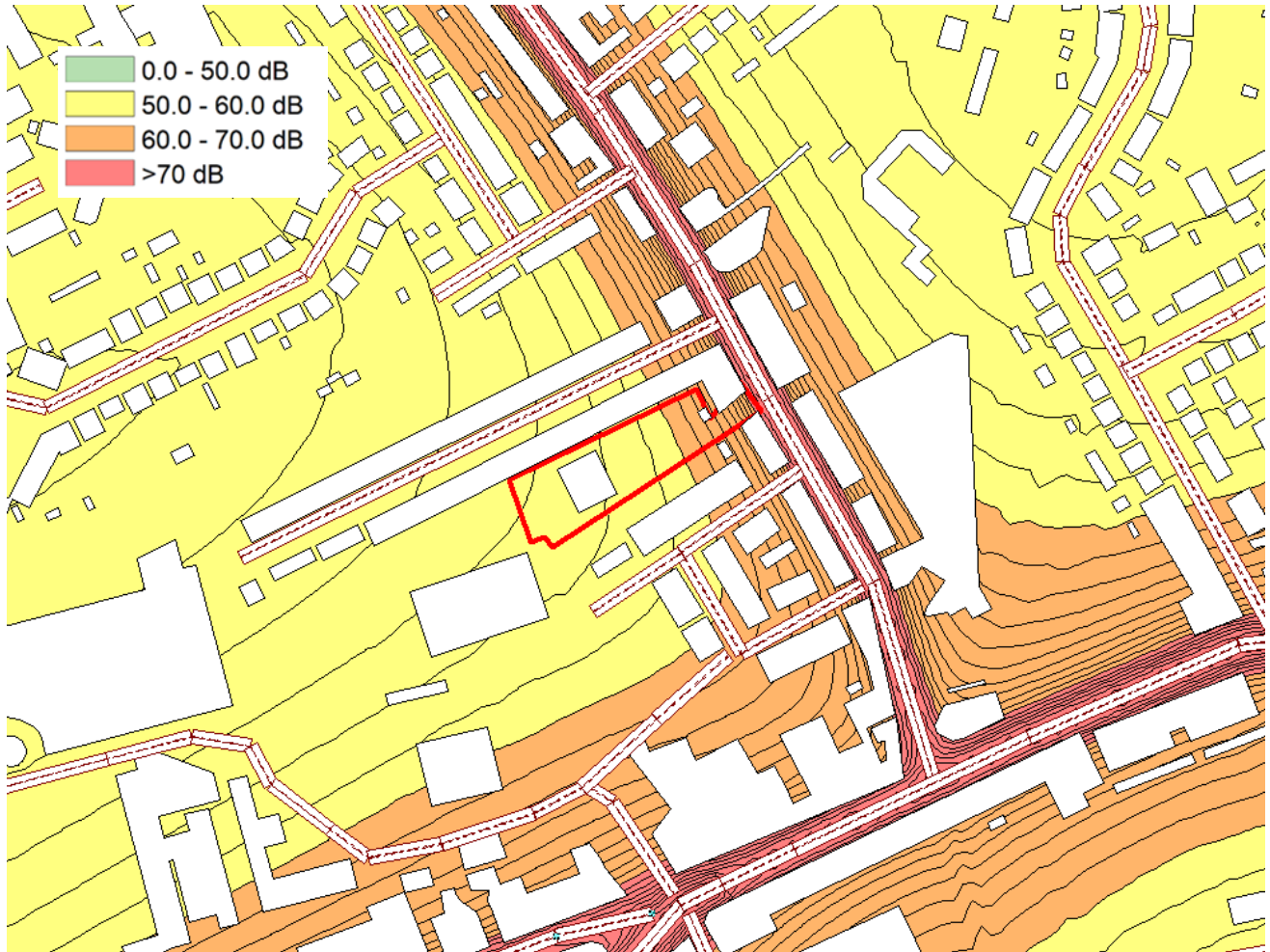


The development site is located approximately 250m from Great West Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 58 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Additional consideration will also need to be given to existing commercial premises associated with the development site to prevent to imposition of unreasonable restrictions to established noise-generating facilities associated with both existing and future sensitive receptors, in-line with the agent of change principle.

93 - Land at Kingsley Road Community Uses (D1) and Residential (C3).

Proposal - Redevelopment of the site to create a mixed-use community hub with residential development. The height of new development should optimise density while ensuring that development adjacent to areas of different character steps up from existing height in order to form a sensitive and legible change in character, including delivery of an improved frontage onto Kingsley Road.

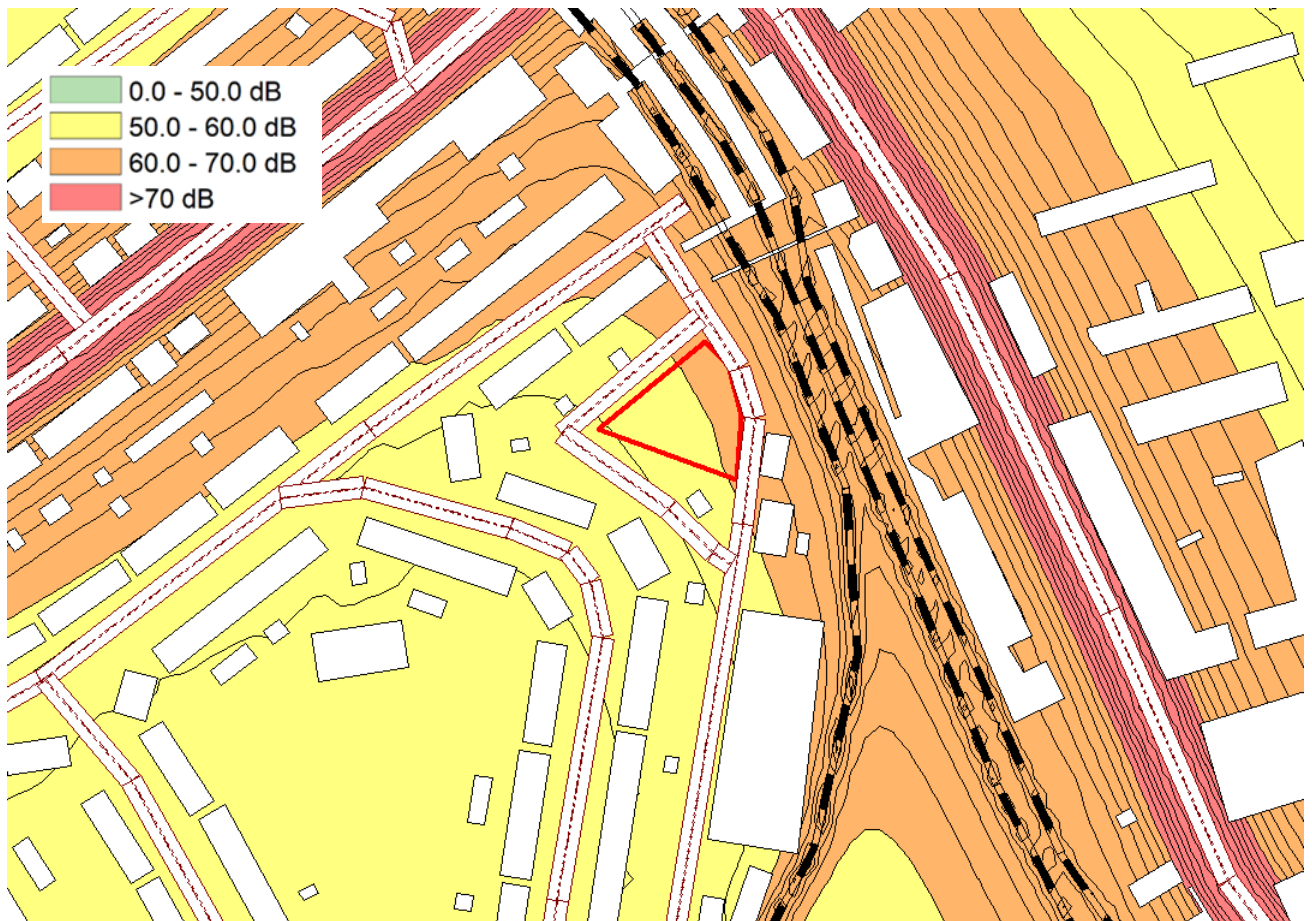


The development site is located approximately 100m from the A315 London Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 55 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

94 - Vacant Land R/O Princes Avenue, Gunnersbury

Residential (C3).

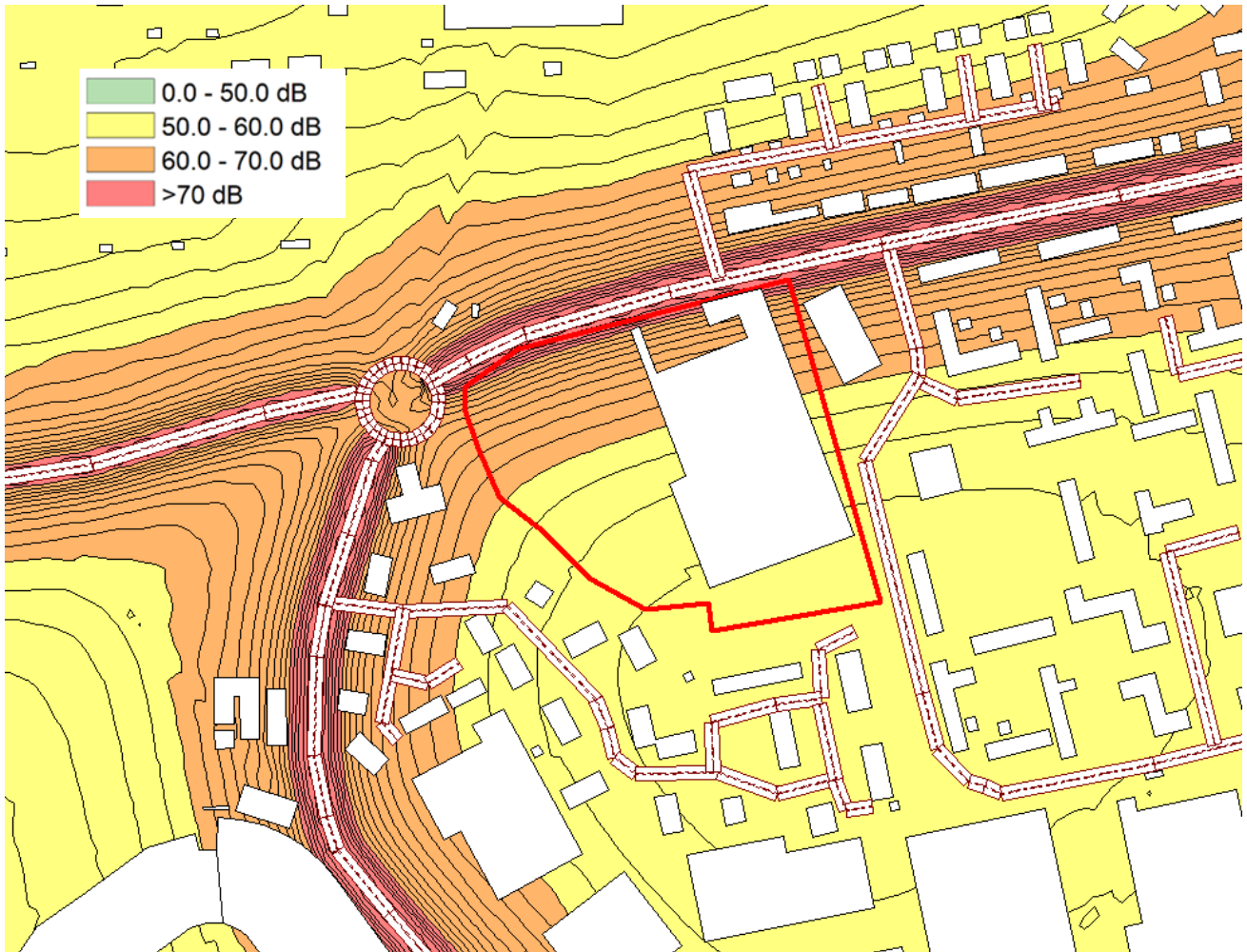
Proposal - Redevelopment of site for residential use. Development should seek to optimise density of uses on the site, with the height of new development stepping up from predominant surrounding heights in order to form a sensitive and legible change in character.



The development site is located approximately 90m from Bollo Lane and outside of the Heathrow 60 dB L_{Aeq} noise contour, however it is located adjacent to Acton Town London Underground Station. Road traffic noise within the site during the daytime ranges between 58 and 61 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

95 - Tesco Mogden Lane Large Format Retail (A1) and Residential (C3).

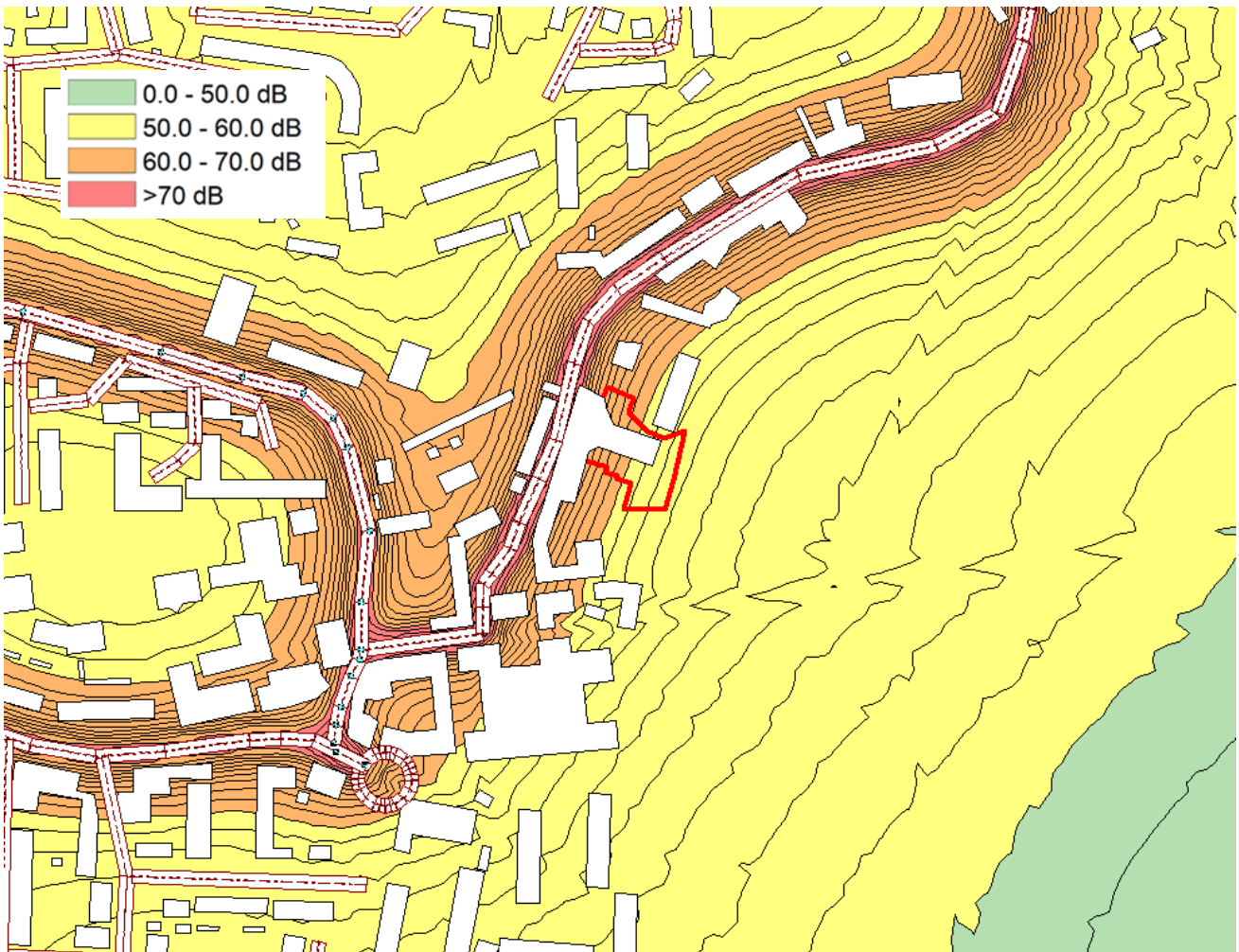
Proposal - Redevelopment of site to introduce residential uses, and a single large retail (A1) unit delivering the minimum quantum of retail floorspace, and structured parking. Development should seek to optimise density on the site, and this should be delivered as a network of streets with limited on street parking, and which follow the healthy streets approach, and facilitating the delivery of new walking and cycling routes through the site, supporting connections to Twickenham town centre and railway station.



The development site is located approximately 10m from Mogden Lane and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 56 and 72 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Additional consideration will also need to be given to existing commercial premises associated with the development site to prevent to imposition of unreasonable restrictions to established noise-generating facilities associated with both existing and future sensitive receptors, in-line with the agent of change principle.

96 - Europa House Business Use with Residential Development (C3)

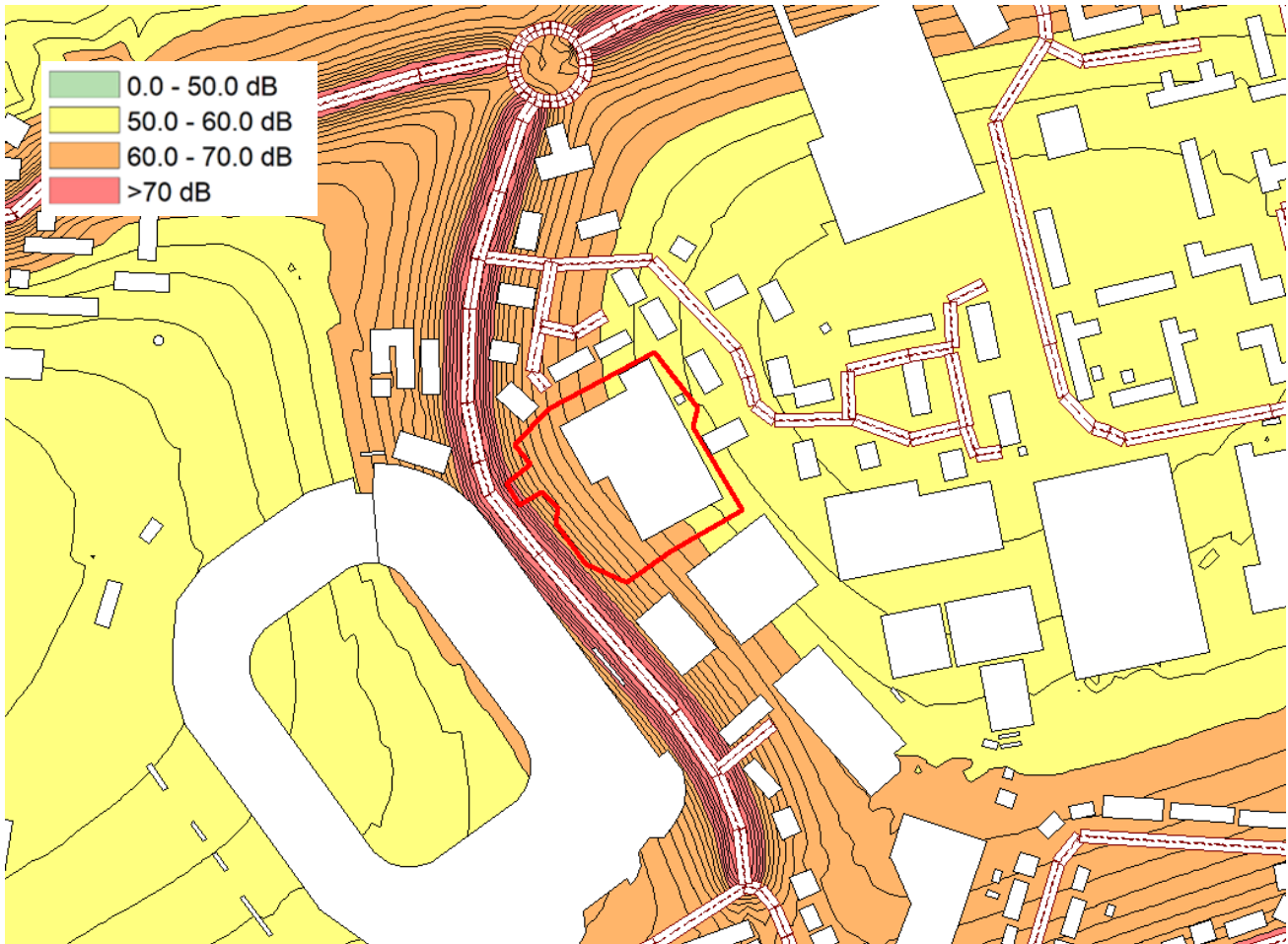
Proposal - Redevelopment of the site to create a mixed-use residential development with business uses. The height of new development should optimise density, while ensuring that development steps up from existing surrounding height in order to form a sensitive and legible change in character.



The development site is located approximately 20m from Church Lane and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 57 and 68 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate and that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

97 - 30 Rugby Road Light Industrial (B1c) and Industrial Use (B2/B8) with Residential Development (C3)

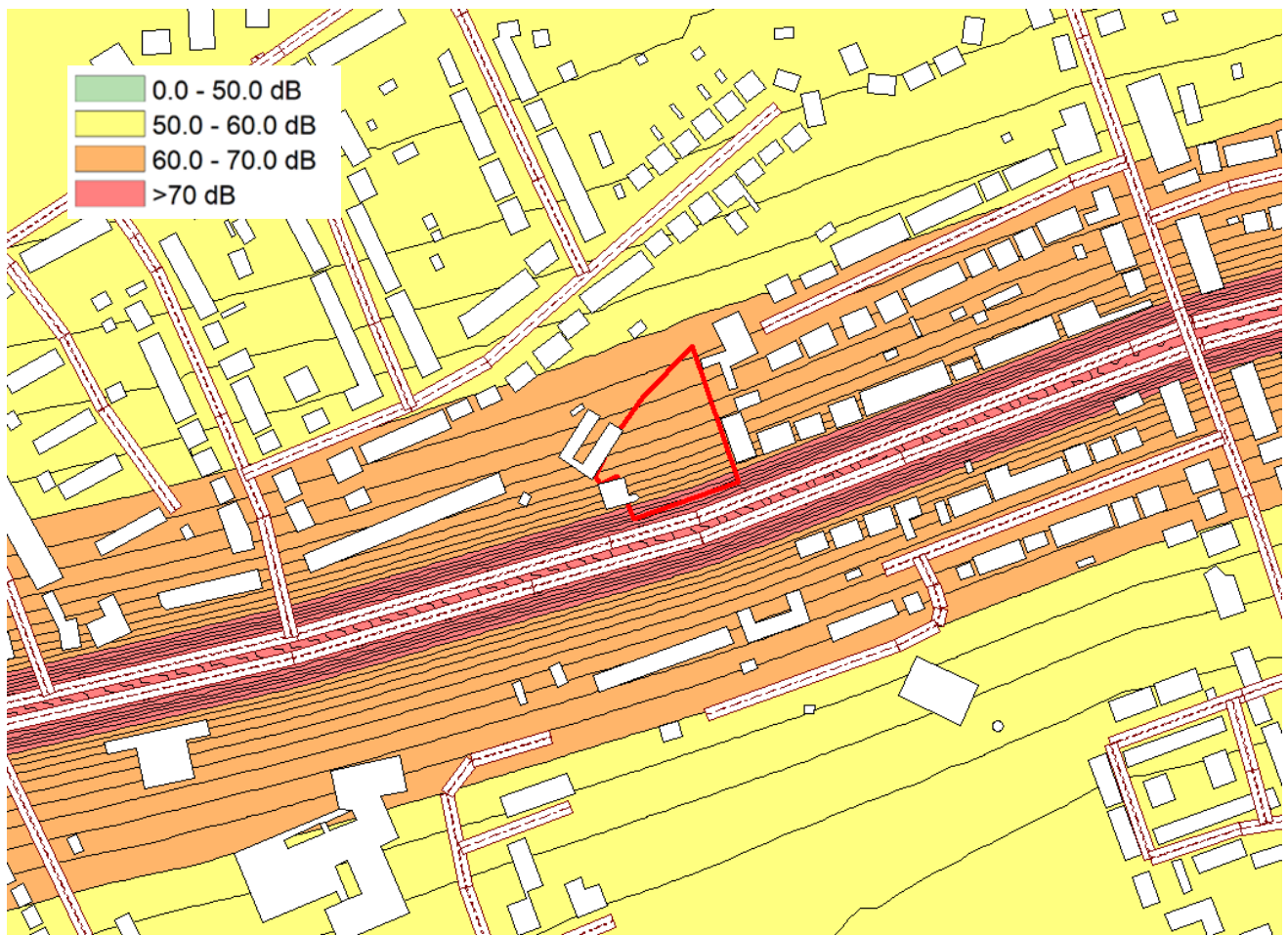
Proposal - Redevelopment of the site to create a mixed-use light industrial/industrial site with residential uses. The height of new development should optimise density, while ensuring that development steps up from existing surrounding height in order to form a sensitive and legible change in character.



The development site is located approximately 10m from Rugby Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 58 and 71 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate and that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

98 - Osterley Station Car Park Residential (C3)

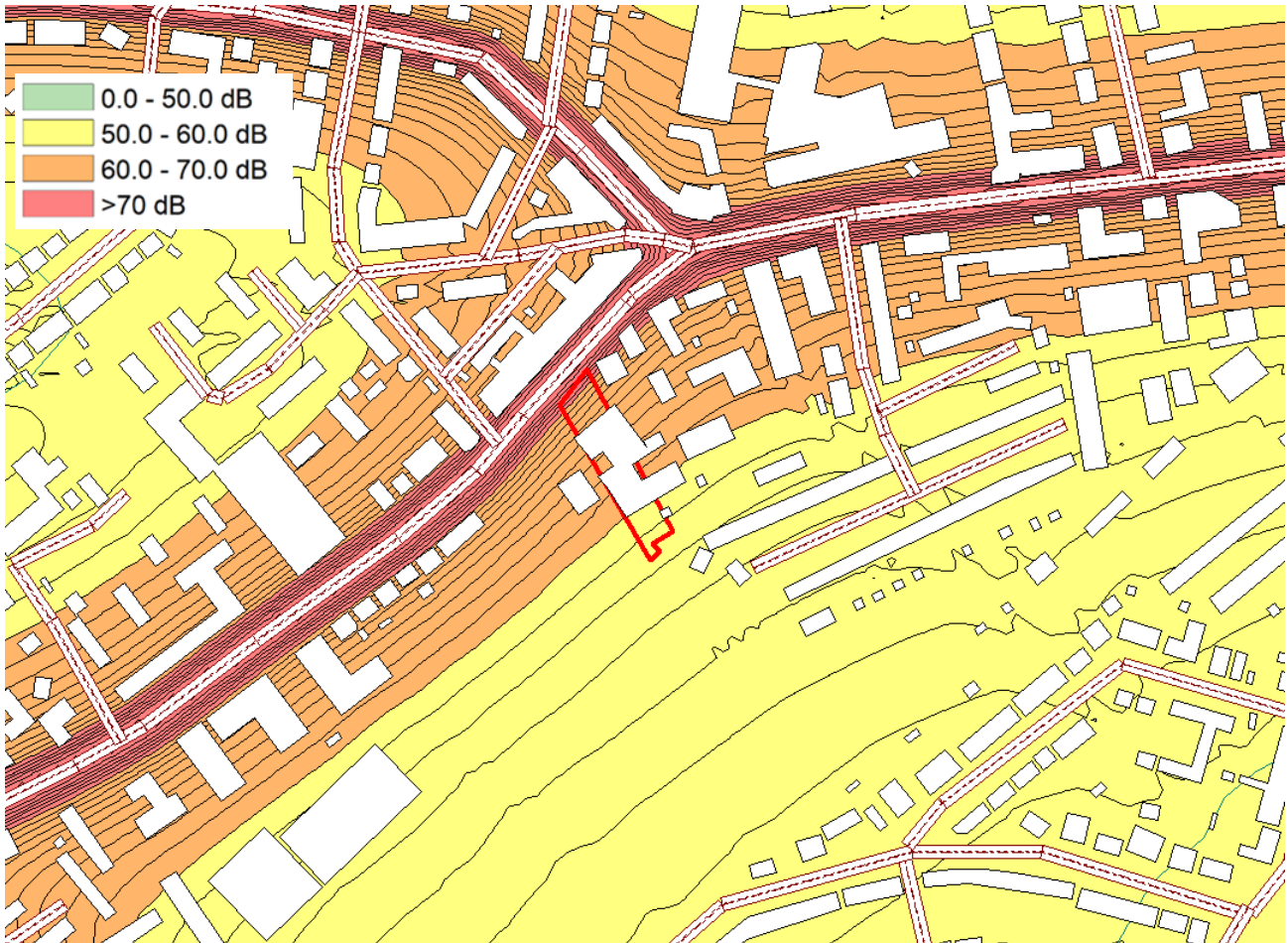
Proposal - Redevelopment of the site for residential development, and appropriate level of car parking provision for the station. Access to the site should maintain the existing access from the Great West Road, and any development should protect and enhance the existing listed station building, and their setting through a high quality design which protects views of the station tower.



The development site is located approximately 10m from Great West Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 75 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

99 - Feltham Coachworks Residential (C3) and Business (B1)

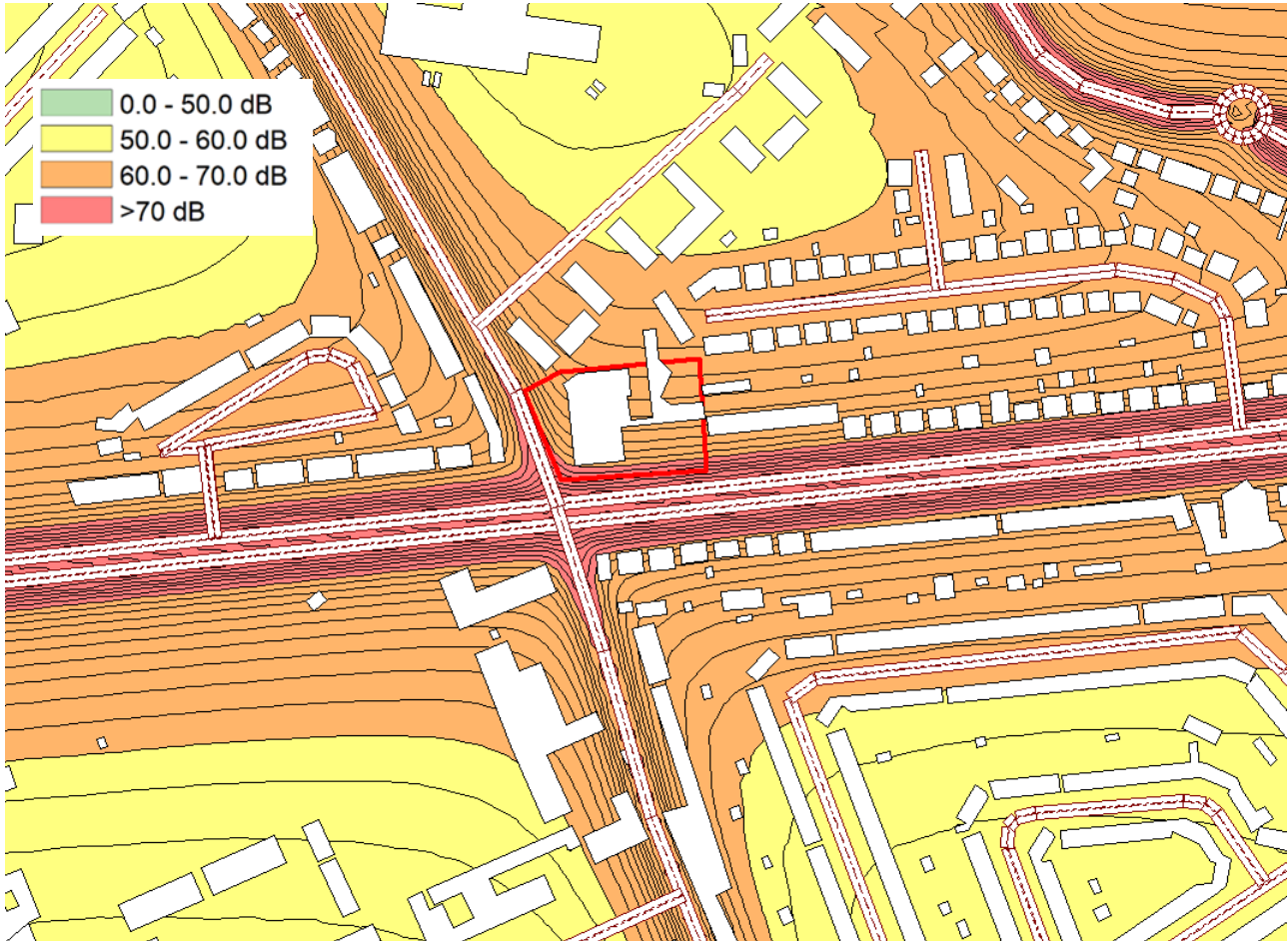
Proposal - Redevelopment of site for mixed use development. New development should seek to optimise density while ensuring that the development steps up from existing surrounding height in order to form a sensitive and legible change in character.



The development site is located approximately 10m from London Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 58 and 74 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

100 - Osterley Park Hotel Residential (C3)

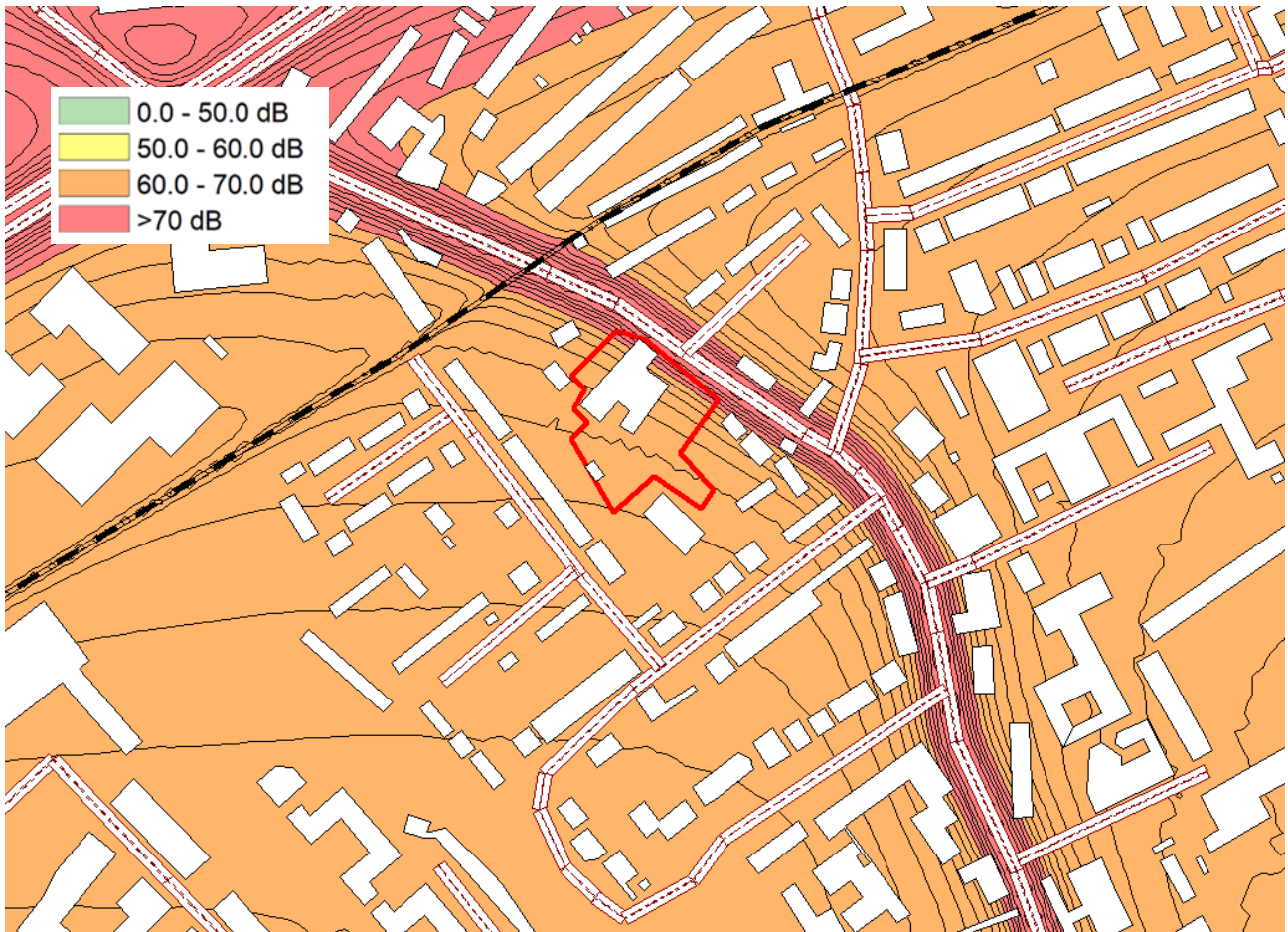
Proposal - Redevelopment of site for residential development. The height of new development should start from the predominant character of the area when developing densities, and should consider the adjacent to areas of different character steps up from existing height in order to form a sensitive and legible change in character while maximising density.



The development site is located approximately 10m from Great West Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 63 and 74 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

101 - Brentford Group Practice Health Centre (D1) with residential (C3).

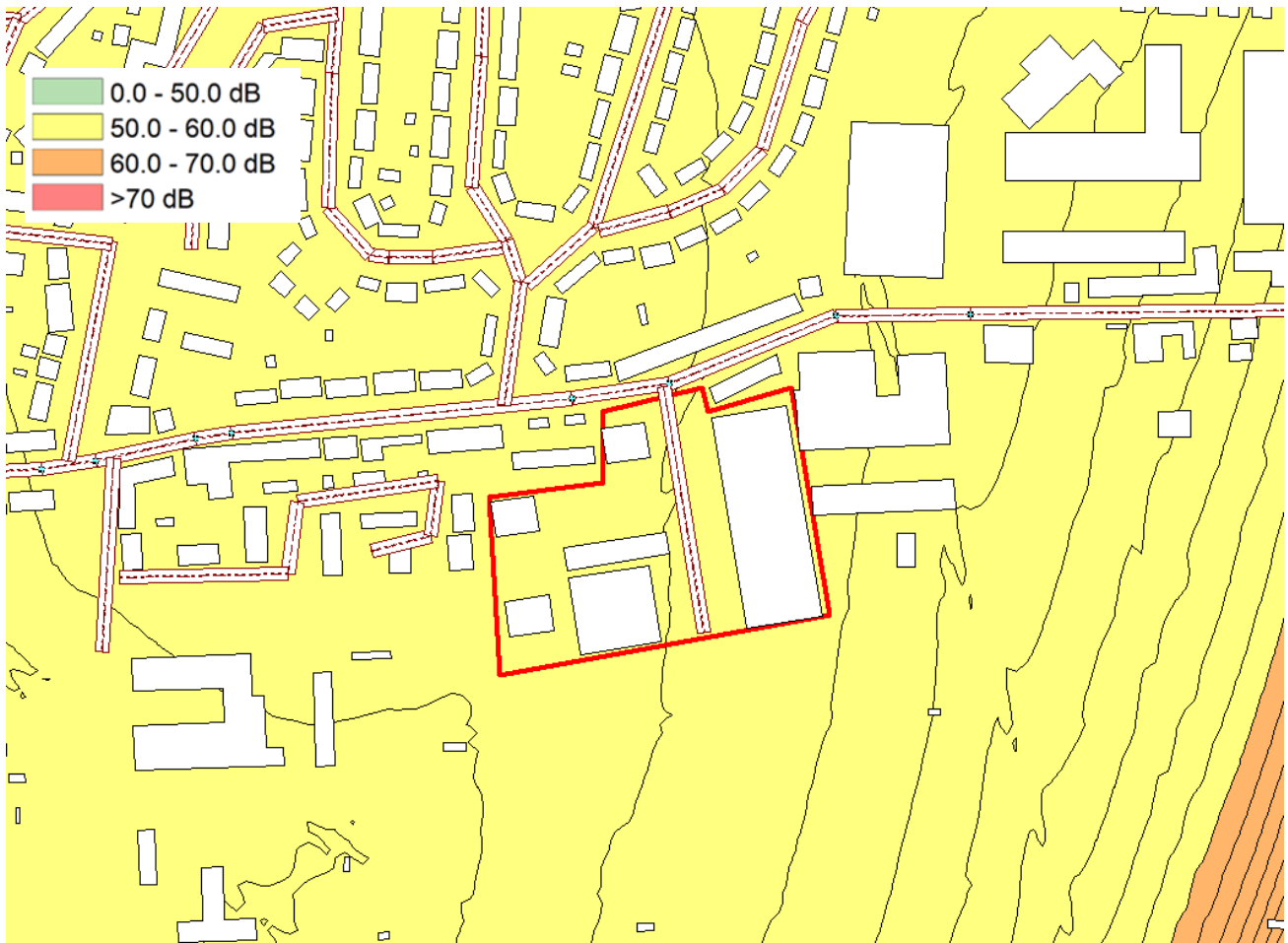
Proposal - Redevelopment of site to provide a new health centre and introduce residential use. Development should seek to optimise density of uses on the site, with the height of new development stepping up from predominant surrounding heights in order to form a sensitive and legible change in character.



The development site is located approximately 10m from Boston Manor Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 65 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

102 - Victory Business Centre Light Industrial (B1c) and Industrial Use (B2/B8).

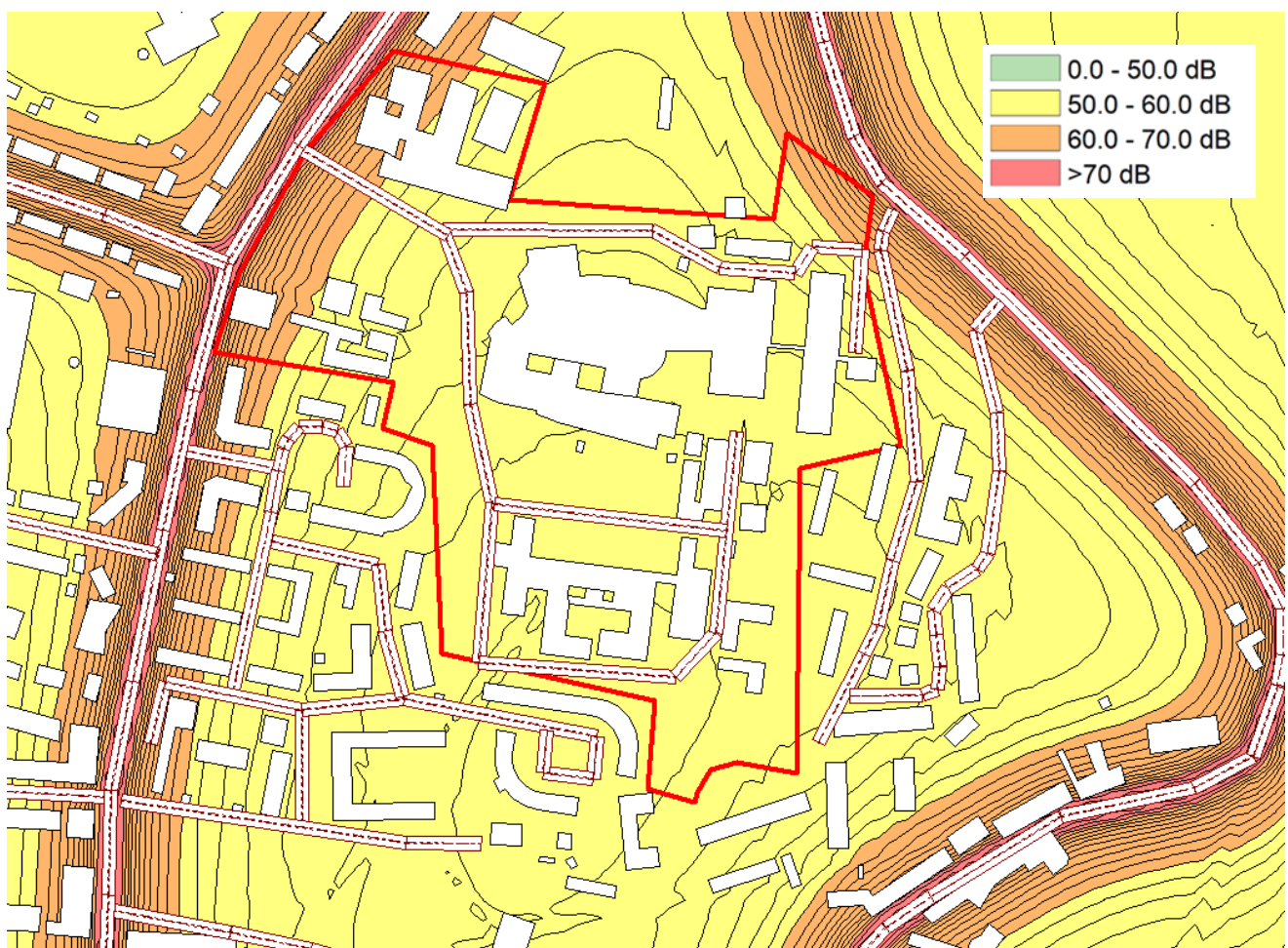
Proposal - Redevelopment and intensification of industrial uses should demonstrate an increased floorspace provision on site as well as increased employment densities, and should support the function, attractiveness and competitiveness of the location by integrating with and not harming the function of adjacent employment sites.



The development site is located approximately 300m from Twickenham Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 51 and 53 dB L_{Aeq} within the development site. As such, although potential external amenity spaces such as balconies or gardens within the development site are expected to be below the SOAEL consideration would need to be given to demonstrate that noise levels can be reduced through site layout and barriers where appropriate, and that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

103 - West Middlesex Hospital Health (D1) with residential (C3), retail, business (B1a/b).

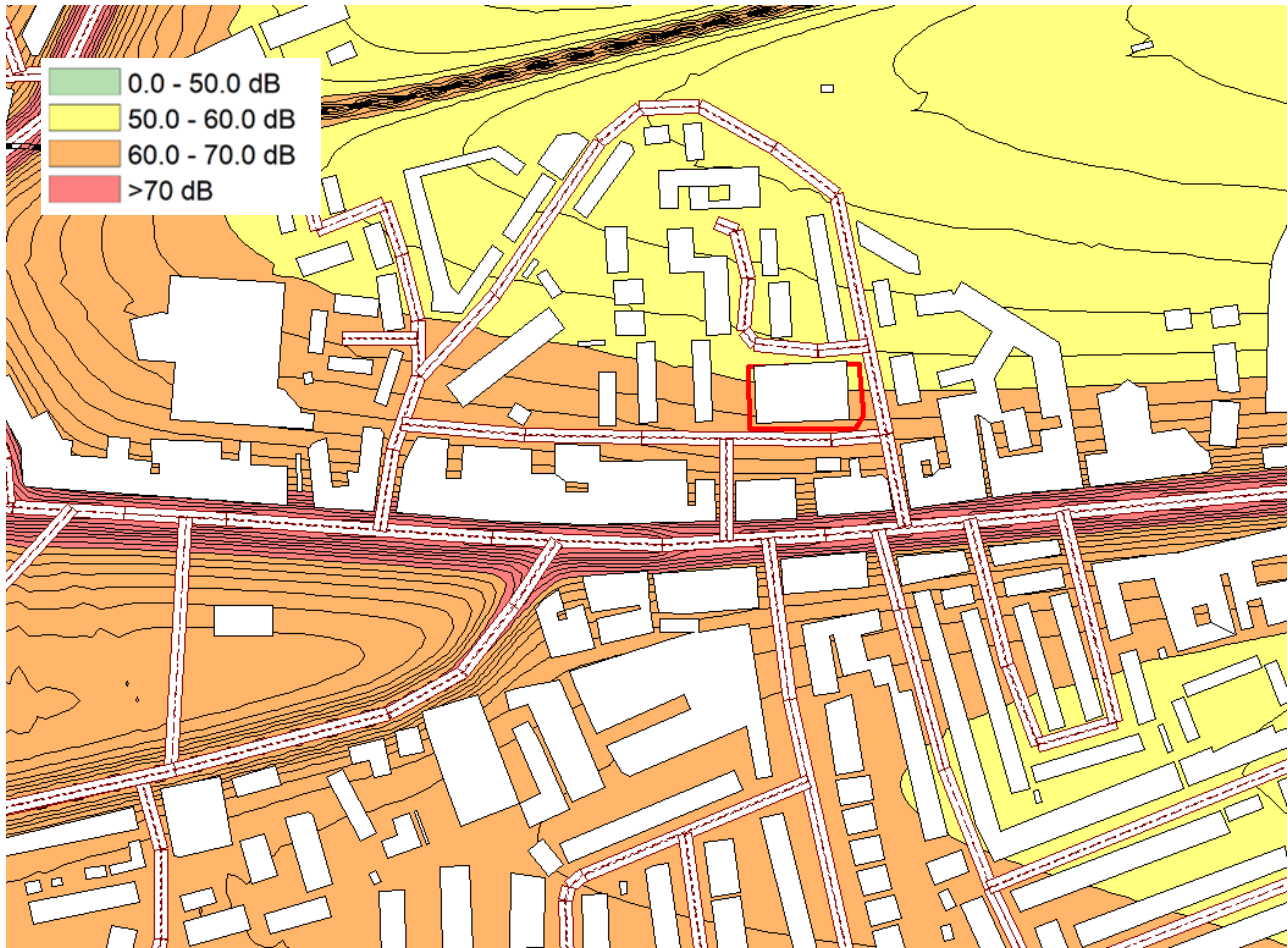
Proposal - Redevelopment of part of the hospital estate for new health (D2) uses, supporting ancillary mixed uses, and residential development. The layout of new development should support and enhance the existing predominant use as a hospital, including ensuring appropriate emergency access. The height of new development should start from the predominant character of the area when developing densities, and should consider the adjacent to areas of different character steps up from existing height in order to form a sensitive and legible change in character while maximising density, and should facilitate the delivery of new walking and cycling links through the site, as well as taking opportunities to provide enhanced pedestrian link to Old Isleworth local centre.



The development site is located approximately 10m from Twickenham Road and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 51 and 70 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate and that existing and future commercial uses would not be restricted by sensitive residential development, in-line with the agent of change principle.

104 - Chiswick Health Centre Health Centre (D1) with residential (C3)

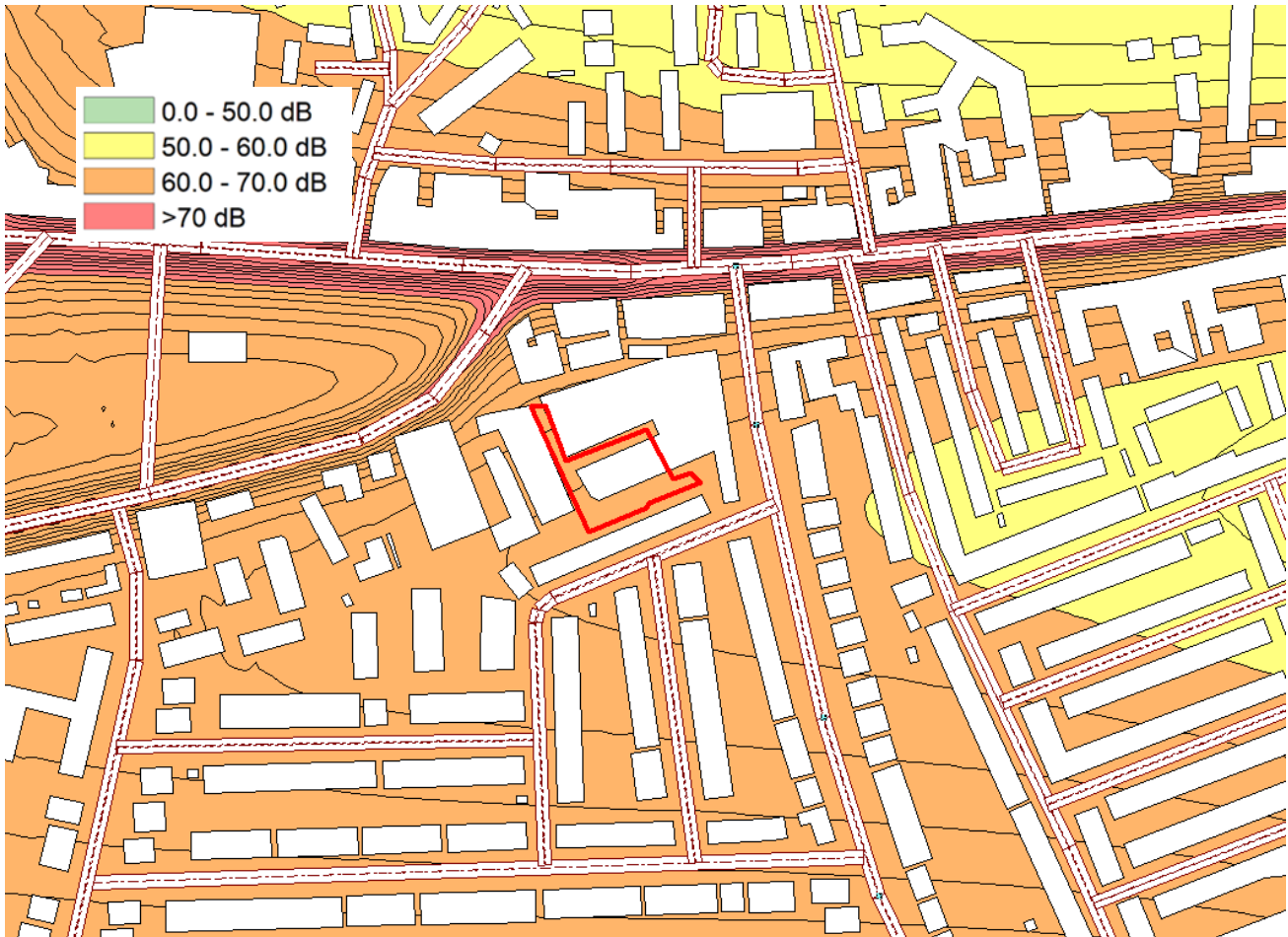
Proposal - Redevelopment of site to provide a new health centre and introduce residential use, and limited ancillary retail uses where these predominantly serve users of the centre. Development should seek to optimise density of uses on the site, with the height of new development stepping up from predominant surrounding heights in order to form a sensitive and legible change in character.



The development site is located approximately 60m from A315 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 58 and 62 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

105 - Chiswick Telephone Exchange Business (B1a/b) and Residential (C3)

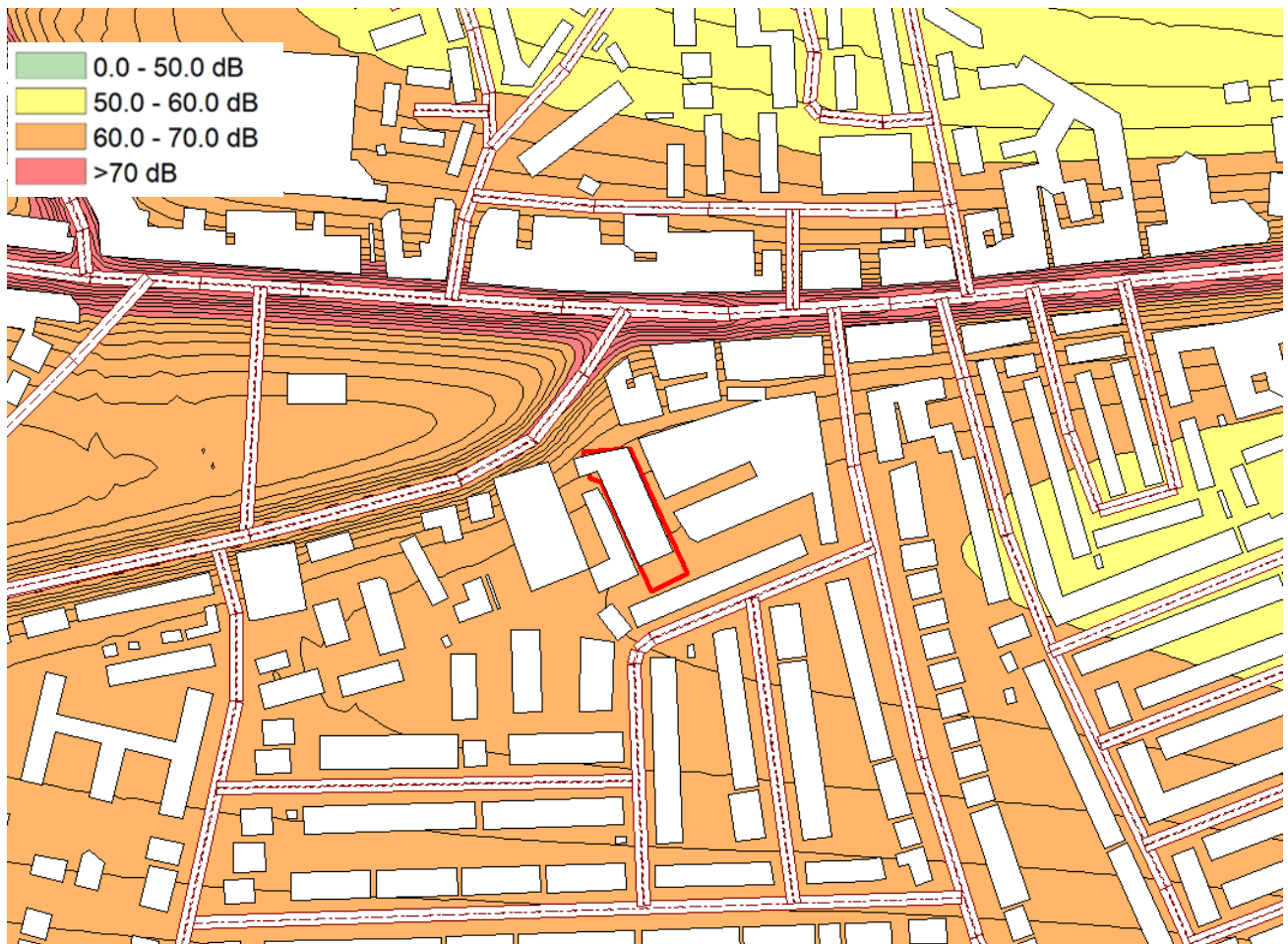
Proposal - Redevelopment and/or conversion of the site for residential and office development. Proposals should seek to integrate and/or respond to proposals for develop adjacent to the west of the site (Royal Mail Office) and ensure development does not compromise the ability of the other site to be developed.



The development site is located approximately 60m from A315 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 66 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are have the potential exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate. Furthermore, development proposals will be required to demonstrate that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

106 - Royal Mail, Chiswick Delivery Office Business (B1a/b) and Residential (C3)

Proposal - Redevelopment and/or conversion of the site for residential and office development. Proposals should seek to integrate and/or respond to proposals for develop adjacent to the west of the site (Chiswick Telephone Exchange) and ensure development does not compromise the ability of the other site to be developed.

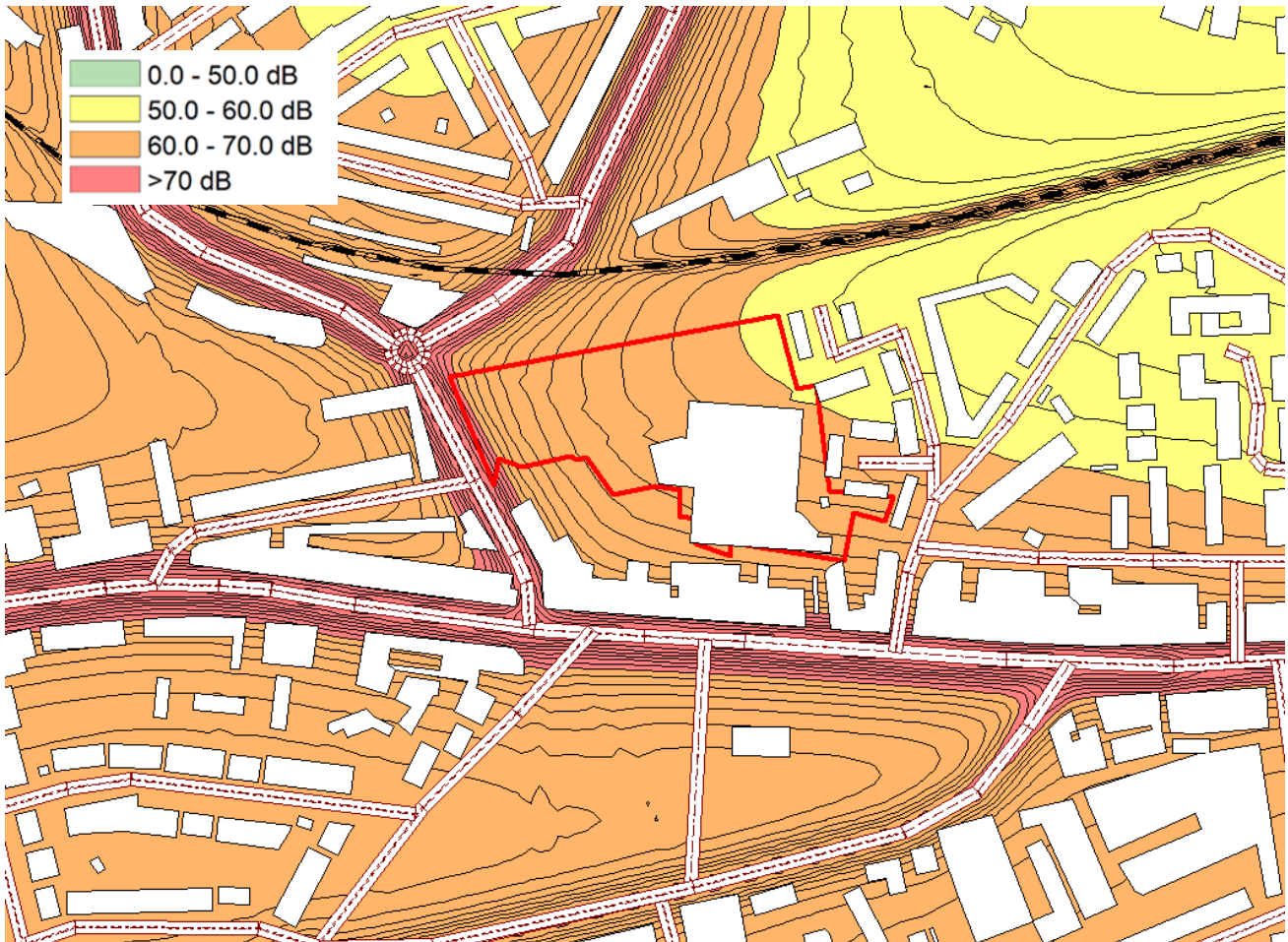


The development site is located approximately 60m from A315 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 60 and 66 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Furthermore, development proposals will be required to demonstrate that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

107 - Sainsbury's Chiswick Large Formal Retail (A1) with Residential (C3)

Proposal - Redevelopment of the site to create a mixed use retail and residential development, with a single large ground floor retail unit (A1) with appropriate level of car parking provision to support the retail use.

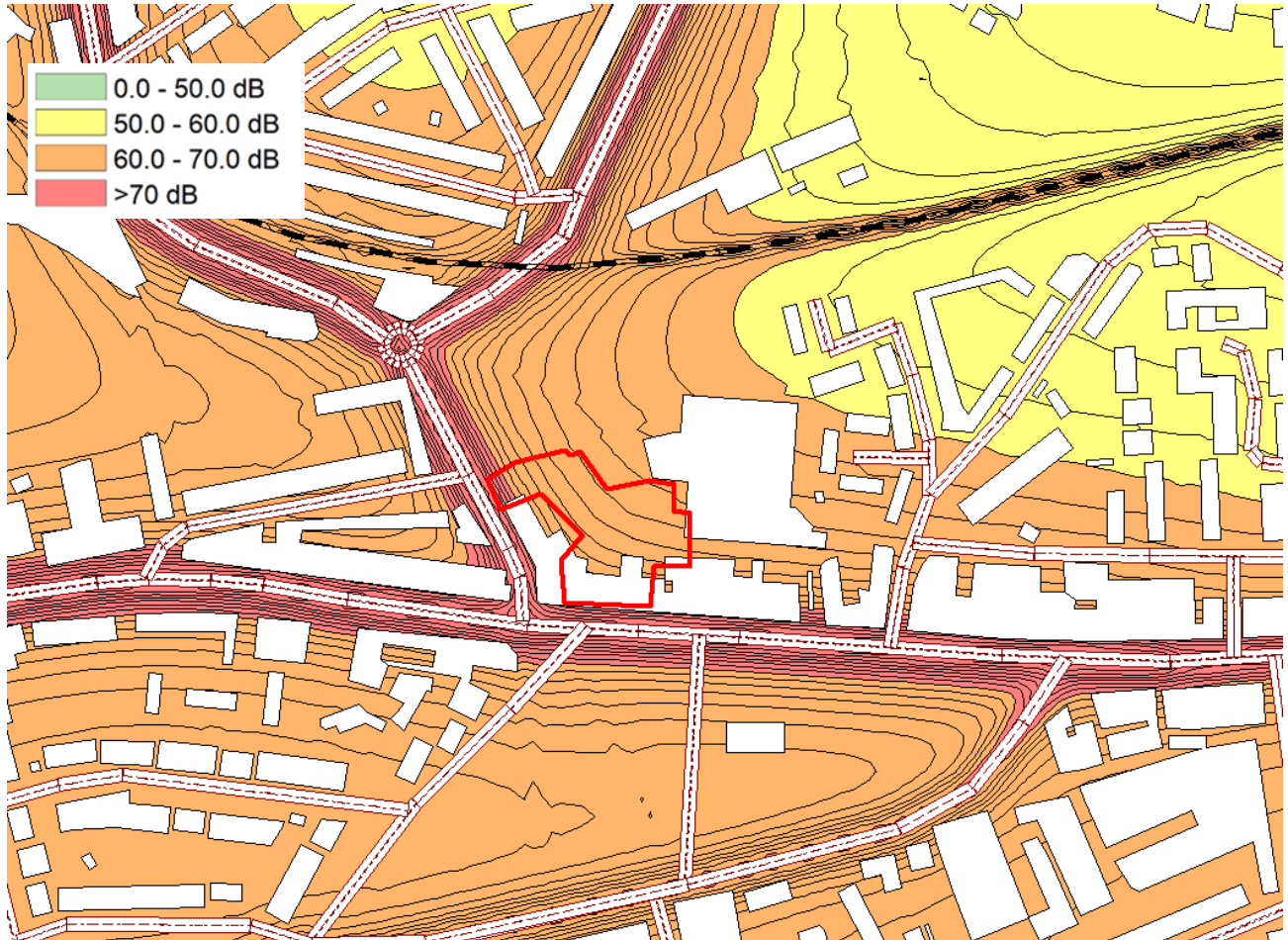


The development site is located approximately 50m from A315 and outside of the Heathrow 60 dB L_{Aeq} noise contour and within 60m of Chiswick Park London Underground Station and adjacent to the existing railway. Road traffic noise within the site during the daytime ranges between 59 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are have the potential to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Furthermore, development proposals will be required to demonstrate that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.

108 - Empire House Residential (C3) and retail

Proposal - Redevelopment of the site for residential use, with ground floor retail units (A1-A4) to provide an active frontage onto Chiswick High Road. Development should seek to optimise density of uses on the site, with the height of new development stepping up from predominant surrounding heights in order to form a sensitive and legible change in character.



The development site is located approximately 10m from A315 and outside of the Heathrow 60 dB L_{Aeq} noise contour. Road traffic noise within the site during the daytime ranges between 63 and 73 dB L_{Aeq} within the development site. As such external amenity spaces such as balconies or gardens within the development site are expected to exceed the SOAEL and would require detailed consideration to demonstrate that noise levels can be reduced through site layout and barriers where appropriate.

Furthermore, development proposals will be required to demonstrate that existing and future commercial units would not be restricted by sensitive residential development, in-line with the agent of change principle.