

The Northumberland Line - Ashington Station

Air Quality Assessment

Northumberland County Council

Project number: 60628487

December 2020

Quality information

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Revision History

<u>Revision</u>	<u>Revision date</u>	<u>Details</u>	<u>Authorized</u>	<u>Name</u>	<u>Position</u>
v0.1	18/11/2020	Internal draft	TS	Tom Stenhouse	Technical Director – Air Quality
v0.2	10/12/2020	Internal draft	GH	Gareth Hodgkiss	Associate Director – Air Quality
v0.3	18/12/2020	Draft to client	GH	Gareth Hodgkiss	Associate Director – Air Quality
v1.0	21/12/2020	Final	GH	Gareth Hodgkiss	Associate Director – Air Quality

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1. Introduction

Project Background

Overall Scheme

- 1.1 Northumberland County Council (NCC) is seeking to improve connectivity and accessibility in the South East Northumberland Corridor (SEN Corridor). Improving the links from towns such as Ashington and Blyth is of key importance to encouraging more sustainable access to the key regional economic centres across Tyne and Wear. This will assist in reversing the decline in the deprivation of these areas of South East Northumberland, which has been evident since the closure of the mining and shipbuilding industries over the last 30-year period.
- 1.2 Enhancements to transport links within South East Northumberland will also be instrumental in stimulating economic investment within the region and will help to bring forward much needed delivery of housing allocations. Various options to improve transport links have been considered over a number of years, with reopening of the Northumberland Line being identified as the preferred option.
- 1.3 The scope of the proposed Northumberland Line (the 'scheme') includes the construction of six new stations, the refurbishment and upgrading of existing rail related infrastructure, engineering works together with the operation of new passenger train services. The scheme also includes the construction of new car parks and highway access. The scheme includes the temporary use of land for the duration of the construction.
- 1.4 The scheme will provide the new passenger services along an existing rail corridor which is presently used only for freight trains. The passenger services will use (approximately) 4 miles (6.4 km) of the East Coast Main Line and (approximately) 10 miles (16 km) of existing track, as shown in Figure 1. The construction of six new stations is proposed at the following locations:
 - Ashington;
 - Bedlington;
 - Blyth Bebside;
 - Newsham;
 - Seaton Delaval; and
 - Northumberland Park (an existing 'Metro' station which will require new rail platforms and pedestrian access etc.)
- 1.5 An Outline Business Case (OBC) for the scheme was undertaken in January 2020. As part of the strategic case, air quality was identified as an environmental issue and a need for the reduction of harmful vehicle emissions was recognised. Whilst the economic case suggested that rail emission sources could be scoped out of the air quality assessment, potential impacts from rail movement emissions have been screened in this assessment, in line with current guidance, to ascertain the potential for localised environmental impacts from this source.
- 1.6 The scheme falls within NCC and North Tyneside Council (NTC) jurisdictions.

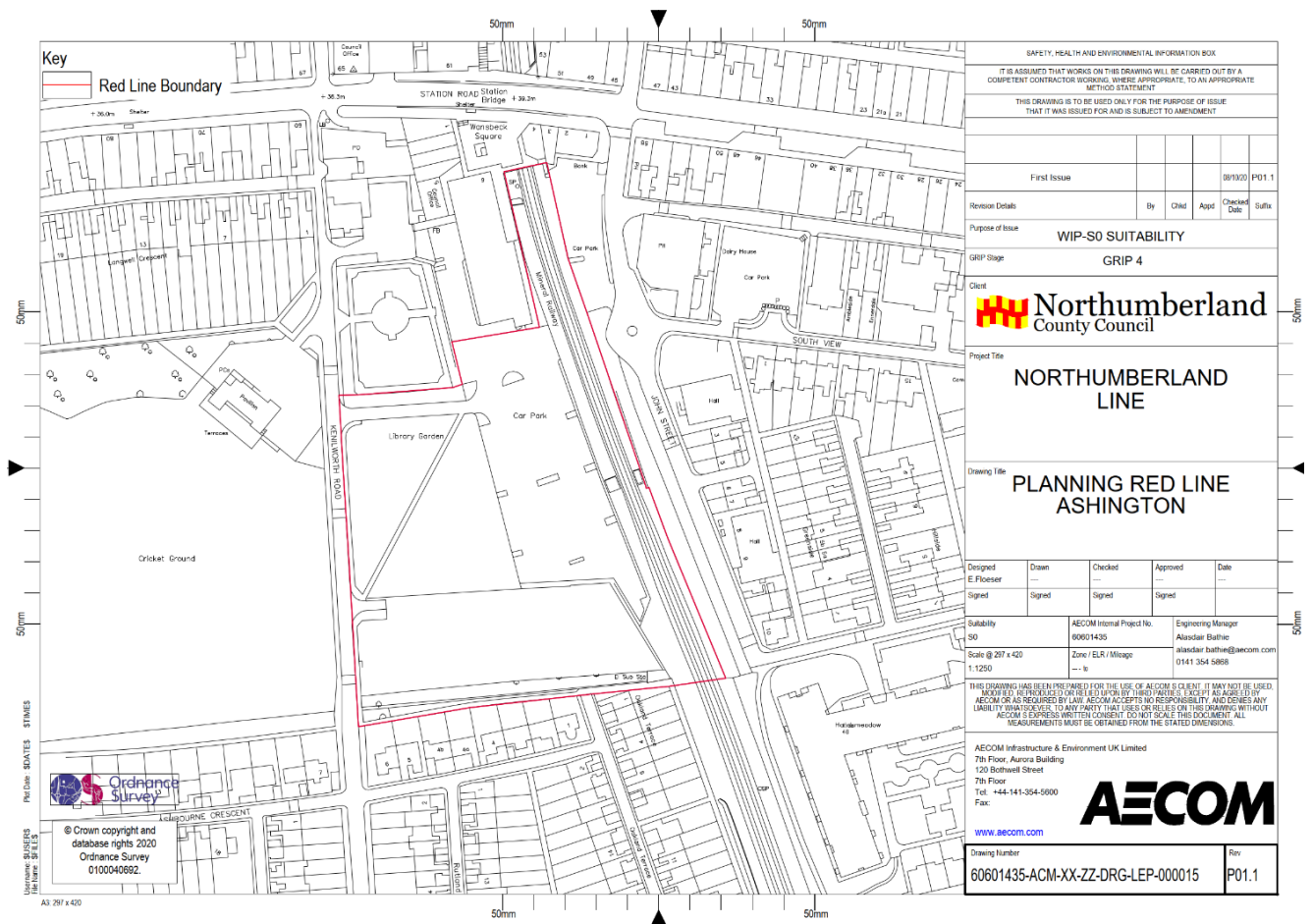
Figure 1. The Northumberland Line route and stations



Ashington Station

- 1.7 An Air Quality Assessment will be submitted to accompany the six separate planning applications for each of the proposed stations. This report considers the air quality impact of Ashington Station, located the furthest north of the stations proposed, within NCC.
- 1.8 The station at Ashington (the 'Proposed Development') is anticipated to include:
 - Construction of; a new platform, footways, shelters, signs and car park (274 spaces) with associated taxi and bus bays;
 - Access from Kenilworth Road; and
 - No demolition of existing buildings is proposed.
- 1.9 The Proposed Development's planning application red-line boundary is shown in Figure 2. Within this report, the area within this red-line boundary is referred as 'the Site'.

Figure 2. Ashington Station Red Line Boundary



Scope of Works

1.10 The air quality assessment scope of works is as follows:

- Review of relevant local air quality planning policy;
- Review plans and aerial photographs for the Proposed Development and the scheme to identify nearest air quality and fugitive dust sensitive receptors;
- Ascertain an appreciation of the existing air quality in the vicinity of the scheme and the Proposed Development, with reference to air quality reports and pollutant monitoring data published by NCC. A three-month baseline air quality monitoring survey was originally planned. However, due to the coronavirus pandemic (COVID-19) social distancing policies creating abnormal traffic patterns, this has been delayed;
- Assessment of construction phase impacts associated with the Proposed Development, in accordance with the IAQM (2014) guidance¹. This includes potential impacts from inside the Proposed Development's red line boundary (the 'Site') and potential impacts from track-out (the transport of dust and dirt from the Site onto the local road network);
- The scheme is assumed to use diesel-fuelled engines, and so the potential local air quality effects from the operational phase has been screened with reference to the guidance in LAQM.TG(16)²;
- Whilst there is an anticipated regional improvement in air quality associated with longer term modal shift from the private car to public transport as a result of the scheme, there may also be localised air quality

¹ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

² DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://iaqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

impacts associated with the operation of the Proposed Development. Traffic flow impacts associated with the Proposed Development have been provided by the project transport consultants (please see Appendix B). This data has therefore been screened in accordance with the EPUK/IAQM (2017) criteria³ to determine whether a detailed operational phase assessment is required; and

- Recommendation of appropriate mitigation options consistent with planning guidance.

³ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

2. Legislation, Policy and Guidance

European Air Quality Directives

- 2.1 The Clean Air for Europe⁴ programme revisited the management of Air Quality within the EU and replaced much of the existing air quality legislation with a single legal act, Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe⁵. This Directive repealed and replaced the EU Framework Directive 96/62/EC on Ambient Air Quality Assessment and Management and its associated Daughter Directives relating to limit value for ambient air pollutants known to have harmful effect on human health and the environment (1999/30/EC⁶, 2000/69/EC⁷, 2002/3/EC⁸), and the Council Decision 97/101/EC⁹ which established a reciprocal exchange of information and data within Member States¹⁰.
- 2.2 The Air Quality Limit Values for Europe came into force in 2008 and was transposed into national UK legislation in 2010 (The Air Quality Standards Regulations 2010¹¹). It consolidated existing air quality legislation and made provisions for Member States to postpone limit value attainment deadlines and allow an exemption from the obligation to limit values for certain pollutants, subject to strict conditions and assessment by the European Commission (EC).

National Air Quality Legislation

- 2.3 The provisions of Part IV of the Environment Act 1995¹² establish a national framework for air quality management, which requires all Local Authorities to conduct local air quality reviews. Section 82(1) of the Act requires these reviews to include an assessment of the current air quality in the area and the predicted air quality in future years. Should the reviews indicate that the objectives prescribed in the UK Air Quality Strategy (AQS)¹³ and the Air Quality Standards Regulations 2010¹¹ (henceforth referred to as the "Air Quality Regulations") will not be met, the Local Authority is required to designate an Air Quality Management Area (AQMA). Action must then be taken at a local level to ensure that air quality in the area improves.
- 2.4 The UK AQS¹³ identifies nine ambient air pollutants that have the potential to cause harm to human health. These pollutants are associated with local air quality problems, with the exception of ozone, which is instead considered to be a regional problem. Similarly, the Air Quality Regulations set objectives, but for just seven of the pollutants that are associated with local air quality. These objectives aim to reduce the health effects of the pollutants to negligible levels.
- 2.5 The air quality objectives and limit values currently applicable to the UK can be split into two groups. Each has a different legal status and is therefore handled differently within the framework of UK air quality policy. These are:
- UK air quality objectives set down in regulations for the purposes of local air quality management; and

⁴ European Union (2001); *Clean Air for Europe (CAFE) Programme: Towards a Thematic Strategy for Air Quality*. Available at: <https://www.eea.europa.eu/themes/air/links/research-projects/clean-air-for-europe-programme-cafe>

⁵ Council of the European Union, (2008); *Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe*. Available at: <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32008L0050>

⁶ Council of European Communities, (1999); *First Daughter Directive on Limit Values for Sulphur Dioxide, Nitrogen Dioxide and Oxides of Nitrogen, Particulate Matter and Lead in Ambient Air, 1999/30/EC*. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0030>

⁷ Council of European Communities, (2000); *Second Daughter Directive on Limit Values for Benzene and Carbon Monoxide in Ambient Air, 2000/69/EC*. Available at: <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32000L0069>

⁸ Council of European Communities, (2002); *Third Daughter Directive on Ozone in Ambient Air, 2002/3/EC*. Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002L0003>

⁹ Council of the European Union, (1997); *Directive 97/101/EC: Council Decision of 27 January 1997 establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States*. Available at: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A31997D0101>

¹⁰ European Commission (2018). *Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe*. Available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32008L0050>

¹¹ H.M. Government, (2016); *Air Quality Standards Regulations 2010*. Available at: <http://www.legislation.gov.uk/uksi/2010/1001/contents/made>

¹² H.M. Government, (1995); *The Environment Act*. Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents>

¹³ Department for Environment, Food and Rural Affairs, (2007); *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

- European Union (EU) limit values transcribed into UK legislation for which compliance is mandatory.

Legislative Uncertainty for the UK

UK leaving the European Union and COVID-19 implications

- 2.6 The UK left the European Union (EU) on 31st January 2020 (exiting the EU is commonly referred to as “Brexit”). Air Quality legislation and policy is currently primarily driven by the EU, as set out in the sections above. Air pollution limits set by the EU technically remain in UK law after Brexit, having been enshrined through the Air Quality Standards Regulations. However, there is concern in some quarters that the EU will no longer have a role in enforcement and the UK government would therefore be free in theory to repeal the existing limits and introduce weaker air quality rules and review any deadlines for meeting them. Whilst this is presently considered to be unlikely, there is at least a risk of an evolving legislative landscape as a result during the lifetime of the Project.
- 2.7 The coronavirus pandemic (COVID-19) caused the UK government to enforce rules of social distancing commencing in March 2020; this significantly reduced some forms of air pollutant emissions and improved local air quality, particularly in towns and cities, reiterating the overriding contribution of road transport to urban air pollution¹⁴. The importance of good air quality is now coming to the forefront of public health, more than at any time in the past; this has been reinforced by recent studies showing those who were exposed to poorer air in the years preceding the pandemic experience far worse outcomes in terms of virus susceptibility than those who have breathed cleaner air.
- 2.8 It is important that a united effort starts planning beyond this event. Many of the changes introduced by social distancing measures may alter public behaviours in the long term and there will be implications of this upon the achievement of long-term positive changes to air quality.
- 2.9 Unfortunately, there are no clear indications of exactly what is to happen to air quality legislation moving forward, and so this Assessment must be written on the basis of the existing legislation.

Emerging Environment Bill

- 2.10 The Environment Bill 2019-21¹⁵ was emerging in UK Parliament at the time of writing this report. Air quality is set out as one of four priority areas of environmental targets. The Bill contains a target for PM_{2.5}, as follows:

“2. Environmental targets: particulate matter

(1) The Secretary of State must by regulations set a target (“the PM_{2.5} air quality target”) in respect of the annual mean level of PM_{2.5} in ambient air...”

- 2.11 This target, if it were to remain within the Bill, may not be revoked, but can be further amended. The draft containing the regulation setting the PM_{2.5} target has a deadline of 31 October 2022. The Secretary of State is responsible for achieving of this target and for detailing whether the target has been met.
- 2.12 Schedule 11 of the Environment Bill contains amendments to Part 4 of the Environment Act 1995 (air quality).
- 2.13 The following proposed amendments were relevant to the scheme:
- Strategies should include consideration to air quality for public authorities, local authorities in England, and county councils, where no district councils exist.
 - Local authorities must:
 - identify parts of its jurisdiction which are not likely to achieve air quality standards or objectives;
 - identify relevant sources of emissions which are responsible for the failure to meet air quality standards or objectives;
 - where areas do not achieve these, prepare air quality action plans for that area to

¹⁴ AECOM (2020) *Unintended consequences: coronavirus, air quality and transport trends*. Available at: <https://aecom.com/without-limits/article/coronavirus-air-quality-and-tomorrows-transport/> [Accessed 21/04/2020]

¹⁵ H.M. Government, (2020); *Environment Bill 2019-21*. Available at: <https://services.parliament.uk/Bills/2019-21/environment.html>

- set out how the LA will exercise its function to ensure air quality standards and objectives are met, and then maintained; and
 - set out particular measures the LA will take to achieve by specific dates.
- There is a duty of air quality partners to co-operate on air quality matters, these must be notified of [Air Quality Action Plans] AQAPs.

2.14 This is most relevant to the proposed scheme because it crosses local authority boundaries.

Pollutants of Concern

Nitrogen Dioxide

- 2.15 The Government and the Devolved Administrations adopted two Air Quality Objectives for nitrogen dioxide (NO₂) which were to be achieved by the end of 2005. In 2010, mandatory EU air quality limit values on pollutant concentrations were to apply, although it continues to be breached in locations throughout the UK. The EU limit values for NO₂ in relation to human health are the same as the national objectives¹⁶:
- An annual mean concentration of 40 µg/m³ (micrograms per meter cubed); and
 - An hourly mean concentration of 200 µg/m³, to be exceeded no more than 18 times per year (99.79th percentile).
- 2.16 In practice, meeting the annual mean objective has been and is expected to be considerably more demanding than achieving the 1-hour objective. The annual mean objective of 40 µg/m³ is currently widely exceeded at roadside sites throughout the UK, with exceedances also reported at urban background locations in major conurbations. Exceedances are associated almost exclusively with road source emissions.
- 2.17 There is considerable year-to-year variation in the number of exceedances of the hourly objective, driven by meteorological conditions which give rise to winter episodes of poor dispersion and summer oxidant episodes. Analysis of the relationship between 1-hour and annual mean NO₂ concentrations at roadside and kerbside monitoring sites indicate that exceedances of the 1-hour objective are unlikely where the annual mean is below 60 µg/m³¹⁷.
- 2.18 NO₂ and nitric oxide (NO) are both oxides of nitrogen and are collectively referred to as NO_x. All combustion processes produce NO_x emissions, largely in the form of NO, which is then converted to NO₂, mainly as a result of its reaction with ozone in the atmosphere. Therefore, the ratio of NO₂ to NO is primarily dependent on the concentration of ozone and the distance from the emission source.

Particulate Matter

- 2.19 Particulate matter is composed of a wide range of materials arising from a variety of sources. Particulate matter is typically assessed as total suspended particulates or as a mass size fraction.
- 2.20 This assessment considers the annual mean and daily mean air quality objectives, as specified in the AQS for England, Scotland, Wales and Northern Ireland¹⁷. Two objectives have been adopted in England and Wales for PM₁₀, which were to be achieved by the end of 2004:
- An annual mean concentration of 40 µg/m³ (gravimetric); and
 - A 24-hour mean concentration of 50 µg/m³ (gravimetric) to be exceeded no more than 35 times per year (90.4th percentile).
- 2.21 Both short-term and long-term exposure to ambient levels of particulate matter are consistently associated with respiratory and cardiovascular illness and mortality as well as other ill-health effects. Particles of less than 10

¹⁶ H.M. Government, (2016); Air Quality Standards Regulations 2010. Available at: <http://www.legislation.gov.uk/ukxi/2010/1001/contents/made>

¹⁷ DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

micrometres (μm) in diameter (PM_{10}) have the greatest likelihood of reaching the thoracic region of the respiratory tract. Here particles may remain resident and therefore have increased likelihood of doing harm.

- 2.22 It is not currently possible to discern a threshold concentration below which there are no effects on the whole population's health. Reviews by World Health Organisation and the Committee on the Medical Effects of Air Pollutants¹⁸ have suggested exposure to a finer fraction of particles ($\text{PM}_{2.5}$, which typically make up around two thirds of PM_{10} emissions and concentrations) give a stronger association with the observed ill health effects, but also warn that there is evidence that the coarse fraction (between PM_{10} – $\text{PM}_{2.5}$) also has some effects on health.
- 2.23 One objective has been adopted for $\text{PM}_{2.5}$ in England and Wales which is an annual mean concentration of $25 \mu\text{g}/\text{m}^3$ (gravimetric). However, Defra is currently reconsidering a change¹⁹ to ultimately tighten the objective to $10 \mu\text{g}/\text{m}^3$ as an annual mean, to match World Health Organisation guidelines, reflected in the Emerging Environment Bill, noted above. It is likely that the objective will be reduced to $10 \mu\text{g}/\text{m}^3$ during the construction of the scheme and reference has therefore also been made to this value throughout this assessment.

Sulphur Dioxide

- 2.24 Sulphur dioxide (SO_2) is a corrosive, acidic gas which is harmful to health and combines with water vapour in the atmosphere to produce acid rain. One of the most significant episodes of increased levels of SO_2 was visible during the London smog in 1952; it has been estimated that between 8,000 and 12,000 deaths were associated with the episode. During recent times, these types of episode are not common; SO_2 sources in the UK are largely from combustion processes, energy generation and domestic burning and have reduced over time following reduction in coal use as a fuel.
- 2.25 Exposure to SO_2 is both a public health and ecosystem preservation concern. It is understood to be associated with asthma and chronic bronchitis and health effects can occur very quickly.
- 2.26 This study recognises that the use of diesel fuelled locomotives by the scheme requires an appreciation of the objectives of this pollutant; these are provided including the 15-minute, 1-hour and daily mean air quality objectives for SO_2 , as specified in the 2007 AQS for England, Scotland, Wales and Northern Ireland as follows²⁰:
- A 15-minute mean concentration of $266 \mu\text{g}/\text{m}^3$ (gravimetric equivalent) to be exceeded no more than 35 times per year, to be achieved by 31 December 2005;
 - A one-hour mean concentration of $350 \mu\text{g}/\text{m}^3$ (gravimetric equivalent) to be exceeded no more than 24 times per year to be achieved by 31 December 2004; and
 - A 24-hour mean concentration of $125 \mu\text{g}/\text{m}^3$ (gravimetric equivalent) to be exceeded no more than 3 times per year to be achieved by 31 December 2004.

Air Quality Guidelines and Objectives

- 2.27 Table 1 summarises the UK air quality objectives described above. This document focuses on the UK objectives as these are the legal criteria which councils need to comply with, although reference has been made to the WHO guidelines for particulate matter which are health based and are more stringent, as noted in the above sections.

¹⁸ Committee on the Medical Effects of Air Pollutants (unknown); *Statement on quantifying mortality associated with long-term average concentrations of fine particulate matter ($\text{PM}_{2.5}$)*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/734813/COMEAP_PM_2.5_statement.pdf [Accessed at: 29/10/2020]

¹⁹ Department for Environment, Food and Rural Affairs, (2019); *UK Clean Air Strategy 2019*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

²⁰ DEFRA, (2007); *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf

Table 1. Air Quality Objectives

Pollutant	Averaging Period	Value	Maximum Permitted Exceedances	Target Date
Nitrogen Dioxide (NO ₂)	Annual Mean	40 µg/m ³	None	31/12/2005
	Hourly Mean	200 µg/m ³	18 times per year	31/12/2005
Particulate Matter (PM ₁₀)	Annual Mean	40 µg/m ³	None	31/12/2004
	24-hour mean	50 µg/m ³	35 times per year	31/12/2004
Fine Particulate Matter (PM _{2.5})	Annual Mean	25 µg/m ³ *	None	2020
	3-year running mean	15% reduction in average urban background concentrations against a 2010 baseline		2020
Sulphur dioxide (SO ₂)	15-minute mean	266 µg/m ³	To be exceeded no more than 35 times per year	31/12/2005
	Hourly mean	350 µg/m ³	To be exceeded no more than 24 times per year	31/12/2004
	24-hour mean	125 µg/m ³	To be exceeded no more than 3 times per year	31/12/2012

Note: * World Health Organisation guidelines 10 µg/m³ as an annual mean

Clean Air Strategy

- 2.28 National actions to improve air quality are described in the UK government's Clean Air Strategy²¹, published in 2019. The strategy covers all sources of pollution, and provides a wide array of actions, measures and initiatives to improve air quality on both a national and local level.
- 2.29 The government committed within the 'The Road to Zero' strategy document²² to "expect the majority of new cars and vans sold [by 2040] to be 100% zero emission and all new cars and vans to have significant zero emission capability."
- 2.30 The government has since committed to end the sale of new conventional petrol and diesel cars and vans by 2030; this will support a reduction in tailpipe emissions from road vehicles over the next 10 years²³.
- 2.31 In addition to tailpipe emissions the government also states in its Clean Air Strategy that it will address non-exhaust particulate emissions from tyres and brakes.
- 2.32 New powers introduced in this document allow for the implementation and enforcement of clean air zones in areas where there is a persistent air pollution problem to restrict emissions.
- 2.33 It is noted within the strategy document that the "current legislative framework has not driven sufficient action at a local level". New legislation will seek to shift the focus towards prevention of exceedances rather than tackling pollution when limits have been surpassed. The shift of focus encourages more of a proactive rather than reactive policy framework at regional and local levels on air quality. For local authorities such as NCC, this will mean continuing to strive to reduce air pollution, even if air quality objectives are not currently being exceeded, which should be a key aspiration of a Local Plan.
- 2.34 In long term policy for local councils such as NCC, this is set to emerge in the form of a focus on using cleanest modes of transport, including active travel.

²¹ Department for Environment, Food and Rural Affairs, (2019); *UK Clean Air Strategy 2019*. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf

²² H.M. Government, (2018); *The Road to Zero Next steps towards cleaner road transport and delivering our Industrial Strategy*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/739460/road-to-zero.pdf

²³ Gov.UK (2020) *Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030*. Available from: <https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030> [Accessed: 24/11/2020]

National Planning Policy Framework

2.35 The National Planning Policy Framework (NPPF)²⁴ outlines the Government's planning policies for England, sets out the framework upon which all Councils determine their planning policy, and as such is relevant to all the Councils in the NCC region. This NPPF was published in February 2019 and supersedes the previous NPPF published in March 2012. The NPPF sets out a presumption in favour of sustainable development which should be delivered with three main dimensions: economic; social and environmental (Paragraph 8). Within this, mitigating and adapting to climate change and moving to a low carbon economy is one of the broader objectives to achieving sustainable development.

2.36 In relation to promoting sustainable transport, Paragraph 103 of the NPPF states that:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health."

2.37 With regard to setting of local parking standards, for residential and non-residential development, policies should ensure that the provision of spaces for charging plug-in and other ultra-low emission vehicles are taken into account (Paragraph 105).

2.38 Air quality is considered as an important element of the natural environment. On conserving and enhancing the natural environment, Paragraph 170 states that:

"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 ..."

2.39 Air quality in the UK has been managed through the Local Air Quality Management (LAQM) regime using national objectives. The effect of a proposed development on the achievement of such policies and plans may be a material consideration by planning authorities when making decisions for individual planning applications. Paragraph 181 of the NPPF states that:

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

2.40 The different roles of a planning authority and a pollution control authority are addressed by the NPPF in paragraph 183:

"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

²⁴ Ministry of Housing, Communities & Local Government (2019); *National Planning Policy Framework*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

Planning Practice Guidance (PPG)

- 2.41 The Planning Practice Guidance (PPG) was published on the 6th March 2014²⁵ to provide more in-depth guidance to the NPPF. The PPG aims to make planning guidance more accessible, and to ensure that the guidance is kept up to date.
- 2.42 The PPG explains the role of air quality within plan-making, noting specifically that it is important to take AQMAs, Clean Air Zones and ecologically sensitive sites into account.
- 2.43 The PPG sets out what air quality assessments submitted as part of a planning application should contain. This is directly relevant to those interventions that will require planning permission. It provides examples for mitigating climate change by reducing emissions, and for adapting to a changing climate and notes that an integrated approach is integral for addressing climate change.

Local Policy

- 2.44 Ashington Station, along with four of the other five stations proposed to form the Northumberland Line, falls within the jurisdiction of NCC, and is subject to the air quality and dust policies outlined by the council as part of their wider planning policy.
- 2.45 NCC are in the process of completing their Local Plan for future developments up to 2036 and have submitted their draft of the document²⁶ to the Secretary of State for examination. In the document NCC states:
- “A key priority of the Council is the reintroduction of passenger services on the Northumberland Line. This will help facilitate development growth across the South East Delivery Area”*
- 2.46 NCC hope to see the scheme come to fruition in order to encourage employers to locate in South East Northumberland and provide opportunities to the people living in the towns along the line.
- 2.47 Air quality is referenced numerous times throughout the draft Plan, in relation to green infrastructure and the promotion of sustainable connections. The Northumberland Line scheme aims to promote modal shift and use of public transport in favour of the reliance on private vehicle use, which in turn will improve air quality at a regional level.
- 2.48 Within Policy TRA 2 ‘The effects of development on the transport network’, all developments affecting the transport network are stated to be required to:
- “Minimise any adverse impact on communities and the environment, including noise and air quality”*
- 2.49 Within the Pollution and Land Quality section of the draft Plan, air quality effects from development are discussed:
- “air quality issues are particularly likely to arise from developments that may generate significant levels of traffic, [or] introduce a new source of air pollution... Proposals for development which may have a detrimental effect upon air quality will need to be accompanied by an air quality assessment as part of the application and provide mitigation measures. The cumulative effects of a development upon air quality should be considered in context of existing and permitted development”*
- 2.50 The air quality assessments should therefore consider any other committed developments in the area that have the potential to contribute detrimentally to the air quality in addition to the effects of the stations themselves. The impacts on traffic increases on local roads due to the addition of station car parks should be considered along with the benefits of larger scale traffic reduction in the area due to the use of public transport.
- 2.51 Within Policy POL 2 ‘Pollution and air, soil and water quality’, it is stipulated that new developments are required to:

²⁵ Ministry of Housing, Communities & Local Government (2018); *The Planning Practice Guidance*. Available at: <https://www.gov.uk/government/collections/planning-practice-guidance>

²⁶ Northumberland County Council (2019); *Northumberland Local Plan*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Planning-and-Building/planning%20policy/Local%20Plan/Northumberland-Local-Plan-Reg-19-Publication-Draft-January-2019-Web-PDF-Version.pdf>

“...Maintain air quality standards and support improvements in any identified Air Quality Management Areas consistent with any local air quality action plans.”

2.52 On reviewing the latest Northumberland Annual Status Report (ASR) document²⁷ published in 2020, it is detailed that:

“Northumberland has consistently met national Air Quality Objective (AQO) limits and as such there has been no impetus to develop any air quality action plans or strategies. Momentum now seems to be growing, towards improving air quality above and beyond AQS limits”

2.53 There are currently no AQMAs declared in NCC and air quality concentrations are below all of the AQS standards. Therefore, no action plan has been developed with specific air quality policies to consider. However, it is noted that NCC are pushing to improve air quality further for local residents in the coming years.

Land-use Planning & Development Control: Planning for Air Quality Guidance

2.54 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have produced a guidance document²⁸ on how individual schemes may be considered in relation to air quality. This is not a legal document, however it provides useful advice and guidance on land use planning and development control processes. The document sets out principles of dealing with planning applications but recognises that decisions made by local authorities have to be made on a case by case basis.

2.55 The significance of the effects arising from air quality impacts depends on a number of factors including the long-term average concentration at sensitive receptor locations in the year the development is proposed to be operational and the percentage change in concentration relative to air quality assessment level. This is therefore key when attempting to consider what an unacceptable contribution may be upon air quality concentrations.

²⁷ Northumberland County Council (2020); *2020 Air Quality Annual Status Report (ASR)*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf>

²⁸ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

3. Assessment Methodology

3.1 There is currently no statutory guidance on the method by which an air quality assessment should be undertaken. The following guidance documents have however been referenced throughout the assessment:

- Institute of Air Quality Management (IAQM) (2014) *Guidance on the assessment of dust from demolition and construction* (updated 2016)²⁹;
- Environmental Protection UK (EPUK) and IAQM (2017) *Land-use planning & development control: Planning for Air Quality*³⁰; and
- Department for Environment, Food and Rural Affairs in partnership with the Scottish Government, Welsh Assembly Government, and Department of the Environment for Northern Ireland (2018), *Local Air Quality Management Technical Guidance (TG16)*³¹.

Baseline Air Quality Determination and Identification of Sensitive Receptors

- 3.2 The data sources considered in the baseline conditions review included the latest published NCC Air Quality Annual Status Report³², NCC's air quality monitoring data and background pollutant concentration maps provided by the Department for Environment, Food and Rural Affairs (Defra)³³.
- 3.3 Existing diffusion tube monitoring data which falls within approximately 1.5 km from the red-line boundary has been reproduced as well as all continuous monitoring data within the NCC authority.
- 3.4 A short-term (three months) NO₂ diffusion tube monitoring survey was planned due to the lack of local data available for use to inform the air quality assessment of the Proposed Development and other stations associated with the scheme. However, the coronavirus pandemic (COVID-19) caused the UK government to enforce rules of social distancing commencing in March 2020; this significantly reduced emissions of some air pollutants and improved local air quality, particularly in towns and cities, reiterating the overriding contribution of road transport to urban air pollution³⁴. This reduction in emissions would have been reflected in the atypical data captured in the monitoring. As such, monitoring for the scheme has been delayed until after traffic volumes have returned to normal levels
- 3.5 Receptors potentially sensitive to air quality have been identified through a review of mapping and aerial photography of the area surrounding the Proposed Development with consideration to both construction and operational phase effects, described further below. The baseline air quality conditions have been established at selected receptor locations via atmospheric dispersion modelling.

Construction Phase Effects

Fugitive Emissions of Dust and Particulate Matter

3.6 Fugitive emissions (i.e. emissions which are not associated with a single fixed release point) of airborne particulate matter are readily produced through the action of abrasive forces on materials. A qualitative construction dust risk assessment has been undertaken in accordance with the Greater London Authority (GLA) guidance on the

²⁹ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

³⁰ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

³¹ DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://iaqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

³² Northumberland County Council (2020); *2020 Air Quality Annual Status Report (ASR)*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf>

³³ DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/iaqm-background-maps?year=2018>

³⁴ AECOM (2020) *Unintended consequences: coronavirus, air quality and transport trends*. Available at: <https://aecom.com/without-limits/article/coronavirus-air-quality-and-tomorrows-transport/> [Accessed 21/04/2020]

Assessment of Dust from Demolition and Construction for the application Site³⁵ and the Institute of Air Quality Management (IAQM) 2014 Guidance on the assessment of dust from demolition and construction³⁶.

- 3.7 According to the IAQM, the main air quality impacts that may arise during construction activities are:
- dust deposition, resulting in the soiling of surfaces;
 - visible dust plumes, which are evidence of dust emissions;
 - elevated PM₁₀ concentrations resultant of dust generating activities on site; and
 - an increase in concentration of airborne particles and NO₂ due to exhaust emissions from diesel powered vehicles and equipment on site and vehicles accessing the site.
- 3.8 Activities on construction sites with the potential to generate dust and emissions can be categorised into four types of activities, which are:
- Demolition – any activities associated with the removal of existing structures on site;
 - Earthworks – includes the processes of soil-stripping, ground-levelling, excavation and landscaping;
 - Construction – any activities relating to the provision of new structures on site; and
 - Trackout – the transport of dust and dirt from the construction site onto the public road network where it may be deposited and re-suspended by traffic using the network.
- 3.9 The potential for dust emissions has been assessed for each activity that is likely to take place. The guidance has been used to assess the risk and significance of any impacts associated with the construction phase and to identify appropriate mitigation measures to be adopted to reduce any potential impacts.
- 3.10 A detailed assessment is required where a sensitive human receptor is located within 350m from the site boundary and/or within 50m of the route(s) used by vehicles on the public highway, up to 500m from the site entrance(s) or if there is a relevant ecological receptor within 50m of the site boundary. Due to the central location of the site, there are a number of sensitive human receptors located within 350m of the site boundary and hence the assessment is required.
- 3.11 The first step of the detailed assessment is to assess the risk of dust impacts. This is undertaken separately for each of the four activities (demolition, earthworks, construction and trackout) and takes account of:
- The scale and nature of the works, which determines the potential dust emission magnitude; and
 - The sensitivity of the area.
- 3.12 These factors are combined following criteria set out in the guidance to give an estimate of the risk of dust impacts occurring.
- 3.13 The emphasis of the regulation and control of construction dust should be the adoption of good working practices as standard. Good practice is a process that is informed by the assessment, which seeks to avoid the potential for adverse effects. This approach assumes that this environmental management, beyond those mitigation measures inherent in the proposed design, will be implemented during works to ensure potential significant adverse effects do not occur.
- 3.14 Site-specific mitigation for each of the four potential activities is then determined based on the risk of dust impacts identified. These measures are either 'highly recommended', 'desirable' or 'not required', depending on the level of risk identified. For general mitigation measures, the highest risk category should be applied. For example, if the site is medium risk for earthworks and construction, but a high risk for demolition and track-out, the general measures applicable to a high-risk site should be applied.
- 3.15 Where a local authority has issued guidance on measures to be adopted at demolition / construction sites, these should then be taken into account. Professional judgment is employed to examine the residual dust effects assuming

³⁵ Greater London Authority, (2014); *The Control of Dust and Emissions During Constructions – Supplementary Planning Guidance*. Available at:

https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Dust%20and%20Emissions%20SPG%208%20July%202014.pdf

³⁶ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at:

<http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

mitigation is undertaken to determine significance. It is recommended that best practice mitigation measures will be documented within a Construction Environmental Management Plan (CEMP) (or equivalent) and agreed with NCC prior to the commencement of construction works and secured by an appropriately worded planning condition.

3.16 Further details are provided in Appendix A.

Air Emissions from Construction Phase Site Traffic

3.17 The estimated number of vehicles associated with the construction of the Proposed Development was proposed to be considered in the context of the guidance published by EPUK / IAQM³⁷.

3.18 The threshold proposed for determining whether a quantitative assessment of construction related road traffic emissions is required is the same as the criteria for the operational phase, as follows:

- Causes a significant change in Light Duty Vehicle (LDV) movements of more than 100 annual average daily traffic (AADT) movements within or adjacent to an AQMA, or more than 500 AADT elsewhere;
- Causes a significant change in Heavy Duty Vehicle (HDV i.e. Heavy Goods Vehicles, buses and coaches) movements of more than 25 AADT within or adjacent to an AQMA, or more than 100 AADT elsewhere;
- Realign roads (where the change is 5 m or more and the road is within an AQMA);
- Introduce a new junction or remove an existing junction;
- Introduce or change a bus station; or
- Have an underground car park with extraction system.

3.19 At the time of writing, construction phase traffic movements had not been finalised. Based on experience from other projects, it is very unlikely that the construction phase traffic associated with the Proposed Development would exceed the above guidance. If the construction phase traffic movements were kept within the above thresholds, a quantitative assessment of construction phase road traffic can be scoped out of requiring further assessment.

Non-Road Mobile Machinery (NRMM)

3.20 Emissions from construction Non-Road Mobile Machinery (NRMM) will have the potential to increase NO₂ and PM₁₀ concentrations locally when in use on the construction site area associated with the scheme. This source is considered to be temporary, and localised.

3.21 Within the IAQM (2014) guidance³⁸, it is noted that NRMM are unlikely to make a significant impact on local air quality and it is unlikely that a quantitative assessment would be required in the majority of cases. However, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur.

3.22 The Mayor of London, through “The Control of Dust and Emissions during Construction and Demolition – SPG”³⁹, has however put in place a strategy to address emissions from NRMM in the London area, which can be referred to, to provide an understanding of what guidance on NRMM can require. In order to reduce emissions from NRMM in London, this equipment is required to meet set emission standards. However, it should be noted that such measures are required in London, because the risk of contributions from NRMM emissions to contribute to an exceedance of an air quality objective is significantly greater there than in most other areas of the UK. This is because of already elevated background pollutant conditions, and the often long-term nature of construction sites in the capital (e.g. the Crossrail development). In this instance, emissions associated with NRMM at the Proposed Development site are considered highly unlikely to contribute to an exceedance of an air quality objective value.

3.23 At this stage of the Proposed Development design, the number of NRMM plant and their hours of operation is unknown. However, based on the size of the Site and the construction required, it is anticipated that the number of

³⁷ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

³⁸ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

³⁹ Greater London Authority, (2014); *The Control of Dust and Emissions During Constructions – Supplementary Planning Guidance*. Available at:

https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Dust%20and%20Emissions%20SPG%208%20July%202014.pdf

NRMM plant will be limited and their emissions will be temporary, intermittent, localised and controlled via the application of the NRMM standards and through best practice mitigation measures. For that reason, the construction phase NRMM emissions should not be significant. These emissions have not been modelled and are not considered any further in this assessment.

Construction phase sensitive receptors

- 3.24 For the assessment of construction dust emissions, a construction dust receptor is defined simply as a location that may be affected by dust emissions. Human receptors include locations where people spend time and where property may be impacted by dust. Ecological receptors are habitats that might be sensitive to dust.
- 3.25 For the assessment of construction dust emissions, a construction dust receptor is defined simply as a location that may be affected by dust or PM₁₀ emissions. Human receptors include locations where such emissions could harm the amenity of land users and/or locations sensitive to short-term PM₁₀ concentrations. Typically, this includes locations where people spend time and where property may be impacted by dust. Ecological receptors are habitats that might be sensitive to dust, due to chemical interaction and/or the effect on rates of photosynthesis.
- 3.26 When assessing the impact of dust emissions generated during construction works, the methodology requires only the quantities of the nearest, highest sensitivity receptors to the boundary of the Site in each direction be considered. These receptors have the potential to experience impacts of greater magnitude, when compared with other more distant receptors, or less sensitive receptors. Moreover, receptors located within 50m of routes to be used by construction vehicles might be impacted by dust originating from the track-out of material onto the road, and as such have been considered in this assessment.
- 3.27 Human receptors potentially sensitive to air quality effects from the construction phase have been identified through review of mapping and aerial photography of the area within 350 m surrounding the Site.

Operation Phase Effects

Emissions from Diesel Locomotives

- 3.28 The scheme is assumed to increase the number of diesel-fuelled engines accessing the line and therefore utilising the Proposed Development. Diesel locomotives are a source of NO_x and SO₂ and the presence of these engines as they access the Proposed Development will give rise to increased concentrations of NO₂ and SO₂ above baseline.
- 3.29 However, the likelihood of such a source contributing to an exceedance of an air quality objective value is limited to stations and depots where diesel locomotives are more frequent, likely to idle for sustained periods of time, and where air quality is already being constrained by existing sources. To account for this, Defra guidance⁴⁰ provides criteria to suggest conditions when there is the potential for the risk of an exceedance of an air quality objective, as a result of diesel locomotives. This guidance has been used to screen whether a further consideration of diesel locomotive emissions is required or not in the context of the Proposed Development.
- 3.30 The potential local air quality effects from the operational phase have therefore been screened with reference to the guidance and criteria in LAQM.TG(16)⁴⁰ as presented in Table 2. If both of the criteria are matched separately for stationary and moving diesel locomotives, then it is determined that there is a possible risk of the relevant air quality objectives.

Table 2. Criteria for identifying Sources of Air Quality Concern from Diesel Locomotives

Stationary diesel or steam locomotives	Moving diesel locomotives
Criteria for identifying the risk of exceedance of the SO₂ 15-minute mean objective (266 µg/m³)	Criteria for identifying the risk of exceedance of the NO₂ annual mean objective (40 µg/m³)
Identify locations where diesel or steam locomotives are regularly (at least 3 times a day) stationary for periods of 15 minutes or more; and	Determine relevant exposure within 30m of the relevant railway tracks; and

⁴⁰ DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

Stationary diesel or steam locomotives**Criteria for identifying the risk of exceedance of the SO₂ 15-minute mean objective (266 µg/m³)**

Determine relevant exposure within 15m of the locomotives.

Moving diesel locomotives**Criteria for identifying the risk of exceedance of the NO₂ annual mean objective (40 µg/m³)**

Identify whether the background annual mean NO₂ concentration is above 25µg/m³ in these areas.

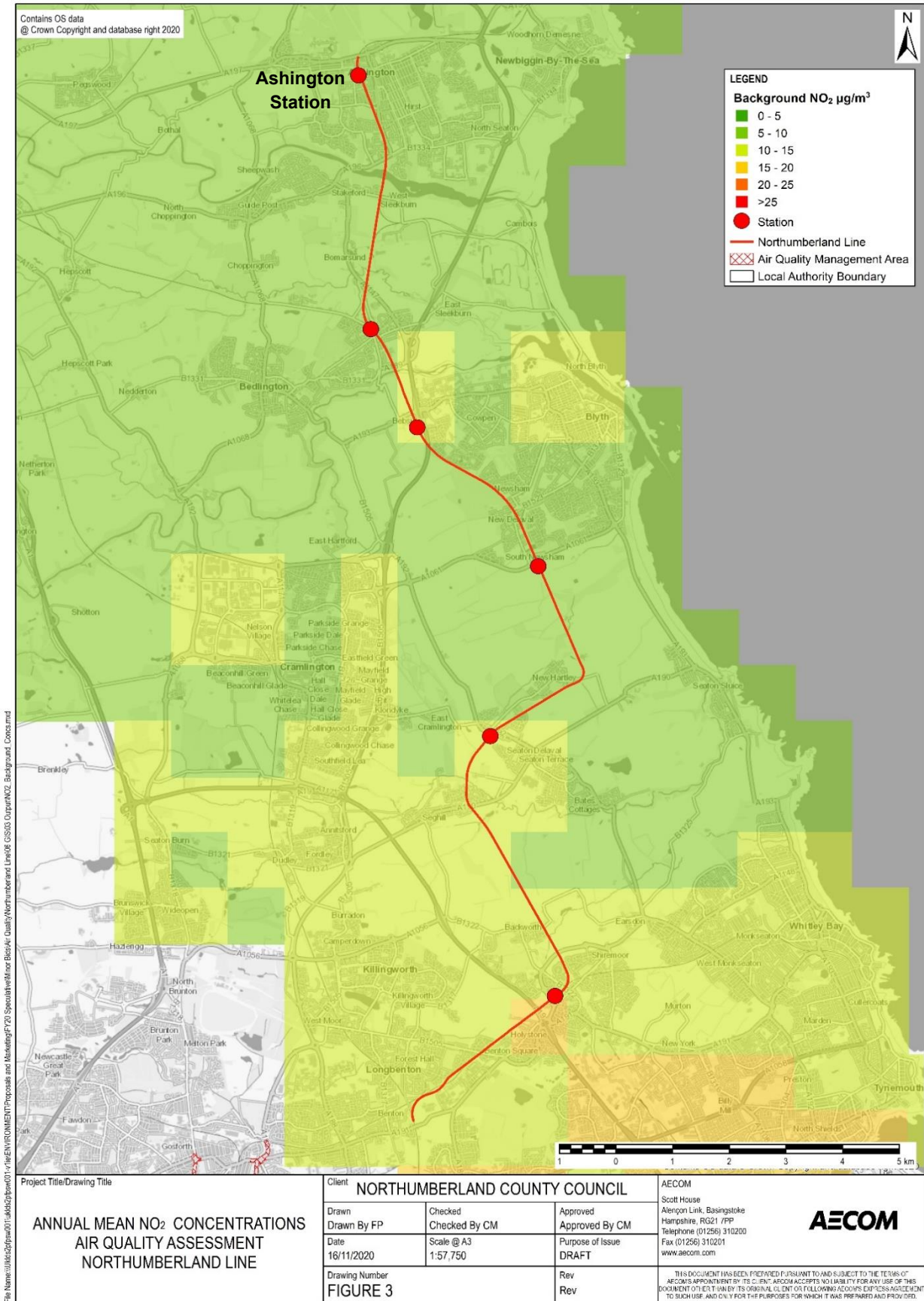
Source: Defra (2018) LAQM.TG(16)⁴¹

- 3.31 The maximum wait time of stationary diesel locomotives is predicted to be 1 minute across all stations including Ashington. It has been assumed that the diesel locomotives will be stationary at the station platform while passengers alight and board the trains, however the proposed platform is expected to be in an outdoor environment, therefore pollutants would be expected to disperse rapidly from the emissions source. Given the maximum proposed short wait time, it is extremely unlikely that a diesel locomotive will be stationary at the station platform for periods of 15 minutes or more, at least three times a day
- 3.32 With reference to LAQM.TG(16)⁴¹, further assessment of stationary diesel locomotives is not considered to be required.
- 3.33 The entire length of the scheme is currently used by moving diesel locomotives, with only the frequency of trains increasing due to the Proposed Scheme. Currently, freight trains use the area of the Proposed Development to travel through. Therefore, a review has been undertaken of the land use which falls within 30 m of the Proposed Development, and the background annual mean NO₂ concentrations across the Site.
- 3.34 Following a review of aerial imagery, there are built up areas containing residential properties in Ashington that may fall within 30 m of the section of railway line that is within the Red Line Boundary.
- 3.35 Defra has produced maps of background pollutant concentrations covering the whole of the UK for use by local authorities and consultants in the completion of LAQM reports and air quality assessments where local background monitoring is unavailable or inappropriate for use. The current Defra maps are based on projections from 2018 monitoring data and provide background pollutant concentrations for each 1 km grid square within the UK for all years between 2018 and 2030⁴². 2019 annual mean NO₂ background concentrations are presented in Figure 3 across the entire scheme area. Figure 3 shows that there are no areas across the scheme length where annual mean NO₂ background concentrations are above 20 µg/m³, including at the Proposed Development.
- 3.36 The Proposed Development will see the frequency of additional train movements of 32 per day in both directions. Emissions associated with such an infrequent source will have a minimal contribution to local air quality when compared to other nearby sources and background contribution.
- 3.37 This analysis has therefore determined that further consideration of the impacts of moving locomotive emissions is not required.
- 3.38 The local air quality effects from diesel-fuelled engines has not been considered further.

⁴¹ DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

⁴² DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

Figure 3. Annual Mean Nitrogen Dioxide Background Concentrations Across the Northumberland Line Scheme in 2019



Air Emissions from Operational Phase Road Traffic

- 3.39 The EPUK/IAQM (2017)⁴³ guidance sets out a two-stage approach to determine the need and scope of an air quality assessment. Stage 1 determines the need for an assessment and provides a criteria, which if exceeded, an air quality assessment is deemed to be required for the operational phase. Due to the size of the Proposed Development as well as the uncertainty of the level of traffic flow impact from the wider scheme and locally nearby the Proposed Development, it was considered necessary that an air quality assessment of operation effects be undertaken.
- 3.40 Stage 2 details more specific criteria to determine the level of assessment needed for the operation of a proposed development. The relevant criteria are summarised in Table 3.

Table 3. IAQM/EPUK, stage 2 criteria for requiring an air quality assessment

The development will:	Indicative Criteria to proceed to an assessment
Cause significant change in Light Duty Vehicles (LDV) traffic flows on local roads with relevant receptors.	A change of LDV flows of: <ul style="list-style-type: none"> • More than 100 AADT within or adjacent to an AQMA • More than 500 AADT elsewhere
Cause significant change in Heavy Duty Vehicles (HDV) traffic flows on local roads with relevant receptors.	A change of HDV flows of: <ul style="list-style-type: none"> • More than 25 AADT within or adjacent to an AQMA • More than 100 AADT elsewhere
Realign roads i.e. changing the proximity of receptors to traffic lanes	Where the change is 5 m or more and the road is within an AQMA
Introduce a new junction or remove an existing junction near to relevant receptors	Applies to junctions that cause traffic to significantly change vehicle acceleration/deceleration e.g. roundabout.
Introduce or change a bus station	Where bus flows will change by: <ul style="list-style-type: none"> • More than 25 AADT within or adjacent to an AQMA • More than 100 AADT elsewhere
Have an underground car park with extraction system	The ventilation extract for the car park will be within 20 m of a relevant receptor. Coupled with the car park having more than 100 movements per day (total in and out).

- 3.41 Due to lockdowns enforced as a result of the COVID-19 pandemic, representative traffic surveys could not be undertaken to support the assessment. As such, traffic data for road links surrounding the Proposed Development was derived as outlined in the Transport Assessment for Ashington Station, as presented in Appendix B in the form of AADT and percentage HDV.
- 3.42 Two Do-Something (DS) scenarios (with the Proposed Development built and in operation) were provided by the transport consultants. One was a DS scenario and the other was a sensitivity DS scenario which included an additional 30% increase in traffic to account for traffic movements in and out of the car park associated with the Proposed Development. As this was a more conservative scenario than the non-sensitivity DS scenario, the sensitivity DS scenario has been used to assess the change in AADT and HDV numbers for the screening assessment outlined in Table 3.
- 3.43 The future year of traffic data has been provided by the transport consultants for 2039 only. Traffic movements associated with the Proposed Development on the approach to and from the station are expected to be greater in 2039 than 2024 (the Proposed Development's proposed opening year), due to anticipated year on year increase in the use of the Proposed Development and, therefore, the number of vehicles accessing the Proposed Development. As such, 2039 data is considered more conservative than 2024 data. Furthermore, the 2039 data will include a

⁴³ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

greater proportion of non-combustion vehicles than the air quality assessment considers, which is based on 2024 vehicle fleet-mix and emission rates. As such, the proportion of the traffic flow assumed to consist of petrol and diesel vehicles is likely to be conservative.

- 3.44 The predicted operational phase traffic flow data has been analysed with reference to the criteria in Table 3. It is anticipated that operational road traffic movements associated with the Proposed Development would have a maximum increase in flows on Kenilworth Road, which will experience an increase in two-way LDV AADT of 325 and an increase in two-way HDV AADT of zero. Both of these fall well below the criteria given in the guidance to suggest the potential need for a detailed assessment of road traffic emissions impacts.
- 3.45 As such, detailed consideration of operational road traffic emissions impacts has been screened out of this assessment and the impact of such limited emissions would not contribute to a significant effect on local air quality.

4. Baseline Characterisation

Local Air Quality Management

- 4.1 Under the requirements of Part IV of the Environment Act⁴⁴, NCC has carried out a phased review and assessment of local air quality. NCC has not declared any AQMAs, as monitoring results have not indicated any breaches of the UK Air Quality Objective levels for air pollution.

Northumberland County Council Monitoring Data

- 4.2 The most recent ASR available was published in August 2020, containing monitoring data from 2019⁴⁵. NCC has a monitoring network comprising monitoring of NO₂, PM₁₀ and PM_{2.5}.
- 4.3 NCC undertook continuous monitoring at two locations in 2019, at Cowpen Road (at a roadside location, monitoring PM₁₀ and PM_{2.5} approximately 6km away from the Proposed Development) and at Blyth Library on Bridge Street (classified as an urban centre location, monitoring PM₁₀ and PM_{2.5} approximately 7.3km away from the Proposed Development). The continuous monitor at Cowpen Road measured continuous NO₂ measurements up until the end of 2018. The 2019 monitoring network also included 19 NO₂ diffusion tube monitoring locations. Monitoring site locations are shown in Figure 4.
- 4.4 Table 4 presents the NO₂ annual mean concentrations between 2015 and 2018 at the Cowpen continuous air quality monitoring site⁴⁶, and at the nearest diffusion tube monitoring location at Newbiggin Road between 2015 and 2019, which is approximately 1.5 km from the Proposed Development.
- 4.5 The annual mean NO₂ objective of 40 µg/m³ was not exceeded at any monitoring locations between 2015 and 2019. No exceedances of the 1-hour mean objective (200 µg/m³ not to be exceeded more than 18 times/year) were recorded. Concentrations of NO₂ have remained fairly consistent within NCC's area of authority, with continuous monitors seeing a downward trend in NO₂ concentrations. Diffusion tube concentrations have seen less of a trend, with variations in annual mean concentrations of NO₂.
- 4.6 The annual mean PM₁₀ and PM_{2.5} England and Wales objectives of 40 µg/m³ and 25 µg/m³ respectively were not exceeded at any monitoring locations in 2019 as shown in Table 5; annual mean PM_{2.5} was also below the WHO guidelines of 10 µg/m³. No exceedances of the 1-hour mean PM₁₀ objective (200 µg/m³ not to be exceeded more than 18 times/year) were recorded. Records of PM₁₀ concentrations have seen a downward trend since 2007 within NCC's local authority whereas PM_{2.5} concentrations have remained consistent since 2015.

Table 4. Annual Mean Nitrogen Dioxide Concentrations at Continuous Northumberland County Council Air Quality Monitoring Sites and Nearby Passive Monitoring Locations

ID	Location	Monitoring Type	Site Type	Annual Mean NO ₂ concentration (µg/m ³)				
				2015	2016	2017	2018	2019
CR	Cowpen Road	Automatic	Roadside	25.0	18.0	17.0 (18) ¹	28.0	-
W21	Newbiggin Road	Passive	Roadside	19.0	24.0	25.0	23.9	22.0

¹Annualised to 17.0⁴⁶

Source: NCC (2020) 2020 Air Quality ASR⁴⁵ and NCC (2019) 2019 Air Quality ASR⁴⁶

⁴⁴ H.M. Government, (1995); *The Environment Act*. Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents>

⁴⁵ Northumberland County Council (2020); *2020 Air Quality Annual Status Report (ASR)*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf>

⁴⁶ Northumberland County Council (2019); *2019 Air Quality Annual Status Report (ASR)*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2019-LAQM-Annual-Status-Report.pdf>

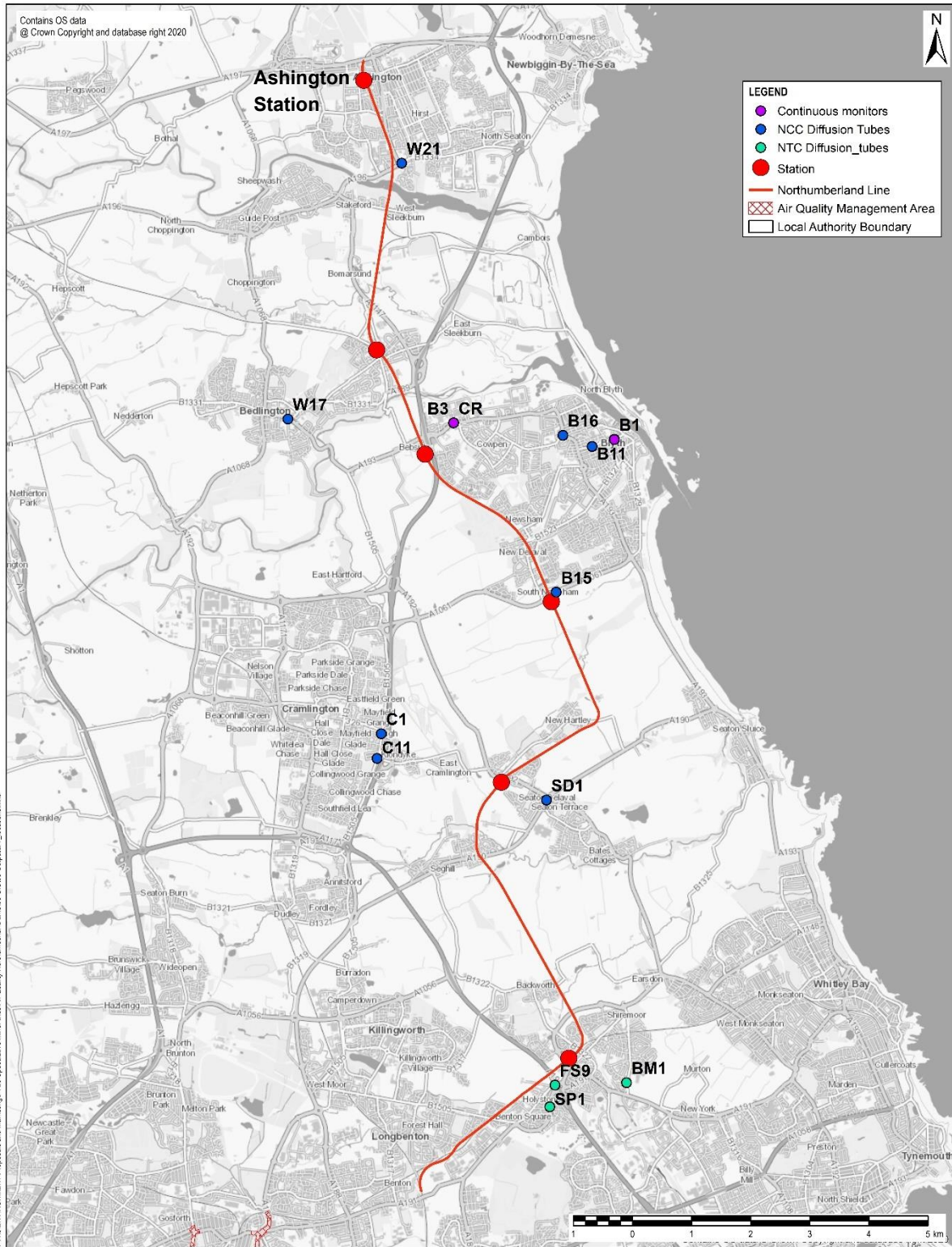
Table 5. Annual Mean Particulate Matter Concentrations at Continuous Northumberland County Council Air Quality Monitoring Sites

ID	Location	Monitoring Type	Site Type	Annual Mean PM ₁₀ concentration (µg/m ³)					Annual Mean PM _{2.5} concentration (µg/m ³)				
				2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
BL	Blyth Library	Automatic	Urban Centre	13.0	17.9	13.4	15.5	14.3	6.0	7.1	6.2	7.3	8.0
CR	Cowpen Road	Automatic	Roadside	14	15	13.5	15.6	16.2	6.1	5.8	5.5	6.7	7.2

Source: NCC (2020) 2020 Air Quality ASR⁴⁷

⁴⁷ Northumberland County Council (2020); 2020 Air Quality Annual Status Report (ASR). Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LQM-Annual-Status-Report.pdf>

Figure 4. Locations of Continuous Monitors and Diffusion tubes for both Northumberland County Council and North Tyneside Council between 2014 and 2019



Project Title/Drawing Title		Client		AECOM	
LOCATIONS OF DIFFUSION TUBES AND CONTINUOUS MONITORING CONDUCTED BY NCC AND NTC		NORTHUMBERLAND COUNTY COUNCIL		Scott House Alnorton Link, Basingstoke Hampshire, RG21 7PP Telephone: (01256) 310200 Fax: (01256) 310201 www.aecom.com	
Drawn By FP	Checked By CM	Approved By CM	Approved By CM	AECOM	
Date	Scale @ A3	Purpose of issue	Purpose of issue		
16/11/2020	1:57,750	DRAFT	DRAFT		
Drawing Number	Figure 4		Rev	THIS DOCUMENT IS UNLESS INDICATED OTHERWISE THE PROPERTY OF AECOM AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF AECOM. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.	

Defra Background Concentrations

- 4.7 Defra has produced maps of background pollutant concentrations covering the whole of the UK for use by local authorities and consultants in the completion of LAQM reports and air quality assessments where local background monitoring data are unavailable or inappropriate for use. The maps provide background pollutant concentrations for each 1 km x 1 km grid square within the UK for all years between 2018 and 2030⁴⁸. Defra publish estimates of 'background' pollutant concentrations for each square kilometre, based on national modelling studies⁴⁹. The most recent background concentration maps, based on a reference year of 2018, have informed this section.
- 4.8 Background concentrations for the Proposed Development, taken from Defra's background maps for the years 2019 and 2024 are presented in Table 6. As part of the screening process for consideration of diesel emissions, 2019 NO₂ annual mean background are plotted, included as Figure 3.

Table 6. Defra air quality background concentrations

Year	Annual Mean Background Concentration (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
2019 (base year for air quality assessment)	8.2	9.5	6.1
2024 (Proposed Development opening year)	6.8	8.9	5.6

Source: Defra (2020) Air Quality Background Maps⁴⁸

⁴⁸ DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

5. Impact Assessment

Effects during the Construction of the Proposed Development

Fugitive Emissions of Particulate Matter

- 5.1 A step by step assessment has been undertaken in line with the GLA⁴⁹ and IAQM guidance⁵⁰ which considered the risk of dust impacts occurring and the sensitivity of the Proposed Development to such impacts. From this, the appropriate level of mitigation has been determined, as presented in Section 6. Further details of the methodology for this assessment are provided in Appendix A.

Step 1: Screen the Requirements for a Detailed Assessment

- 5.2 As the Proposed Development at Ashington is located in the centre of the town of Ashington, there are several sensitive human receptors within 350m of the Proposed Development's proposed red line boundary (the Site). The nearest residential receptors are within 20m of the proposed red line boundary along Oakland Terrace and John Street as well as at Hatchmeadow sheltered housing complex 22m away. There are three schools within 350m of the Proposed Development's red-line boundary: the Central Primary School Lower site, GUST independent school and Ashington Community High School/The Dales School. Other potentially sensitive receptors include car parks (e.g. such as the Dairy House Car Park off South View and John Street car park, both within 50m of the Site), St John's Ambulance Day Centre and the Northumberland County Council offices and Ashington Cricket Club which are both adjacent to the Site.
- 5.3 There are four statutory ecological receptors within 2km of proposed red line boundary: Hawthorn Cottage Pasture Site of Special Scientific Interest (SSSI), Queen Elizabeth II Country Park Local Nature Reserve (LNR), Wansbeck Riverside Park LNR and Castle Island LNR.
- 5.4 Hawthorn Cottage Pasture SSSI is located 1.3km to the north west of the Proposed Development and over 1km away from any roads that could be affected by track-out from the Site. Queen Elizabeth II Country Park LNR is located 1.2km to the north east of the Site and is 1km away from any roads that could be affected by track-out from the Site. Wansbeck Riverside Park LNR and Castle Island LNR are both located to south of the Site, approximately 1km and 1.6km away respectively, with similar distances to roads that could be affected by track-out from the Site.
- 5.5 There are no ecological statutory designated receptors, as defined by the guidance, identified within 50m of the works or within 500m of any roads which could be used by construction traffic. Therefore, the risk of dust effects at a nationally or European designated ecological receptor site is not considered further in this assessment of demolition and construction dust.
- 5.6 Taking the above into consideration, according to guidance, a construction phase assessment of fugitive dust has been undertaken.

Step 2: Assess the Risk of Dust Impacts

Step 2A: Define the Potential Dust Emission Magnitude

Demolition

- 5.7 There is no proposed demolition of buildings at the Site, and therefore the potential dust effects during the demolition works are considered insignificant and not considered further in this assessment.

Earthworks

- 5.8 Before the new station can be constructed, it is anticipated that the old platform will need to be removed. As this platform is not a structure, its removal has been considered as part of the earthworks' assessment. It is anticipated

⁴⁹ Greater London Authority, (2014); *The Control of Dust and Emissions During Constructions – Supplementary Planning Guidance*. Available at:

https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Dust%20and%20Emissions%20SPG%208%20July%202014.pdf
⁵⁰ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at:
<http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

that as part of the earthworks, the existing car park on the Site will need to be removed and the remainder of the Site prepared for proposed use. As the total area of the Site is greater than 10,000m², it is considered appropriate to classify the potential dust emission magnitude associated with earthworks activity as “Large”.

Construction

5.9 As it is anticipated that the Proposed Development will operate without any “station building”, the total building volume will be less than 25,000m³, however as concrete is likely to be used to construct the new platform, a conservative worst-case approach assumes that there could be up to 100,000m³ total building volume. Construction is expected to last for approximately 4 months. It has been assumed there will be no on site concrete batching or sandblasting. With reference to guidance and using professional judgement, the construction activity would be considered to be a “Medium” dust emission magnitude.

Track-out

5.10 Information on traffic movements related to the construction phase is not currently finalised, therefore a conservative approach has been taken, assuming that more than 50 HDV outward movements could occur. Taking into consideration that the expected unpaved road length could be greater than 100m, depending on traffic routes within the Site it is considered appropriate to classify the potential dust effects associated with track-out as “Large”.

Step 2B: Define the sensitivity of the Area

5.11 The following points were taken into consideration when defining the sensitivity of the area to dust soiling and health impacts of PM₁₀:

- The Site is located within an urban area.
- The residential properties within the vicinity of the Site can be considered to have “high” sensitivity. It is estimated that there will be between 10-100 of these receptors within 20m.
- The three schools within 350m of the Site can be considered to have “high” sensitivity. As per the IAQM guidance, it can be considered that a school is considered to be >100 receptors. The nearest school to the Proposed Development's red line boundary is GUST independent school, located approximately 110m away.
- Both the John Street and Diary House car parks are long-stay car parks, which are considered to have “high” sensitivity due to potential dust impacts. John Street car park is adjacent to the Site boundary and Diary House car park is within 50m of the Site boundary.
- The Northumberland County Council office building and St John Ambulance Day Centre are places of work and are considered to have “medium” sensitivity.
- Ashington Cricket Club is considered to be a “low” sensitivity receptor as these are playing fields.
- NCC do not undertake any monitoring of PM₁₀ within the vicinity of the Site, however the modelled background PM₁₀ concentration provided by DEFRA was 9.5µg/m³ in 2019⁵¹.

5.12 Taking the above into consideration the sensitivity of the area to dust soiling effects can be classed as “High” and the sensitivity of the area to human health effects can be classed as “Low”.

Step 2C: Define the Risk of Impacts

5.13 Taking into consideration the conclusion from Step 2A and 2B, the risk of dust impacts for each activity are provided in Table 7. A ‘high risk’ of unmitigated dust impacts is derived.

Table 7. Risk of Unmitigated Dust Impacts

Source	Dust Soiling	Human Health	Ecological
Demolition	N/A	N/A	N/A
Earthworks	High Risk	Low Risk	N/A
Construction	Medium Risk	Low Risk	N/A
Track-out	High Risk	Low Risk	N/A

⁵¹ DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

- 5.14 Step 3 and Step 4 of the construction dust assessment are considered later in the Mitigation Measures and Residual Effects sections respectively.

Effects during the Operation of the Proposed Development

- 5.15 As the requirement for an assessment of the operational phase of the Proposed Development has been screened out in Section 3, an assessment of operational emissions is not considered to be required to accompany the planning application. Air quality impacts from the operation of the Proposed Development are therefore not considered to be significant.

6. Mitigation Measures

Construction Phase

- 6.1 Determining site-specific mitigation measures corresponds to Step 3 of the assessment methodology.
- 6.2 A number of mitigation measures can be adopted to reduce the production and/or dispersal of dust to lessen the nuisance and limit the human health impacts. Ideally dust should be controlled at the source as, once airborne, it is difficult to suppress.
- 6.3 Recommended appropriate mitigation measures are provided in Table 8 taking into consideration the risk of dust impacts determined in Step 2C with reference to the IAQM 'Guidance on the assessment of dust from demolition and construction'⁵². Selecting and refining the mitigation measures outlined below should be undertaken through the preparation and implementation of a site-specific Construction Environmental Management Plan (CEMP). Contractors should also carry the 'Considerate Contractors' registration.

Table 8. Potential Site Operations and Possible Methods of Controlling Dust

Activity	Possible Dust Control Methods
Communication	<ul style="list-style-type: none"> Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. Display the head or regional office contact information. Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.
Site Management	<ul style="list-style-type: none"> Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken. Make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or air emissions, either on or off site and the action taken to resolve the situation in the log book. Hold regular liaison meetings with other high-risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/ deliveries which might be using the same strategic road network routes.
Monitoring	<ul style="list-style-type: none"> Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary. Carry out regular site inspections, record inspection results and make an inspection log available to the local authority when asked. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. Agree dust deposition, dust flux, or real-time PM₁₀ continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Preparing and Maintaining the Site	<ul style="list-style-type: none"> Plan site layout so that machinery and dust causing activities are located away from receptors as far as possible. Erect solid screens or barriers around dusty activities that are at least as high as any stockpiles on site.

⁵² IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

Activity	Possible Dust Control Methods
	<ul style="list-style-type: none"> Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period. Avoid site runoff of water or mud. Keep site fencing, barriers and scaffolding clean using wet methods. Remove materials that have a potential to produce dust from site as soon as possible unless being re-used on site. If they are being re-used on-site cover as described below. Cover, seed or fence stockpiles to prevent wind whipping.
Operating Vehicle / Machinery and Sustainable Travel	<ul style="list-style-type: none"> Ensure all vehicles switch off engines when stationary – no idling vehicles. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable. Impose and signpost a maximum speed limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
Operations	<ul style="list-style-type: none"> Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Use enclosed chutes and conveyors and covered skips. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste Management	<ul style="list-style-type: none"> Avoid bonfires and burning of waste materials.
Measures specific to Earthworks	<ul style="list-style-type: none"> Re-vegetate earthworks and exposed areas/ soil stockpiles to stabilise surfaces as soon as practicable. Use Hessian or mulches where it is not possible to re-vegetate or cover the topsoil as soon as practicable. Only remove the cover in small areas during work and not all at once.
Measures specific to Construction	<ul style="list-style-type: none"> Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
Measure specific to Track-out	<ul style="list-style-type: none"> Use water assisted dust sweeper(s) on the access and local roads, to remove, as necessary any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10 m from receptors where possible.

Operational Phase

6.4 The operational phase impacts on air quality were not considered to be significant. Therefore, no project specific operational phase mitigation measures are required, however there are a number of best practice measures which could be implemented to promote good air quality. These include the following:

- Support for, and promotion of car clubs;
- Contributions to low emission vehicle refuelling infrastructure;
- Financial support to promote low emission public transport options; and
- Improvements to cycling and walking infrastructure.

7. Residual Impacts

Construction Phase

- 7.1 Determining the residual impacts corresponds to Step 4 of the assessment methodology.
- 7.2 The impacts associated with the construction phase of the Proposed Development have been qualitatively assessed with reference to the Institute of Air Quality Management (IAQM) published draft 'Guidance on the assessment of dust from demolition and construction'⁵³.
- 7.3 The IAQM guidance states that *'in the case of demolition / construction it is assumed that mitigation (secured by planning conditions, legal requirements or required by regulations) will ensure that a potential significant adverse effect will not occur, so the residual effect will normally be 'not significant'*.
- 7.4 Therefore, overall it is considered that the impacts during the construction phase will be not significant.

Operational Phase

- 7.5 The operational phase impacts on air quality were not considered to be significant. Therefore, no mitigation measures were considered to be required. However, it is good practice to reduce emissions to air as far as reasonably practical and some common measures to reduce emissions have been provided.

⁵³ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

8. Conclusions

- 8.1 This assessment has focused on the potential local air quality impacts of the proposed new station at Ashington. Within NCC, there are no AQMAs and concentrations of NO₂, PM₁₀ and PM_{2.5} have been consistently below their respective air quality objectives⁵⁴. Local air quality is therefore considered to be within acceptable levels in Ashington.

Construction Phase

- 8.2 A qualitative construction phase assessment has been undertaken with reference to the Institute of Air Quality Management⁵⁵ 'Guidance on the assessment of dust from demolition and construction' and Greater London Authority 'The Control of Dust and Emissions During Constructions – Supplementary Planning Guidance'⁵⁶.
- 8.3 With regard to potential impacts during the construction phase, the assessment concludes the following:
- The nearest sensitive receptors to the Site are the residential properties along Oakland Terrace and John Street which fall within 20m of the Proposed Development's red-line boundary as well as Hatchmeadow sheltered housing complex which is just over 20 meters away from the Proposed Development's red-line boundary;
 - NCC do not undertake any monitoring of PM₁₀ within the vicinity of the Site, however the modelled background PM₁₀ concentration provided by DEFRA was 9.5µg/m³ in 2019⁵⁷;
 - Taking the above into consideration the sensitivity of the area to dust soiling impacts was considered to be high, and low for human health impacts;
 - The potential risk of dust soiling was determined to be 'high risk' during earthworks and track-out works and 'medium risk' during construction. There is no proposed demolition of buildings at the Site;
 - The potential risk of human health impacts was 'low risk' during earthworks, construction works and track out;
 - Appropriate mitigation measures are recommended to effectively control the risks identified above during the construction phase; and
 - With these measures in place, overall it is considered that the impacts during the construction phase will be of negligible significance.

Operational Phase

- 8.4 Regional air quality is anticipated to improve due to modal shift from private car to public transport as a result of the Northumberland Line scheme, however there is the potential for local air quality impacts within the vicinity of the stations and railway line. Operational phase screening for both diesel locomotive emissions inside the Proposed Development's Site and local road traffic emissions for the Proposed Development have therefore been undertaken as part of this assessment.
- 8.5 With regard to potential impacts from diesel locomotives and road traffic during the operational phase, the assessment concludes the following:

⁵⁴ Northumberland County Council (2020); *2020 Air Quality Annual Status Report (ASR)*. Available at: <https://www.northumberland.gov.uk/NorthumberlandCountyCouncil/media/Public-Protection/Pollution/2020-LAQM-Annual-Status-Report.pdf>

⁵⁵ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

⁵⁶ Greater London Authority, (2014); *The Control of Dust and Emissions During Constructions – Supplementary Planning Guidance*. Available at:

https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Dust%20and%20Emissions%20SPG%208%20July%202014.pdf

⁵⁷ DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

- The potential impact of SO₂ emissions from diesel locomotives has been considered to be 'not significant' as typical average time of stationary diesel locomotives is predicted to be a maximum wait time of 1 minute, which is well below the 15 minute, 3-times a day threshold set out in LAQM.TG(16)⁵⁸;
- The potential impact of NO₂ emissions from diesel locomotives has been considered to be 'not significant' as, according to the DEFRA background maps⁵⁹ there are no NO₂ concentrations above 25µg/m³ in 2019, the threshold set out in LAQM.TG(16)⁵⁸; and
- The potential impact of road traffic emissions (NO₂, PM₁₀ and PM_{2.5}) has been considered 'not significant' for the local area around the Proposed Development as the traffic data supplied by the project transport consultants does not exceed any of the criteria set out in the EPUK/IAQM⁶⁰ guidance.

Overall

8.6 With the recommended mitigation measures in place for the construction phase, it is considered that the Proposed Development at Ashington will not cause any significant effects on air quality.

⁵⁸ DEFRA (2018); *Local Air Quality Management Technical Guidance (TG16)*. Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

⁵⁹ DEFRA (2020); *Background Mapping data for local authorities – 2018*. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

⁶⁰ EPUK/IAQM (2017); *Land-Use Planning & Development Control: Planning For Air Quality*. Available at: <http://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

Appendix A : Construction Phase Air Quality Dust Risk Assessment

Step 1: Screen the Requirement for a Detailed Assessment

Sensitive receptors were identified and the distance to the site and construction routes were determined according to the examples of sensitivity shown in Table 9. According to the IAQM⁶¹, an assessment will normally be required where there are sensitive receptors within 350 metres (m) of the boundary of a site and/or within 50 m of route(s) used by construction vehicles on the public highway, up to 500 m from the site entrance. A human receptor, as considered within the IAQM guidance, is any location where a person or property may experience:

- The annoyance effects of airborne dust or dust soiling e.g. dwellings, industrial or commercial premises such as a vehicle showroom, food manufacturers, electronics manufacturers, amenity areas and horticultural operations; or
- Exposure to PM₁₀ over a period relevant to the air quality objectives.

Ecological receptors within 50 m of the boundary of the site or routes used by construction vehicles on the public highway, up to 500 m from the site entrance, also need to be identified.

There are no ecological receptors which need to be considered as part of this assessment.

Table 9. Examples of Dust Sensitive Receptors

Sensitivity	Dust Soiling	Human Health	Ecological
High	Dwellings, Museum and other culturally important collections, Medium and long term car parks Car showrooms.	Residential properties. Hospitals, Schools Residential care homes	Locations with an international or national designation (e.g. SAC) and the designated features may be affected by dust soiling
Medium	Parks Places of work.	Office and shop workers but will generally not include workers occupationally exposed to PM ₁₀ , as protection is covered by Health and Safety at Work legislation.	Locations with a national designation (e.g. SSSI) where the features may be affected by dust deposition
Low	Playing fields Farmland (unless commercially-sensitive horticultural), Footpaths, Short term car parks Roads	Public footpaths, Playing fields, Parks Shopping streets.	Locations with a local designation where the features may be affected by dust deposition local Nature Reserve with dust sensitive features.

SAC: Special Area of Conservation; SSSI: Site of Special Scientific Interest

Step 2: Assess the Risk of Dust Impacts

The risk of dust arising in sufficient quantities to cause annoyance and/or health effects was determined for each activity (demolition, earthworks, construction works and track out), taking account of:

- The scale and nature of the works, which determines the potential dust emission magnitude (small, medium or large) (Step 2A); and
- The sensitivity of the area (low, medium or high) (Step 2B).

⁶¹ IAQM (2014); *Guidance on the assessment of dust from demolition and construction*. Available at: <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

These factors were then combined to give the risk of dust effects with no mitigation applied, as Negligible, Low, Medium or High.

It should be noted that where detailed information was not available to inform the risk category, professional judgement and experience was used and a cautious approach adopted, in accordance with the guidance.

Step 2A: Define the Potential Dust Emission Magnitude

Demolition

The classifications are based on examples of suitable criteria, although factors such as seasonality, building type, duration and scale were also taken into consideration, where possible.

Table 10. Potential Demolition Dust Emission Classification

Potential Dust Emission Classes	Criteria
Large	<ul style="list-style-type: none"> - Total Building Area: > 50,000 m³ - Potentially dusty construction material (e.g. concrete) - On-site crushing and screening - Demolition activities: > 20 m above ground level
Medium	<ul style="list-style-type: none"> - Total Building Area: 20,000 - 50,000 m³ - Potentially dusty construction material - Demolition activities: 10 -20 m above ground level
Small	<ul style="list-style-type: none"> - Total Building Area: < 20,000 m³ - construction material with low potential for dust release - Demolition activities: < 10 m above ground level, - Demolition occurring in wetter months

Earthworks and Construction Works

Earthworks will primarily involve excavating material, haulage, tipping and stockpiling. The classifications in Table 11 are based on examples of suitable criteria. Factors such as existing land use, topography, seasonality, duration and scale were also taken into consideration, where possible.

Table 11. Potential Earthworks Dust Emission Classification

Potential Dust Emission Classes	Criteria
Large	<ul style="list-style-type: none"> Total site area: >10,000 m² Potentially dusty soil type (e.g. clay) >10 heavy earth moving vehicle active at any one time Formation of bunds >8 m in height Total material moved >100,000 tonnes
Medium	<ul style="list-style-type: none"> Total site area: 2,500 - 10,000 m² Moderately dusty soil type (e.g. silt) 5 -10 heavy earth moving vehicle active at any one time Formation of bunds 4 - 8 m in height Total material moved 20,000 – 100,000 tonnes
Small	<ul style="list-style-type: none"> Total site area: <2,500 m² Soil type with large grain size (e.g. sand) < 5 heavy earth moving vehicle active at any one time Formation of bunds < 4 m in height Total material moved <20,000 tonnes Earthworks during wetter months

Track-out

Track-out is the transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the local road network. The classifications in Table 12 are based on examples of suitable criteria. Factors such as vehicle size, speed, numbers, geology and duration were also taken into consideration, where possible.

Table 12. Potential Track-Out Dust Emission Classification

Potential Dust Emission Classes	Criteria
Large	50 HGV (>3.5t) outward movements in any one day Potentially dusty surface material Unpaved road length > 100 m
Medium	25 – 100 HGV (>3.5t) outward movements in any one day Moderately dusty surface material Unpaved road length 50 – 100 m
Small	< 25 HGV (>3.5t) outward movements in any one day Surface material with low potential for dust release Unpaved road length < 50m

Step 2B: Define the Sensitivity of the Area

The sensitivity of the area takes account of the following factors:

- The specific sensitivities of receptors in the area;
- The proximity and number of those receptors;
- In the case of PM₁₀, the local background concentrations; and
- Site specific factors, such as whether there are natural shelters, such as trees to reduce the risk of wind-blown dust.

The sensitivity of the area is determined separately for dust soiling impacts on people and properties (Table 13) and human health impacts (Table 14).

Table 13. Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		< 20	< 50	< 100	< 350
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 -10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 14 Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration	Number of Receptors	Distance to Source				
			<20	<50	<100	<200	<350
High	>32 µg/m ³	>100	High	High	High	Medium	Low
		10 – 100	High	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	28 – 32 µg/m ³	>100	High	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	High	Medium	Low	Low	Low
	24 – 28 µg/m ³	>100	High	Medium	Low	Low	Low
		10 – 100	High	Medium	Low	Low	Low
		1 – 10	Medium	Low	Low	Low	Low
<24 µg/m ³	>100	Medium	Low	Low	Low	Low	
	10 – 100	Low	Low	Low	Low	Low	
	1 – 10	Low	Low	Low	Low	Low	

Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Step 2C: Define the Risk of Impacts

The dust emission magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of effects with no mitigation applied (Table 15 and Table 16). This Step is undertaken for each activity undertaken on site.

Table 15. Risk of Dust Impacts - Earthworks and Construction Works

Sensitivity of Area	Dust Emission Classification		
	Large	Medium	Small
High	High	Medium	Low
Medium	Medium	Medium	Low
Low	Low	Low	Negligible

Table 16. Risk of Dust Impacts - Track-out

Sensitivity of Area	Dust Emission Classification		
	Large	Medium	Small
High	High	Medium	Medium
Medium	Medium	Low	Negligible
Low	Low	Low	Negligible

Step 3: Identify the need for Site Specific Mitigation

Based on the risk of effects determined in Step 2C for each activity, appropriate site-specific mitigation measures have been identified. Appropriate mitigation measures are set out in the IAQM Guidance.

Step 4: Define impacts and their significance

Finally the significance of the potential residual dust impacts, i.e. after mitigation, was determined. According to the IAQM Guidance the residual impacts assumes that all mitigation measures (recommended in Step 3) to avoid or reduce impacts are adhered to, and therefore the residual impacts should be considered to be 'not significant'.

Appendix B : Traffic Data for Ashington Station

The project transport consultants provided the following traffic scenarios for the Proposed Development in the form of AADT and percentage HDV.

- Baseline year scenario in 2019;
- The Do-Minimum (DM) scenario in 2039 - this provides a comparison against which the “Do-Something” scenario can be compared. This scenario provides predictions for the event that the Proposed Development is not carried out and as such only includes general background growth;
- The Do-Something (DS) scenario in 2039 - this provides air quality predictions for the event that the Proposed Development is built and in operation.
- The Do-Something (DS) Sensitivity scenario in 2039 - this provides air quality predictions for the event that the Proposed Development is built and in operation with an additional 30% increase in traffic to account for traffic movements in and out of the car park associated with the Proposed Development.

This data was then converted from AADT and percentage HDVs into Light Duty Vehicles (LDVs) and Heavy Duty Vehicles (HDVs) flows, as presented in Table 17.

Table 17. Traffic Data provided by project transport consultants for Ashington Station

Link Name	2019 Base Year		2039 Do-Minimum		2039 Do-Something		2039 Do-Something Sensitivity		Speed (mph) in all scenarios ⁵	Difference in Traffic (DS Sensitivity - DM)	
	LDV ³	HDV ⁴	LDV ³	HDV ⁴	LDV ³	HDV ⁴	LDV ³	HDV ⁴		LDV ³	HDV ⁴
Station Road West	5218	161	6029	186	6144	190	6345	196	30	316	10
Kenilworth Road	1793	0	2074	0	2399	0	2399	0	20	325	0
Council Road	1121	35	1295	40	1295	40	1536	47	30	241	7
Car Park Exit	625	0	722	0	722	0	970	0	30	249	0
Station Road ¹	3832	119	4427	137	4628	143	4427	137	30	0	0
Station Road ¹	3799	158	4388	183	4587	191	4388	183	30	0	0
Station Road Average ²	3816	138	4408	160	4607	167	4408	160	30	0	0
John Street	2309	221	2667	256	2667	256	2667	256	20	0	0
Local Road	492	97	569	112	569	112	569	112	30	0	0
Station Road East	2138	44	2471	50	2673	55	2471	50	20	0	0

¹ As the traffic data was derived from turning count data, there are multiple roads with the same name. The traffic data on these links have then been averaged together to form the “average” traffic on that road, as used within the screening assessment, ² Average of two station road links (e.g. the two roads labelled ‘Station Road’ have had their traffic data averaged). This is because the traffic data was derived from turning count data, ³LDV stands for Light Duty Vehicles which includes cars and vans. LDV numbers in Annual Average Daily Traffic (AADT), ⁴HDV stands for Heavy Duty Vehicle which includes Heavy Goods Vehicles and Buses. HDV numbers in AADT, ⁵Speeds have been assumed from speed limits in the area, after a survey of Google-Street View. This data was not provided by the traffic team.

