Planning Statement
&
Affordable Housing Statement

38-42 Vincam Close, Whitton, London TW2 7AB

Demolition of existing buildings and erection of 8 new homes

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1. Introduction

1.1. This planning statement & affordable housing statement has been prepared by NFC Homes in support of the full planning application for the residential redevelopment of the land at 38-42 Vincam Close, Whitton ('the Site').

1.2. The description of development for which full planning permission is sought from the London Borough of Richmond-upon-Thames ('LBR') in its role as the Local Planning Authority ('LPA') is as follows:

'Demolition of existing buildings and erection of 8 new homes.'

1.3. The proposed development of the Site has been subject to pre-application discussions with the LBR.

1.4. The purpose of this statement is to demonstrate, having regard to national, regional and local policy, and other material considerations, that the proposed development is acceptable in planning terms.

1.5. The documents which collectively comprise this full planning application are:

- Application form (by NFC Homes)
- Community Infrastructure Levy ('CIL') form (by NFC Homes)
- Planning statement & Affordable housing statement (by NFC Homes)
- Sustainable construction checklist (by NFC Homes)
- Location map (by Tim Snow Architects)
- Architectural plans and drawings (by Tim Snow Architects)
- Design and access statement (by Tim Snow Architects)
- Flood risk assessment (by Topping Engineers)
- Drainage strategy (by Topping Engineers)
- Highways supporting statement (by AMA)
- Construction method statement (by NRG)
- Energy statement (by NRG)
- Preliminary ecological appraisal (by Applied Ecology)
- Phase 1 desktop contaminated land study (by HESI)
- Arboricultural impact assessment (by Roberts Arboriculture)
- Viability assessment (by Redloft)
- Fire strategy (by Green Hat Consulting)

1.6. This statement should be read in conjunction with all the submission documents listed above.

2. Site and surroundings

2.1. The Site is located at the western end of Vincam Close where it joins Vanquish Close. The Site currently accommodates a bungalow and a pair of semi-detached houses with paved car parking areas to the front and gardens to the rear. The site location is also shown in Figure 1 below.

Figure 1: Site location plan

2.2. The Site is located in an established residential neighbourhood which is largely characterised with inter-war period terraced houses, though there are examples of positive modern-day regeneration including the estate immediately to the southwest of the Site along Vanquish Close.

2.3. Vincam Close is well-connected, close to Whitton Centre, a short 10-minute walking distance from the Site, with a variety of local amenities such as shops and eateries, and a train station. The Site is also well served by buses, with a bus stop located at the top of Vincam Close on Hospital Bridge Road and the adjacent Nelson Road to the north.

2.4. The Site does not have any planning designations or constraints. It is not located in a Conservation Area and there are no Listed Buildings on-site. The site is within Flood Zone 1 and not at risk of flooding.

3. Planning history

3.1. There have been minor householder planning applications over the years for various residential extensions and alterations for the existing dwellings, which are not directly relevant to the proposed development of the Site as a residential redevelopment scheme.

3.2. In January 2021, we submitted a pre-application request to the LPA for the residential redevelopment of the Site. The proposal was to demolish the existing buildings and erect 8 or 9 new two-storey terraced houses with roof accommodation.

3.3. In April 2021, we had a pre-application meeting with the LPA. The principle of the residential redevelopment scheme was supported as long as we could justify the demolition of existing buildings. The LPA issued its written advice in July 2021.

4. Proposed development

4.1. The application seeks full planning permission for the demolition of existing buildings on the site and the erection of 8 new dwellings.

4.2. The proposal would consist of a detached house, two pairs of semi-detached houses and a terrace of three houses.

4.3. The details of each proposed house are shown below in Table 1.

Plot	Type	Height	Size	Parking	Tenure
1	Terraced	2-storey	4-bedroom	2 spaces	Market
2	Terraced	2-storey	3-bedroom	2 spaces	Market
3	Terraced	2-storey	3-bedroom	2 spaces	Market
4	Detached	2-storey	3-bedroom	2 spaces	Market
5	Semi-detached	2-storey	3-bedroom	2 spaces	Market
6	Semi-detached	2-storey	3-bedroom	2 spaces	Market
7	Semi-detached	2-storey	3-bedroom	2 spaces	Market
8	Semi-detached	2-storey	4-bedroom	2 spaces	Market

Table 1: Details of the proposed houses

5. Planning policy

5.1. One key role of the planning system is to regulate the development and use of land in the public interest. At the heart of the planning framework are statutory Development Plans which seek to guide the decision-making process.

5.2. Planning law requires that where the Development Plan contains relevant policies, an application for planning permission shall be determined in accordance with the Development Plan, unless material considerations indicate otherwise.

5.3. In this case, the relevant Development Plan consists of:

- GLA's London Plan (2021); and
- LBR's Local Plan (2018).

5.4. The National Planning Policy Framework ('NPPF'), National Planning Practice Guidance ('NPPG') and both the GLA and LBR Supplementary Planning Guidance/Documents are also considered to be material considerations.

<u>London Plan (2021)</u>

5.5. The London Plan is the overall strategic plan for London, and it sets out a fully integrated economic, environmental and social framework for the development of the capital to 2041. It forms part of the Development Plan for London. London boroughs' local plans need to be in general conformity with the London Plan whose policies guide decisions on planning applications by the boroughs and the Greater London Authority (GLA). The following policies are particularly relevant to the proposed development at the Site:

- Policy GG2 'Making the best use of land'
- Policy GG4 'Delivering the homes Londoners need'
- Policy D3 'Optimising site capacity through the design-led approach'
- Policy D4 'Delivering good design'
- Policy D6 'Housing quality and standards'
- Policy D12 'Fire safety'
- Policy H1 'Increasing housing supply'
- Policy H2 'Small sites'
- Policy H8 'Loss of existing housing and estate redevelopment'
- Policy H10 'Housing size mix'
- Policy G6 'Biodiversity and access to nature'
- Policy G7 'Trees and woodlands'
- Policy SI1 'Improving air quality'
- Policy SI12 'Flood risk management'
- Policy SI13 'Sustainable drainage'
- Policy T4 'Assessing and mitigating transport impacts'
- Policy T6 'Car parking'
- Policy T6.1 'Residential parking'

Local Plan (2018)

5.6. The Local Plan was formally adopted by LBR in 2018. It sets out LBR's proposals for the future development of the borough over the next 15 years through a suite of planning policies. The following policies are particularly relevant to the proposed development at the Site:

- Policy LP1 'Local character and design quality'
- Policy LP2 'Building heights'
- Policy LP8 'Amenity and living conditions'
- Policy LP10 'Local environmental impacts, pollution & contamination'
- Policy LP15 'Biodiversity'
- Policy LP16 'Trees, woodlands and landscape'
- Policy LP20 'Climate change adaption'
- Policy LP21 'Flood risk and sustainable drainage'
- Policy LP22 'Sustainable design and construction'
- Policy LP34 'New housing'
- Policy LP35 'Housing mix and standards'
- Policy LP36 'Affordable housing'
- Policy LP38 'Loss of housing'
- Policy LP44 'Sustainable travel choices'
- Policy LP45 'Parking standards and servicing'

6. Planning assessment

6.1. This section assesses the proposed development against overriding themes of planning policy as well as other relevant material considerations in terms of the key issues pertinent to this application, namely:

- Principle of development
- Character and appearance
- Housing mix
- Quality of accommodation
- Neighbouring amenities
- Transport and highways
- Energy and sustainability
- Air quality
- Ecology and biodiversity
- Flood risk and drainage
- Contamination
- Trees
- Fire

Principle of development

6.2. Policy H8 of the London Plan notes that loss of existing housing should be replaced by new housing at existing or higher densities with at least the equivalent level of overall floorspace whilst Policy GG2 encourages making the best use of land.

6.3. Furthermore, Policy LP38 of the Local Plan seeks to protect existing housing unless it has first been demonstrated that the existing housing is incapable of improvement or conversion to a satisfactory standard to provide an equivalent scheme.

6.4. Policies GG4 and H1 of the London Plan and Policy LP34 of the Local Plan seek to maximise the supply of housing to deliver at least 4,110 new homes in London Borough of Richmond between 2019 and 2029, which is substantially more than the previous 10-year housing target of 3,150 new homes.

6.5. Moreover, the Mayor of London promotes the significant boosting of housing delivery from small sites (i.e. below 0.25 hectares) through Policy H2 of the London Plan. It is recognised that small sites can make a significant contribution to housing delivery across London and the policy asks LPAs to recognise that local character evolves over time and will need to change in appropriate locations to accommodate additional housing on small sites.

6.6. Increasing the rate of housing delivery from small sites is a strategic priority for the Mayor of London and Policy H2 of the London Plan identifies substantial capacity for incremental housing intensification on small sites across London and imposes a 10-year housing target of 2,340 new homes on small sites in Richmond between 2019 and 2029.

6.7. The Government's vision is also clear in that Paragraph 120 of the NPPF states that planning decisions should give substantial weight to the value of using suitable brownfield land within settlements for homes and should support the development of under-utilised land and buildings especially if this would help to meet identified needs for housing where land supply is constrained and available sites could be used more effectively.

6.8. The proposed development is to replace the existing suburban residential homes with more densely populated residential homes to deliver an uplift in housing supply for wider public benefits to meet the identified housing need in Richmond. The proposed development would also enhance the quantum of family housing available on the site.

6.9. The site location is highly sustainable for denser residential development, given the close proximity to local services and amenities.

6.10. The proposed development would positively contribute to the housing delivery on small sites in Richmond and would be consistent with the Government's ambition to significantly boost the supply of housing across the country. The development would indeed make the best use of the available land.

6.11. The loss of the existing housing is acceptable because the Energy and Statement demonstrates that the existing housing is incapable of improvement or conversion to a satisfactory standard to provide an equivalent scheme to the proposed new build houses. An assessment of the carbon emissions of the existing dwellings was undertaken in the Energy Statement. This assessment found very high carbon emissions and properties with an EPC Rating ranging from D to G. Upon review of the SAP Calculations of the existing dwellings combined with the photographic evidence and our Site Survey, it indicates that even with spending a significant money on:

- Full Re-Wiring
- New Bathroom and Kitchen
- New DoubleGlazed Windows (as the existing are at the end of their life / beyond) and Front Door
- Full new Heating System

It would only allow the current dwellings to simply a "D" or "C" standard, far below the "B" to "A" rating expected from the new dwellings. The insulation levels of the existing dwellings are poor and while in theory the roof could be upgraded, it is not practical due to the type of roof and the reduction in carbon emissions would be minimal. Further to this, it is prohibitively expensive to fit External Wall Insulation (EWI) and Solid Floor Insulation and these measures would never provide payback for the dwellings within the accepted timeframe of 15 years.

6.12. Therefore, based on the above assessment in the Energy Statement and that the proposed dwellings will have both CO2 emissions of between 60-90% lower than the existing dwellings and that the proposed emissions for the new

scheme are less than that of the existing dwellings, it makes no sense from an energy context to retain the existing dwellings in-lieu of a proposed low carbon scheme.

6.13. As such, the principle of development is acceptable as it would make the best use of the available land for more housing whilst also enhancing the provision of family housing on the site with superior environmental and performance credentials than the existing.

Character and appearance

6.14. Policies GG2, D3 and D4 of the London Plan, and Policies LP1 and LP2 of the Local Plan promote good design in essence and optimising site capacity through a sensible design-led approach to make the best use of land.

6.15. The design of the proposed development is the result of extensive design development work by the architects and dialogue with LBR's planning officers. We have carried out significant work to understand the opportunities and constraints surrounding the Site, and design optioneering has taken place.

6.16. The scheme design seeks to be consistent with the established pattern of detached, semi-detached and terraced housing developments in the area to maintain the streetscene. Such respectful design approach allows the proposal to continue the established rhythm of the streetscene and optimise the site capacity for housing delivery at the same time.

6.17. The scheme would also deliver wider placemaking benefits to enhance the streetscene of Vincam Close by introducing new modern day dwellings. The existing bungalow and the pair of semi-detached houses are outdated and the introduction of new dwellings would significantly improve the character and appearance of the streetscene. Whilst the streetscene would slightly change, such evolution of streetscene is consistent with the Policy H2 of the London Plan which recognises that local character evolves over time and will need to change in appropriate locations to accommodate additional housing on small sites.

6.18. In this context, the scheme represents good design and significant architectural improvements to the locality. It optimises the delivery of housing through a sensible design-led approach to make the best use of the available land. Our architects have prepared a Design and Access Statement to detail the design rationale and evolution process to further demonstrate this. As such, the proposed design would positively contribute to the character and appearance of the locality.

Housing mix

6.19. Policy H10 of the London Plan and Policy LP35 of the Local Plan seek to meet local housing need by securing a mix of new housing sizes.

6.20. The proposed development would provide a range of housing sizes across 3-beds and 4-beds which would accommodate a wide range of families.

6.21. As such, the proposed development would ensure that it offers a reasonable mix of new housing sizes.

Quality of accommodation

6.22. Policy D6 of the London Plan and Policy LP 35 of the Local Plan seek to ensure that new residential development delivers high quality accommodation.

6.23. The new homes would meet the relevant internal space standards and have direct access to reasonable private outdoor amenity spaces. The homes would all be dual aspect.

6.24. As such, the proposed development would deliver high quality living environment and accommodation for future residents.

Neighbouring amenities

6.25. Policy LP8 of the Local Plan requires all development to protect the amenity and living conditions for occupants of neighbouring properties.

6.26. The proposed development would be sufficiently set away from the neighbouring properties. The proposal would be modest 2 storeys to reflect the suburban scale of the neighbouring properties, notwithstanding the taller flatted development at Vanquish Close. The proposed buildings would have significant separation distances from the adjoining properties. As such, the modest scale and appropriate siting with sufficient separation distances would protect the existing amenities of the neighbours in terms of outlook and natural light.

6.27. The proposed development would not introduce any unacceptable overlooking into the neighbouring gardens and properties. The neighbouring houses would be sufficiently far away from the development. Whilst there would be elevated windows in the development, overlooking into the neighbouring gardens already occur from the Site and adjacent properties currently. It is also accepted that a degree of overlooking is inevitable in an established residential street. The proposal would not include any clear glazing in the side elevations to avoid overlooking into the adjacent properties. In this context, the proposed development would sufficiently safeguard the privacy of neighbouring residents.

6.28. The proposed development would be residential in character and therefore be in keeping with the established residential character of the area, and would avoid any unneighbourly noise or disturbance to the residential neighbourhood.

6.29. As such, the proposed development would sufficiently safeguard the residential amenities of the neighbours in the area.

Transport and highways

6.30. Policies T4 and T6 of the London Plan, and Policy LP44 of the Local Plan seek to promote the use of sustainable modes of transport over the use of private car and seek to ensure that additional traffic generated by new development to be within the relative capacity of the local highway network including parking.

6.31. The impact of the development-generated traffic on the surrounding roads would be of a negligible impact on queuing and delay. The development would only add 5 new households (there are 3 existing properties already on the site) to the locality and would not result in any material traffic uplift in the area. The proposed development at the Site could be accommodated without resulting in a significant detrimental impact upon the local road network and no mitigation measures are required. As such, the additional traffic generated by the proposed development at the Site would be negligible and wholly acceptable.

6.32. Policy LP45 of the Local Plan requires 2 car parking spaces for a 3+ bed home, although Policy T6.1 would only allow up to a maximum of 1.5 car parking spaces for a 3+ bed home. The development proposes 2 car parking spaces per dwelling to be consistent with the Local Plan requirement.

6.33. As such, the traffic associated with the proposed development would be comfortably accommodated by the existing roads whilst the proposed parking provision would be appropriate. The proposed level of parking provides a successfully balance the need to promote sustainable modes of transport, meeting the needs of residents and minimising on-street parking. This is particularly so when considering the Site's accessibility and sustainability means, and the encouragement to reduce car ownership in the context of the climate emergency.

6.34. The Highways Supporting Statement also concludes that the proposed development would not result in any detrimental highways impact on capacity or road safety.

6.35. Policy LP10 of the Local Plan seeks to manage and limit environmental disturbances during construction and demolition, and requires the submission of Construction Management Statements. As such, we have provided a Construction Method Statement which has been prepared in accordance with LBR guidance.

Energy and sustainability

6.36. Policies LP20 and LP22 of the Local Plan require new development to be of the highest standards of sustainable design to reduce emissions and mitigate the likely effects of climate change.

6.37. The sustainable construction checklist has been completed and submitted. Additionally, the Energy Statement demonstrates that the proposed homes would use less energy ('Be Lean') and use renewable energy ('Be Green')

whereby it demonstrates a reduction in regulated CO2 emissions of 41.93% would be achieved via:

- U-values in line with the upcoming Part L 2021 guidance;
- A high efficiency heating system with controls specified to reduce energy consumption;
- 100% low energy lighting; and
- Total site-wide Photovoltaic Panels installation of 9.5 kWp.

6.38. As such, the proposed development would be highly energy efficient and sustainable which contribute to reducing emissions and mitigating the likely effects of climate change.

Air quality

6.39. Policy SI1 of the London Plan and Policy LP10 of the Local Plan also require new development to be at least air quality neutral and take opportunities to improve air quality.

6.40. The existing dwellings are outdated and do not have the modern day heating and energy equipment to improve air quality. They use gas boilers and create air quality emissions. The proposed dwellings would have far superior environmental and performance credentials than the existing dwellings as they would be constructed with modern day materials and powered with modern day equipment using renewable electricity such as Photovoltaic Panels. As such, the proposed development would contribute to improving air quality when compared to the existing situation. The increase in the number of homes would not result in any significant vehicular traffic increase and in any event vehicles are becoming electric to avoid any detrimental air quality impact, and the proposed homes would be equipped with electric vehicle charging points to accommodate the electric vehicles. As such, the proposed development would contribute to improving air quality.

6.41. The air quality assessment, produced as Appendix 1 of this statement, has also modelled future and current air quality at various heights of the proposed development. These modelled points (receptor locations) have been projected at the ground floors and first floors of the proposed development. The model has utilised data from LBR local air quality automatic monitoring locations, and DEFRA background Air Quality data, as well as annual traffic counts from the UK Government.

6.42. The results of the above air quality assessment have shown that all the proposed receptor locations fall within APEC-A categorisation, which states “No air quality grounds for refusal; however, mitigation of any emissions should be considered”.

6.43. As such, the outcomes of the above air quality assessment indicates that no mitigation measures are required at the new development and that air quality emissions are far below a level that would cause concern or potential adverse impact to the proposed future residents.

Ecology and biodiversity

6.44. Policy G6 of the London Plan and Policy LP15 of the Local Plan require new development to manage impacts on biodiversity and avoid or mitigate significant adverse impact on biodiversity.

6.45. The Preliminary Ecological Appraisal notes that the application site is comprised of residential buildings and associated garden land of negligible to low ecological and biodiversity value with very limited faunal interest located within a densely populated suburban area with negligible habitat connectivity to habitats of higher ecological and habitat value. As such, the proposed development would not lead to any harmful effects on biodiversity.

6.46. No's. 38-40 Vincam Close lacked evidence to suggest it was used by bats for roosting but possessed a number of potential bat roost features that meant the property was assessed as possessing low overall bat roost suitability in accordance with best practice survey guidance. The presence of small numbers of roosting bats in the building is a theoretical possibility, and as such we are agreeable to a planning condition that requires the pair of dwellings be subject to single after dark bat roost emergence or return to roost survey to verify bat roosting absence given the proposal is to remove the buildings to enable redevelopment of the plot. No. 42 Vincan Close was assessed as being of negligible bat roost suitability and could be removed without restriction in relation to bats.

Flood risk and drainage

6.47. Policies SI12 and SI13 of the London Plan, and Policy LP21 of the Local Plan seek to ensure that flood risk is reduced by ensuring that developments are located appropriately and managing surface water through sustainable drainage.

6.48. The Flood Risk Assessment demonstrates that the proposed development would not be at significant flood risk and would not increase flood risk elsewhere. The Drainage Strategy shows that the surface water runoff discharging from the Site would be suitably managed.

Contamination

6.49. Policy LP10 of the Local Plan notes that potential contamination risks will need to be properly considered and adequately mitigated before development proceeds.

6.50. The Phase 1 Desktop Contaminated Land Study includes a preliminary risk assessment and preliminary geotechnical assessment to provide information on land contamination risk.

6.51. The report concludes that no specific sources of contamination are in place which are likely to impact on the development site. As such, the proposed development would avoid harm to future residents arising from land contamination.

Trees

6.52. Policy G7 of the London Plan and Policy LP16 of the Local Plan seek to protect existing trees of value and to ensure new development replaces the trees to be lost as a result of the development.

6.53. The Arboricultural Impact Assessment concludes that the proposed development would only remove small and low quality trees and would not adversely affect the trees to be retained, and therefore should be acceptable from an arboricultural point of view. The proposed development would also plant new trees and shrubs to further enhance the landscaping provision at the Site.

Fire

6.54. Policy D12 of the London Plan seeks to ensure that all development proposals achieve the highest standards of fire safety.

6.55. As such, we have submitted an independent Fire Statement produced by a suitably qualified assessor as per the requirement of the Policy D12.

7. Affordable housing statement

7.1. Policy LP36 of the Local Plan sets a strategic target of 50% of all new homes in the borough to be affordable. It requires a contribution towards affordable housing on all housing sites, including a financial contribution from sites below the threshold of 10 homes, unless the contribution would make the scheme unviable.

7.2. Our scheme would not be able to make any viable financial contributions for affordable housing. This is evidenced in the independent Viability Assessment submitted with our application.

7.3. As such, the proposed development would not be able to make financial contributions for affordable housing. This is consistent with Paragraph 64 of the NPPF which advises that affordable housing should not be sought for residential developments that are not major developments (i.e. 10 dwellings or more). It is also consistent with the provisions of the Policy LP36 of the Local Plan which allows the consideration of economic viability of the proposed development when assessing the level of financial contribution for affordable housing.

8. Balancing exercise and conclusions

8.1. Full planning permission is sought for:

'Demolition of existing buildings and erection of 8 new homes.'

8.2. The design of the scheme is a product of robust design development process and dialogue with LBR. It has been sensitively developed to promote good design and respect the wider existing built environment, particularly the established development pattern for detached, semi-detached and terraced housing in the area.

8.3. The scheme represents a good opportunity to deliver additional housing creatively on an underutilised small site which does not currently make the most effective and efficient use of their sustainable location. Such development would be entirely consistent with the strategic vision by the Mayor of London to deliver additional homes on small sites across London.

8.4. It is acknowledged that limited harm may potentially be caused by the loss of existing housing stock in the borough which is valued by LBR. However, there are material planning circumstances which justify the limited harm. The scheme would deliver public benefits, including the provision of 8 new family-sized homes with far superior environmental and performance credentials, as well as the wider placemaking benefits to enhance the streetscene of Vincam Close. The development would allow the Site to optimise the delivery of much needed housing in accordance with the Mayor of London's vision for small sites. These factors weigh heavily in favour of the application in the context of the holistic assessment.

8.5. As such, on balance, the proposed development as a whole is acceptable and in line with the aims and provisions of the Development Plan, and there are material circumstances that justify the limited harm.

8.6. Therefore, we respectfully requested that the LPA grants planning permission for the proposed development.

Appendix 1: Air quality assessment

1 AIR QUALITY ASSESSMENT - METHODOLOGY

1.1 Operational Phase (Traffic Emissions)

1.1.1 Modelled Scenarios

Two scenarios have been modelled as part of this assessment. These are as follows:

- Scenario 1 (2020) – existing levels of air quality / model verification; and
- Scenario 2 (2025) – future impact of traffic emissions on the proposed development i.e. introduction of new exposure.

The current baseline year (2020) has been modelled as this corresponds with the latest air quality monitoring undertaken by the Council. A future year has been chosen (2025) representing the baseline year plus 5 years and will provide an assessment of the future impact of traffic emissions on the proposed development once completed and fully occupied.

1.1.2 ADMS-Roads

Modelling the impact of traffic emissions on the proposed development will be undertaken using the latest version of the ADMS-Roads model[1]. ADMS-Roads is significantly more advanced than that of most other air dispersion models in that it incorporates the latest understanding of the boundary layer structure and goes beyond the simplistic Pasquill- Gifford stability categories method with explicit calculation of important parameters. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions.

1.1.3 Emission Factors

Defra and the Devolved Administrations have provided an updated Emission Factors Toolkit (Version 10.1) which incorporates updated NOx emissions factors and vehicle fleet information[2]. These emission factors have been integrated into the latest ADMS-Roads modelling software. However, in order to undertake a worst-case assessment emission factors for 2020 have been used for all modelled years.

1.1.4 Traffic Data

Baseline traffic flows along the local roads are available from the Department for Transport (DfT)[3]. Baseline data has been projected to 2020 and 2025. Projection of traffic data has been undertaken using growth factors specific to the London Borough of Richmond upon Thames, obtained from TEMPro[4]. The projected flow rates are provided in Table 1. It is assumed that the percentage HDV and speed will remain unchanged in future years.

The modelled speeds have been derived from the London Atmospheric Emissions Inventory (LAEI)[5], specifically for major road networks and local roads. However, where a link approaches a junction a speed of 32 kph has been modelled in order to represent queuing traffic at a junction.

[1] Model Version: 4.1.1. Interface Version 4.1.1 (18/01/2018)
[2] https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html
[3] http://www.dft.gov.uk/traffic-counts/
[4] TEMPro (Trip End Model Presentation Program) version 7, Department for Transport
[5] LAEI (2016), Greater London Authority

Table 1 – Annual Average Daily Traffic Flows, Percentage HDV and Speeds for Modelled Roads

Link Name	AADT 2020	AADT 2025	HDV (%)	Speed (kph)
B361	8,581	9,440	1.2	32
Great Chertsey Road (A316)	45,947	50,542	2.0	32
A306 / B358	15,641	17,205	2.1	48
Hanworth Road	16,236	17,859	1.2	32

1.2 Background Concentrations

Background NOx, NO2 and PM10 concentrations have been obtained from Defra[6]. These 1 km x 1 km grid resolution maps are derived from a base year of 2020 (for NOx, NO2, PM10 and PM2.5 only), Background concentrations of NOx, NO2, PM10 and PM2.5 derived from Defra are provided in Table 2.

Table 2 – Background NOx, NO2, PM10 and PM2.5 Concentrations

Location	Pollutant	2019
Proposed Development	NO2	20.78
	NOx	31.19
	PM10	16.58
	PM2.5	11.13

1.3 Comparison of Local Background Data and Monitored Richmond Data

For the purposes of validating background data – comparisons have been made against Roadside Background GIS DEFRA mapping and Richmond Monitoring Points.

Location	Pollutant	GIS TOOL – 2019	MONITORED DATA - 2019	Percentage Difference
Percy Road, Whitton	NO2	42.30	34	-21.75%
High Street, Whitton	NO2	30.16	33	8.99%

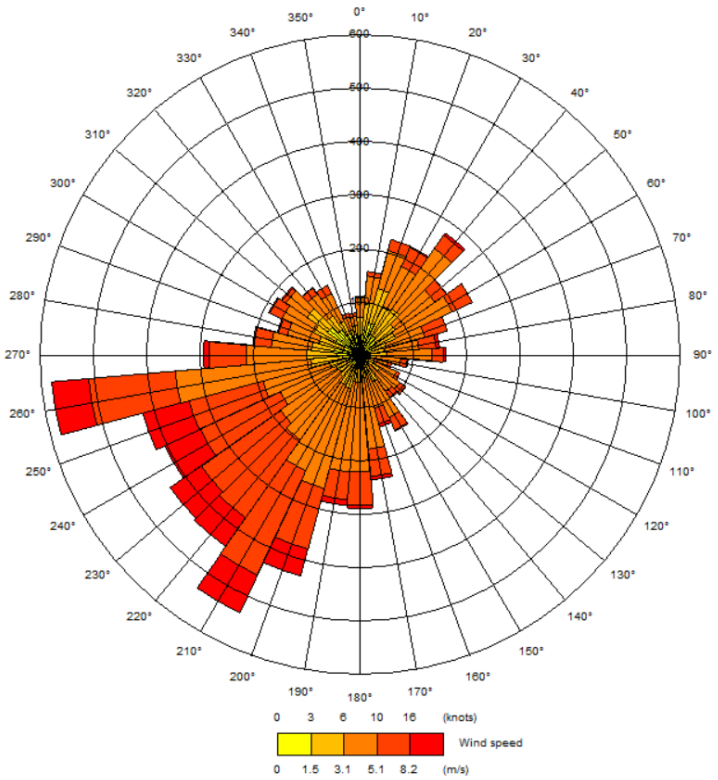
Following a similar methodology as described in the Technical Guidance (LAQM.TG16), in order to provide more confidence in the model predictions and the decisions based on these, the majority of results should be within ±25% (ideally ±10%) of the monitored concentrations. Based on this guidance, modelled concentrations from the GIS Background Mapping Tool compared to monitored concentrations fall within the moderate and ideal range of predictability.

[6] https://uk-air.defra.gov.uk/data/gis-mapping/

1.4 Meteorological Data

Hourly sequential meteorological data from Heathrow Airport meteorological station has been used. Wind speed and direction data from the Heathrow Airport meteorological station has been plotted as a wind rose in Figure 3.

Figure 1 *– Wind Speed and Direction Data, Heathrow Airport (2020)*



1.5 Model Output

1.5.1 NOx/NO2 Relationship

Following recent evidence that shows the proportion of primary NO2 in vehicle exhaust has increased[7]. As such, a new (version 8.1) NOx to NO2 calculator has been devised[8]. This new calculator has been used to determine NO2 concentrations for this assessment, based on predicted NOx concentrations using ADMS-Roads. Converted NO2 concentrations are initially compared to local monitoring data in order to verify the model output. If the model performance is considered unacceptable then the NOx concentrations are adjusted before conversion to NO2.

[7] Trends in Primary Nitrogen Dioxide in the UK, Air Quality Expert Group, 2007
[8] https://laqm.defra.gov.uk/documents/Updated_NOx_from_NO2_Calculator_fno2_v8.1.pdf: https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc.

1.5.1 Predicted Short Term Concentrations

As discussed in the introduction, it has not been possible to model the short-term impacts of NO2 and PM10. Research undertaken in 2003[9] has indicated that the hourly NO2 objective is unlikely to be exceeded at a roadside location where the annual mean NO2 concentration is less than 60 µg/m3.

For PM10, a relationship between the annual mean and the number of 24-hour mean exceedances has been devised and is as follows:

- No. 24-hour mean exceedances = -18.5 + 0.00145 x annual mean3 + (206/annual mean)

This relationship has been applied to the modelled annual mean concentrations in order to estimate the number of 24-hourly exceedances.

1.5.2 Model Verification

The Council undertakes monitoring of NO2 in the form of automatic monitoring sites and diffusion tubes across the borough. Below are the utilised sites nearest to the development at crucial road junctions/routes. Monitored concentrations from these sites have been used for the purposes of model verification during the baseline year (2019). The location of this verification site is provided in Table 3.

Table 3 – Modelled Verification Locations

Monitoring ID	Location	Height (m)
11	Percy Road	2.2
63	High Street	2.2

[9] Analysis of Relationship between 1-Hour and Annual Mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites, Laxen and Marner, 2003

1.5.3 Receptor Locations

In order to assess the potential impact of the traffic emissions from the local road network, a number of receptors have been identified representing the different facades of the proposed development. The location of these receptors, together with their height above ground level is provided in Table 4 and represented in Figure 2.

Proposed receptors above the second floor have not been modelled as predicted concentrations at the lower floors will provide a worst-case assessment, this is due to the dispersion of air polluting particles as elevation increases.

Table 4 – Modelled Receptor Locations

AQA ID	X	Y	Height (m)	Description
R1 – R1.1	513375.94	173842.63	1.5, 4.5	Ground Floor, First Floor
R2 – R2.1	513355.58	173837.78		
R3 – R3.1	513332.3	173828.09		
R4 – R4.1	513345.88	173810.63		
R5 – R5.1	513364.3	173817.42		
R6 – R6.1	513382.72	173822.27		

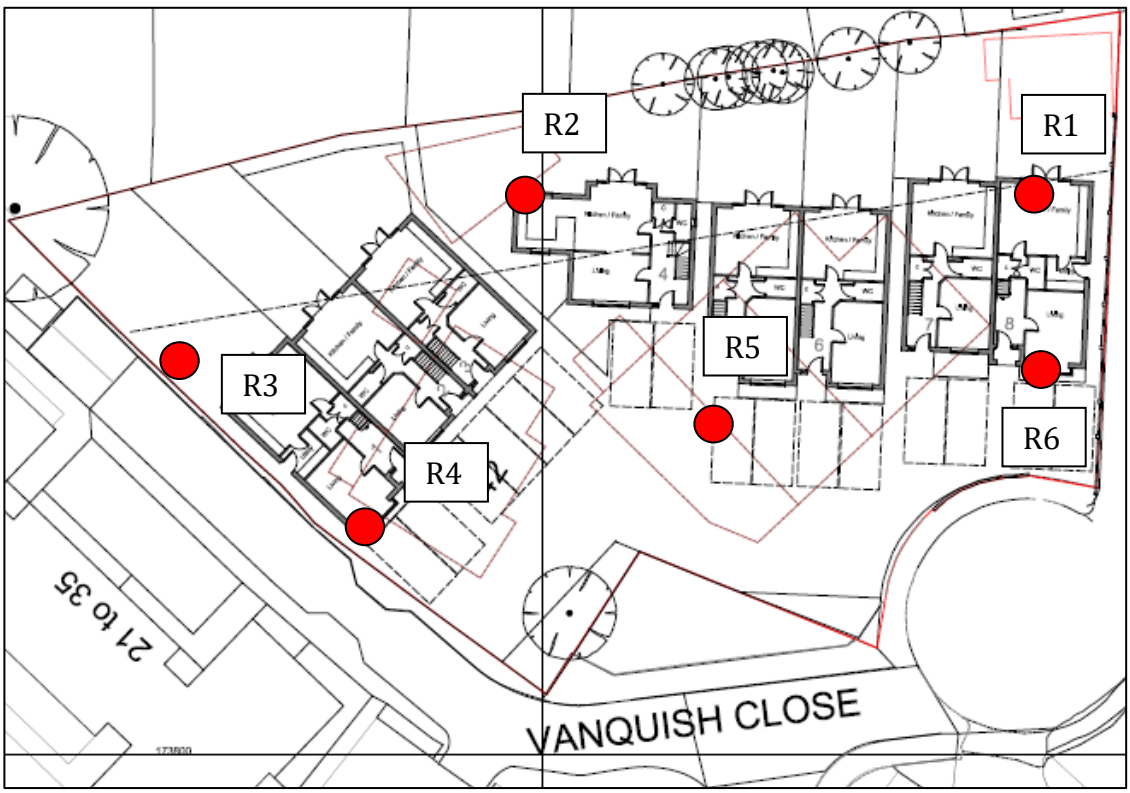


Figure 2 - Modelled Receptor Locations

Locations marked in red are modelled receptor positions within development. Where applicable receptors are projected vertically. For the residential aspect of this development, this begins at the first floor, and then is projected at the second and third floors.

1.6 Impact of Vehicle Emissions

1.6.1 Model Verification

Using the guidance provided within the London Local Air Quality Management Technical Guidance TG(16), the modelled output has been verified against the monitoring data obtained from the sites listed in Table 5. The following tables provide a summary of the model verification process for NOx/NO2 concentrations. For the purposes of verification in this report, multiple verification locations have been used, to demonstrate the spread of reliability in the model.

*Table 5 – Comparison of Modelled and Monitored NO2 Concentrations (µg/m3), **2020***

Verification Location	Modelled Concentration	Monitored Concentration	Difference [(modelled - monitored)/ monitored] x100
11	13.77	15.71	-13.16%
63	11.81	14.71	-21.8%

As described in the Technical Guidance (LAQM.TG16), in order to provide more confidence in the model predictions and the decisions based on these, the majority of results should be within ±25% (ideally ±10%) of the monitored concentrations. Based on the outcomes of Table 5 it can be stated that the model provides results with good confidence as it falls within the reasonable range of ±25%.

1.6.2 Nitrogen Dioxide

Predicted annual mean concentrations for NO2 in **2020** and **2025** are provided in Table 6. As mentioned in Section 4.6.1, NO2 concentrations have been calculated from the predicted NOx concentrations using the latest NOx-NO2 conversion spreadsheet available from the Air Quality Archive.

Table 6 – Predicted NO2 Concentrations, Annual Mean (µg/m3)

Receptor ID	2020		2025	
	GF	1st	GF	1st
R1 – R1.1	30.36	30.24	31.37	31.19
R2 – R2.1	31.04	31.01	31.89	31.65
R3 – R3.1	31.32	31.23	31.70	31.42
R4 – R4.1	30.77	30.65	31.32	31.21
R5 – R5.1	30.22	30.10	31.21	31.10
R6 – R6.1	30.23	30.18	30.96	30.74
Objective	40.0			

The ADMS predictions for annual mean NO2 concentrations in 2020 and 2025 indicate that the annual mean objective (40 µg/m3) would not be breached at any of the facades of the location, All receptors at every floor level are at APEC-A categorisation.

Nitrogen dioxide also has an hourly objective of 200 µg/m3 not to be exceeded more than 18 times in one year. However, the hourly mean concentration has not been calculated directly by ADMS Roads. This is as a result of an evaluation of continuous monitoring data from across the UK that revealed that the relationship between the annual mean and hourly mean NO2 concentrations was very weak. Nonetheless, research undertaken in 2003[10] has indicated that the hourly NO2 objective is unlikely to be exceeded at a roadside location where the annual mean NO2 concentration is less than 60 µg/m3. Given that predicted NO2 concentrations in 2020 and 2025 are below 60 µg/m3 at all modelled receptors the likelihood of the short-term objective for NO2 being exceeded is considered low.

1.6.3 Particulate Matter

Predicted annual mean concentrations for PM10 in 2020 and 2025 are provided in Table 7.

Table 7 – Predicted PM10 Concentrations, Annual Mean (µg/m3)

Receptor ID	2020		2025	
	GF	1st	GF	1st
R1 – R1.1	19.08	18.85	19.20	18.91
R2 – R2.1	19.09	18.86	19.21	18.92
R3 – R3.1	19.11	18.89	19.22	18.96
R4 – R4.1	18.98	18.76	19.04	18.82
R5 – R5.1	18.53	18.50	18.54	18.53
R6 – R6.1	18.53	18.49	18.53	18.52
Objective	40.0			

The ADMS predictions for annual mean PM10 concentrations in 2020 and 2025 indicate that the annual mean objective (40 µg/m3) would be achieved at all the modelled receptor locations.

In addition, the maximum number of days when PM10 concentrations are more than 50 µg/m3 is 0, less than the 35 exceedances allowed in the regulations.

[10] Analysis of Relationship between 1-Hour and Annual Mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites, Laxen and Marner, 2003

1.7 Significance Criteria

1.7.1 Operational Phase

The significance of emissions will be determined by comparing the predicted results to the Air Pollution Exposure Criteria (APEC) detailed in the Air Quality and Planning Guidance written by the London Air Pollution Planning and the Local Environment (APPLE) working group[11]. The Air Pollution Exposure Criteria is considered appropriate to describe the significance of the impacts predicted, together with an indication as to the level of mitigation required in order for the development to be approved. The APEC table is provided below.

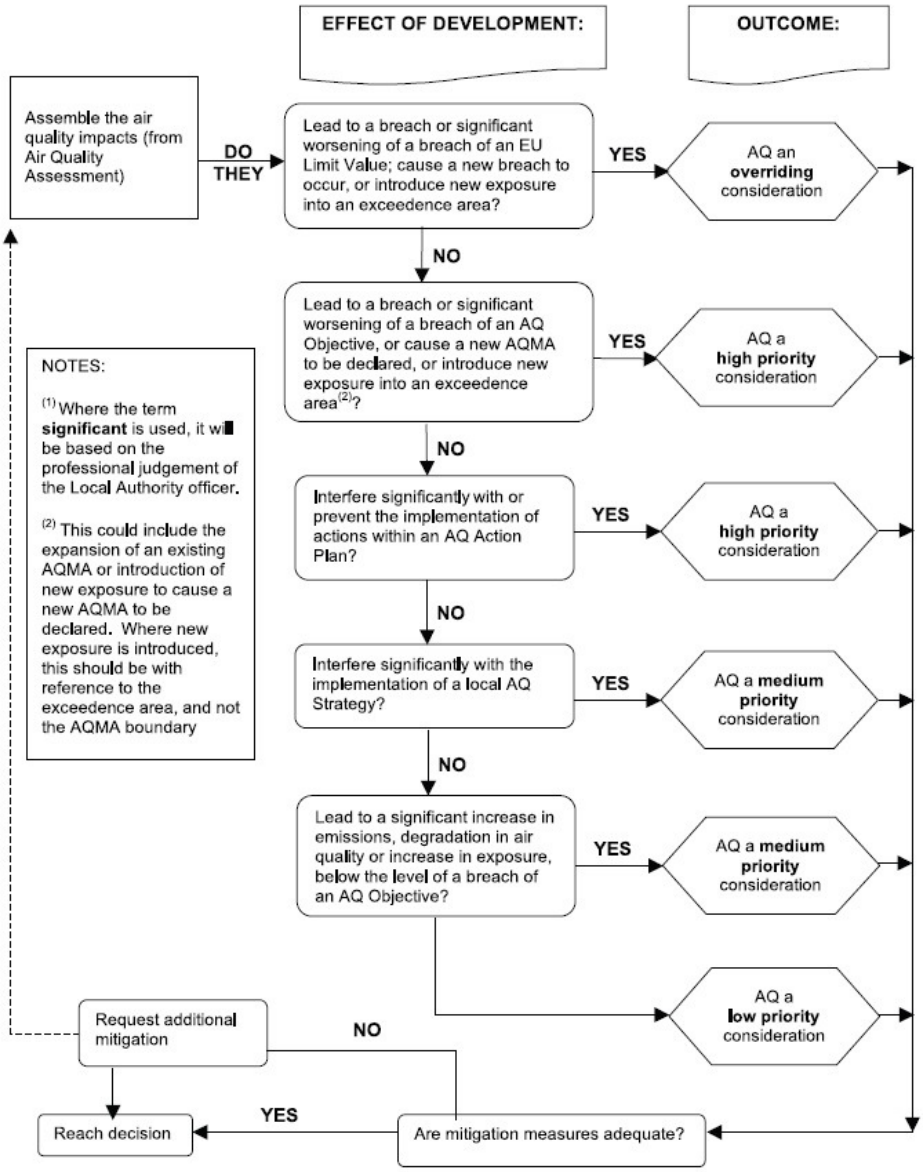
Table 8 – Air Pollution Exposure Criteria (APEC)

APEC Category	NO2	PM10	Recommendations
A	>5% below national annual mean objective	>5% below national annual mean objective >1-day less than national 24-hour objective	No air quality grounds for refusal; however, mitigation of any emissions should be considered.
B	Between 5% below or above national annual mean objective	Between 5% above or below national annual mean objective Between 1-day above or below national 24-hour objective	May not be sufficient air quality grounds for refusal, however appropriate mitigation must be considered
C	>5% above national annual mean objective	>5% above national annual mean objective >1-day more than national 24-hour objective	Refusal on air quality grounds should be anticipated, unless the Local Authority has a specific policy enabling such land use and ensure best endeavours to reduce exposure are incorporated

Furthermore, the guidance released by Environmental Protection UK also provides steps for a Local Authority to follow in order to assess the significance of air quality impacts of a development proposal. This procedure, shown in Figure 3, has also been applied to the modelled results.

[11] Air Quality and Planning Guidance, written by the London Air Pollution Planning and the Local Environment (APPLE) working group, January 2007

Figure 3 - Assessing the Significance of Air Quality Impacts of a Development Proposal



1.8 Summary

This AQA has modelled future and current air quality at various heights of the new development at Vincam Close, Whitton, in the London Borough of Richmond upon Thames. These modelled points (receptor locations) have been projected at the ground floors and first floors of the proposed development. The model has utilised data from Richmond local air quality automatic monitoring locations, and DEFRA background Air Quality data, as well as annual traffic counts from the UK Government.

The results of this assessment have shown that all the proposed receptor locations fall within APEC-A categorisation, which states *"No air quality grounds for refusal; however, mitigation of any emissions should be considered"*.

As such, the outcomes of this assessment indicates that **no mitigation measures** are required at the new development and that Air Quality emissions are far below a level that would cause concern or potential adverse impact to the proposed future residents.