

Air Quality Assessment

Old Town Hall, Shoreham-By-Sea

July 2023

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1. Introduction

Background

1.1 Phlorum Limited was commissioned by KSD Group to undertake an Air Quality Assessment (AQA) in support of a planning application for a proposed re-development of the Old Town Hall, Shoreham-By-Sea. The National Grid Reference for the centre of the site is 521454, 105077. A site location plan has been included in Figure 1.

1.2 It is understood that that the proposal seeks to convert the currently unused commercial lettings ('The Annexe') within the Old Town Hall into 6 self-contained residential dwellings, with one business unit to remain. Furthermore, the existing ground floor restaurant ('Chambers') will also remain.

1.3 The Old Town Hall is located adjacent to the A259 Brighton Road, within the town centre of Shoreham-By-Sea. Land use in the vicinity of the site comprises predominantly a mix of residential and commercial units, of which the majority of the latter front onto the A259 Brighton Road.

1.4 The main sources of air pollution in the vicinity of the site are motor vehicles travelling on the local road network, particularly the adjacent A259 Brighton Road.

1.5 Adur District Council (CDC) have declared two Air Quality Management Areas (AQMAs) within their administrative boundary. The Shoreham AQMA, of which the application site is situated within, was declared in 2005 due to exceedances of the UK Air Quality Standard (AQS) for annual mean nitrogen dioxide (NO_2).

Scope of Assessment

1.6 The focus of this report is the assessment of the suitability of the site, in air quality terms, for its proposed residential use. Further assessment of the potential for traffic generated by the proposed development to impact local air quality is also presented.

1.7 This report also includes an assessment of the potential for dust nuisance and soiling impacts to occur due to the re-development of the Old Town Hall.

1.8 An Emissions Mitigation Assessment (EMA), in line with guidance from the Sussex-Air Partnership, was also undertaken, influencing recommendations for suitable mitigation measures to further reduce potential impacts associated with development traffic emissions.

2. Policy Context

The UK Air Quality Strategy

2.1 The UK Air Quality Strategy (UKAQS)[1] sets out air quality standard (AQS) concentrations for a number of key pollutants that are to be achieved at sensitive receptor locations across the UK by corresponding air quality objective (AQO) dates. The sensitive locations at which the standards and objectives apply are those where the population are reasonably expected to be exposed to said pollutants over the particular averaging period.

2.2 For those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to compare concentrations against the standards are areas of residential housing. It is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time.

2.3 Schools and children's playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to the pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time. A summary of the AQS relevant to this assessment are included in Table 2.1, below.

Table 2.1 UK Air Quality Standards and Objectives

Pollutant	Averaging Period	Air Quality Standard (µg.m^{-3})	Air Quality Objective
Nitrogen dioxide (NO_2)	1 hour	200	200 µg.m^{-3} not to be exceeded more than 18 times a year
	Annual	40	40 µg.m^{-3}
Particulate Matter (PM_{10})	24-hour	50	50 µg.m^{-3} not to be exceeded more than 35 times a year
	Annual	40	40 µg.m^{-3}
Particulate Matter ($PM_{2.5}$)	Annual	20	20 µg.m^{-3}

1 Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007.

2.4 The objectives adopted in the UK are based on the Air Quality (England) Regulations 2000[2], as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.

2.5 The UK AQS for $PM_{2.5}$ was amended as part of the Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020[3].

2.6 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.

2.7 ADC produced its latest AQAP[4] in 2007, outlining the actions and strategies being implemented to reduce pollutant emissions and subsequent concentrations across the district, particularly within their designated AQMAs.

National Planning Policy Framework

2.8 The National Planning Policy Framework (NPPF)[5], which was updated in July 2021, sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should "contribute to conserve and enhance the natural and local environment" as demonstrated at paragraph 174:

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

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped costs, while improving public access to it where appropriate;

2 The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.
3 The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020
4 Adur District Council. (2007). *Air Quality Action Plan 2007*.
5 Ministry of Housing, Communities & Local Government. (2021). *National Planning Policy Framework*.

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

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

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."

2.9 The NPPF goes on to state the following at paragraph 185:

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

2.10 With regard to a compliance with relevant limit values and national objectives for air pollutants, along with assessing cumulative effects the NPPF states the following at paragraph 186:

"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 to mitigate impacts should be identified, such as though 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."

2.11 Regarding potential adverse impacts generated by development, the NPPF states the following:

"[...] Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

2.12 The NPPF offers a broad framework but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

National Planning Practice Guidance

2.13 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)[6], which was updated in July 2021, provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.

2.14 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision, stating:

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

- *Lead to changes (including any potential reductions) in vehicle-related emissions in the immediate vicinity of the proposed development or further afield. This could be through the provision of electric vehicle charging infrastructure; altering the level of traffic congestion; significantly changing traffic volumes, vehicle speeds or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; could add to turnover in a large car park; or involve construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more;*

- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; biomass boilers or biomass-fuelled Combined Heat and Power plant; centralised boilers or plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area; or extraction systems (including chimneys) which require approval or permits under pollution control legislation;*

- *Expose people to harmful concentrations of air pollutants, including dust. This could be by building new homes, schools, workplaces or other development in places with poor air quality;*

6 Planning Practice Guidance (PPG) 32. (2021). *Air Quality*.

- *Give rise to potentially unacceptable impacts (such as dust) during construction for nearby sensitive locations;*
- *Have a potential adverse effect on biodiversity, especially where it would affect sites designated for their biodiversity value."*

2.15 Details are also provided of what should be included within an air quality assessment. Key considerations include:

- Baseline local air quality;
- Whether the proposed development could significantly affect local air quality during its construction/operation; and
- Whether the development is likely to expose more people to poor air quality.

2.16 Examples of potential air quality mitigation measures are also provided in the PPG.

Local Planning Policy

2.17 The Adur Local Plan[7] is ADC's key planning document, outlining policies with the intention of guiding development within the district through to 2032. The Local Plan contains a number of policies of both direct and indirect relevance to air quality, including the following:

Policy 28: *Transport and Connectivity*

"In order to secure significant improvements to transport and mobility in Adur, new development should: […]

- *Ensure that new development is located and designed to minimise the need for travel, facilitates and promotes the use of sustainable alternative to the private car, and provides or contributes to the necessary infrastructure to serve the development and to mitigate against any adverse impacts to an acceptable level. […]*
- *Ensure new development contributes to the mitigation of air pollution, particularly in Air Quality Management Areas. Air quality assessments may be required."*

Policy 34: *Pollution and Contamination*

"Development should not result in pollution or hazards which prejudice the health and safety of the local community and the environment, including nature conservation interests and the water environment.

7 Adur District Council. (2017). *Adur Local Plan 2017*.

New development in Adur will be located in areas most suitable of that development to avoid risks from noise, air, odour or light pollution.

Mitigation measures will need to be implemented for developments that could increase levels of pollution or have a negative impact on drinking water supplies in Adur. Where there are significant levels of increased pollution that cannot be mitigated, development will be refused.

Where appropriate, air quality assessments and/or noise assessment will be required in conjunction with development proposals. […]"

3. Baseline Assessment

3.1 This chapter is intended to establish prevailing air quality conditions in the vicinity of the application site. Baseline air quality conditions in the vicinity of the site have been established through the compilation and review of appropriately sourced background concentration estimates and local monitoring data.

3.2 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website[8]. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km^2 National Grid square locations across the UK. At the time of writing, the most recent background maps were from August 2020 and based on monitoring data from 2018.

3.3 Being background concentrations, the UK-AIR data are intended to represent a homogenous mixture of all emissions sources within the general area of a particular grid square location. Concentrations of pollutants at various sensitive receptor locations can, therefore, be calculated by modelling the emissions from a nearby pollution source, such as a busy road, and then adding this to the appropriate UK-AIR background datum.

3.4 ADCs automatic and non-automatic local pollutant monitoring data are also considered an appropriate source for establishing baseline air quality. The most recent available data from ADCs and Worthing Borough Council's (AWCs) joint *2022 Air Quality Annual Status Report (ASR)*[9] have been included and referenced in this report.

UK-AIR Background Pollution

3.5 UK-AIR predicted background concentrations of NO_2, PM_{10} and $PM_{2.5}$ for 2019 to 2024 are presented in Table 3.1. These data were taken from the central grid square location closest to the application site (i.e. National Grid Reference: 521500, 105500).

8 Defra. (2020). *UK Air Information Resource Website (UK-AIR).*
9 Adur & Worthing Councils. (2022). *2022 Air Quality Annual Status Report.*

Table 3.1: 2019 to 2024 Background Concentrations of Pollutants at the Application Site.

Pollutant	Predicted Background Concentration (µg.m^{-3})						Averaging Period	Air Quality Standard Concentration (µg.m^{-3})
	2019	2020	2021	2022	2023	2024		
NO_2	12.4	11.9	11.4	11.0	10.7	10.2	Annual Mean	40
PM_{10}	14.6	14.3	14.1	13.9	13.8	13.6	Annual Mean	40
$PM_{2.5}$	10.2	10.0	9.9	9.7	9.6	9.4	Annual Mean	20

3.6 The data in Table 3.1 show that annual mean background concentrations of NO_2, PM_{10} and $PM_{2.5}$, in the vicinity of the application site between 2019 and 2024, are predicted to be well below their respective AQSs.

3.7 The data show that in 2023, NO_2, PM_{10} and $PM_{2.5}$ concentrations are predicted to be below their respective AQSs by 73%, 66% and 52% respectively. As such, annual mean background pollutant concentrations are likely to be below their respective AQSs at the application site.

3.8 Concentrations of all three pollutants are predicted to decline each year. These reductions are principally due to the forecast effect of the roll out of cleaner vehicles, but also due to UK national and international plans to reduce emissions across all sectors.

Local Sources of Monitoring Data

3.9 Air quality monitoring is considered an appropriate source of data for the purposes of describing baseline air quality. At the time of writing, the most recent *ASR*[9] released by AWC included local pollutant monitoring data from 2021.

3.10 However, due to the uncertainty surrounding the impacts associated with COVID-19 on emissions and subsequent levels of pollution across the UK, this baseline review has focused on local pollutant monitoring data from 2019, despite more recent monitoring data being available.

Automatic Monitoring

3.11 ADC and WBC undertook automatic (continuous) pollutant monitoring for NO_2 at two sites within their respective authority boundaries in 2019. The most recent available data from the closest automatic monitoring station to the application site, AD1, has been included in Table 3.2, below.

Table 3.2: NO_2 Data from AWC's AD1 Automatic Monitoring Station

Monitor	Type	Distance to Site (km)	Annual Mean NO_2 Concentration (µg.m^{-3})			
			2018	2019	2020	2021
AD1	K	<0.1	29.2	26.0	20.0	19.6

Note: "K" = Kerbside.

3.12 The data in Table 3.2 show a general decrease in NO_2 concentrations at monitor AD1 between 2018 and 2021, with a particularly substantial reduction observed in 2020 relative to 2019; likely due to COVID-19 associated impacts on vehicular traffic and industry.

3.13 In 2019, AD1 recorded an annual mean NO_2 concentration of 26.0 $\mu g.m^{-3}$, which is below the 40.0 $\mu g.m^{-3}$ AQS by 35%. Located adjacent to the A259 Brighton Road within the Shoreham AQMA, alike the application site, this monitor is distanced approximately 50m to the west of the Old Town Hall.

3.14 Automatic (continuous) monitoring of PM_{10} was also undertaken at monitoring station AD1. The most recent available data from this automatic monitor is included in Table 3.3, below.

Table 3.3: PM_{10} Data from AWC's AD1 Automatic Monitoring Station

Monitor	Type	Distance to site (km)	Annual mean PM_{10} concentration ($\mu g.m^{-3}$)			
			2018	2019	2020	2021
AD1	K	<0.1	23.0	24.3	22.0	24.2

Note: "K" = Kerbside.

3.15 The data in Table 3.3 show that annual mean concentrations of PM_{10} at AWC's AD1 automatic monitoring station have, in recent years, been well below the 40.0 $\mu g.m^{-3}$ AQS, recording a concentration of 24.3 $\mu g.m^{-3}$ in 2019; 39% below this respective threshold. The data show that annual mean PM_{10} concentrations recorded at this automatic monitoring station have remained relatively consistent throughout the monitoring period.

3.16 Furthermore, automatic (continuous) monitoring of $PM_{2.5}$ is also undertaken at monitor AD1. The most recent available data from this automatic monitor are included in Table 3.4, below.

Table 3.4: $PM_{2.5}$ Data from AWC's AD1 Automatic Monitoring Station

Monitor	Type	Distance to site (km)	Annual mean PM_{10} concentration ($\mu g.m^{-3}$)			
			2018	2019	2020	2021
AD1	K	<0.1	-	-	-	16.2

3.17 The data in Table 3.4 show that the recording of $PM_{2.5}$ at AD1 only began in 2021. In this year, a concentration of 16.2 $\mu g.m^{-3}$ was recorded; below the 20.0 $\mu g.m^{-3}$ AQS by 19%.

Non-Automatic Monitoring

3.18 AWC operate an extensive non-automatic, NO_2 diffusion tube monitoring network at strategic locations within their respective authority boundaries. The most recent available NO_2 monitoring data for all diffusion tubes within 1.0km of the site are included in Table 3.5, below. Furthermore, diffusion tubes located within the direct vicinity of the application site are spatially presented within Figure 1 of the appendices.

Table 3.5: Monitoring Data from AWC's NO_2 Diffusion Tubes Within 1.0km of the Application Site

Monitor	Type	Distance from the Site (km)	NO_2 Annual Mean Concentration ($\mu g.m^{-3}$)			
			2018	2019	2020	2021
S50	R	0.0	-	-	-	22.2
S17	K	0.1	33.7	30.4	24.3	25.4
S46	R	0.1	-	-	18.3	18.8
S47	R	0.1	-	-	16.3	16.8
S36	R	0.3	26.6	24.3	18.3	19.4
S43	R	0.4	-	22.5	16.6	18.4
S37	R	0.7	32.6	29.1	23.4	23.8
S45	R	0.9	-	19.1	15.9	17.2

Note: "K" = Kerbside; "R" = Roadside.

3.19 The data in Table 3.5 shows that annual mean concentrations of NO_2 at all diffusion tubes within 1.0km of the application site were all below the respective 40.0 $\mu g.m^{-3}$ AQS between 2018 and 2021.

3.20 The closest diffusion tube to the development site that recorded data in 2019, monitor S17, is located at a kerbside location adjacent to the A259 Brighton Road; approximately 50m to the west of the application site. In 2019, this diffusion tube recorded an annual mean NO_2 concentration of 30.4 $\mu g.m^{-3}$, below the 40.0 $\mu g.m^{-3}$ AQS by 24%. Monitor S17 recorded the highest concentration of NO_2 in 2019 out of each of ADC's non-automatic monitors located within 1.0km of the application site.

3.21 Monitor S50, located approximately 20m to the east of the application site, is positioned within a roadside setting adjacent to the A259 Brighton Road; alike the Old Town Hall. Monitoring data at this location is only available for 2021, when a concentration of 22.2 $\mu g.m^{-3}$ was recorded; below the respective AQS by 45%.

4. Assessment Methodology

Guidance

4.1 Defra's Local Air Quality Management Technical Guidance (LAQM.TG(22))[10] was followed in carrying out the assessment.

4.2 Guidance published by the IAQM on the *Assessment of Dust from Demolition and Construction*[11] was also used to assess the risk of dust emissions during the construction phase of the proposed development.

4.3 The Greater London Authority's (GLA) Supplementary Planning Guidance (SPG) on *The Control of Dust and Emissions During Construction and Demolition*[12] has also been referred to, which is considered best practice guidance for London and the wider UK. It details a number of mitigation measures that should be adopted to minimise adverse impacts from emissions of dusts and fine particles.

4.4 The latest Environmental Protection UK & IAQM guidance on *Planning for Air Quality*[13] was also referred to throughout the assessment.

4.5 Defra's *Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance*[14] was used within this assessment to establish the suitability of the site for the proposed residential end use.

4.6 ADC is a member of the Sussex-Air partnership, and therefore the *Air Quality and Emissions Mitigation Guidance for Sussex* (2021)[15] (AQEMGFS) has been followed when undertaking the emissions mitigation assessment and discussing potential mitigation measures, where required.

Construction Phase

4.7 The construction phase of the proposed development will involve a number of activities that could potentially produce polluting emissions to air. Predominantly, these will be emissions of dust. However, they could also include releases of odours and/or more harmful gases and particles.

4.8 The IAQM's guidance to assess the impacts of construction on human and ecological receptors has been followed in carrying out this air quality assessment.

10 Defra. (2022). *Local Air Quality Management, Technical Guidance LAQM. TG(22)*.
11 Institute of Air Quality Monitoring. (2014). *Guidance on the Assessment of Dust from Demolition and Construction*.
12 Greater London Authority. (2014). *The Control of Dust and Emissions During Construction and Demolition*.
13 Environmental Protection UK & Institute of Air Quality Management. (2017). *Land-Use Planning & Development Control: Planning for Air Quality*.
14 AEA Energy and Environment. (2008). *Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guide for Laboratories and Users.*
15 Sussex-Air. (2021). *Air Quality and Emissions Mitigation Guidance for Sussex*.

4.9 The guidance suggests that where a receptor is located within 350m (50m for statutory ecological receptors) of a site boundary and/or 50m of a route used by construction vehicles, up to 350m from the site entrance, a dust assessment should be undertaken. Figure 2 shows receptors that could be sensitive to dust that are located within 350m of the boundary of the site.

4.10 High sensitivity receptors are considered particularly sensitive when located within 20m of a works area.

4.11 The Multi Agency Geographic Information for the Countryside (MAGIC) website[16], which incorporates Natural England's interactive maps, has been reviewed to identify whether any statutory ecological sensitive receptors are situated within 50m of the site boundary or within 50m of any routes used by construction vehicles on the public highway, up to 350m from the site entrance.

Construction Significance

4.12 The IAQM guidance suggests that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.

4.13 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a "technically competent assessor". The construction phase assessment therefore relies on the experience of the appraiser.

4.14 As such, attempts to define precisely what constitutes a *Negligible*, *Small*, *Medium* or *Large* dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and duration, the construction materials and the plant to be used must be considered.

4.15 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:

"the sensitivity of the area takes into account a number of factors:

- *the specific sensitivities of receptors in the area;*
- *the proximity and number of those receptors;*
- *in the case of PM_{10}, the local background concentrations; and*

16 Natural England and MAGIC partnership Organisations. (2022). *Multi Agency Geographic Information for the Countryside*.

- *site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."*

4.16 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.

4.17 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the stages assessed. Again, this is subject to professional judgement.

4.18 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the site will also be released. However, the volumes and periods over which these releases will occur are unlikely to result in long-term impacts on local air quality and therefore this has been scoped out of the assessment.

Operational Phase

Road Transport Sources

4.19 Vehicle emissions will arise from the combustion of fossil fuels in vehicle engines and their subsequent release to atmosphere via tailpipe exhausts. The most significant pollutants released by cars and other vehicles are oxides of nitrogen (NO_2/NO_x) and particulate matter (PM_{10} and $PM_{2.5}$). Releases of carbon monoxide (CO) and some volatile hydrocarbons (e.g. benzene and 1,3-butadiene) are of less significance and are not considered further in this report.

4.20 As it is elevated annual mean concentrations of NO_2 and PM_{10} that have resulted in the declaration of most AQMAs across the UK, these are the pollutants of most concern and they have therefore been the focus of this air quality assessment. $PM_{2.5}$, which is another fraction of particulate matter, has also been considered.

4.21 The latest EPUK & IAQM planning guidance[13] provides indicative thresholds for changes in traffic flows which would require a detailed, dispersion modelling air quality assessment. These are a change in 24-hour annual average daily traffic (AADT) flows exceeding 100 light-duty vehicles (LDVs) and/or 25 heavy-duty vehicles (HDVs) within an AQMA, or 500 LDVs and/or 100 HDVs elsewhere.

4.22 Full justification behind the screening assessment of air quality related impacts on existing sensitive receptors in the local area has been provided in Section 6 of this report.

Emissions Mitigation Assessment

4.23 Sussex-Air's Air Quality Planning Guidance[15] advocates that an Emissions Mitigation Assessment (EMA) should be undertaken to outline how air quality impacts from development emissions can be minimised.

4.24 The purpose of an EMA is to determine an 'appropriate scale and kind' of mitigation required from a development. An EMA sets out a methodology to assess the impact of a development's emissions on air quality and provides an approach to mitigating emissions for developments, even those which have no significant impact on local air quality.

4.25 As the proposed development is located within the Shoreham AQMA, an EMA with an emissions cost calculation was required to be undertaken. The emissions cost calculation was undertaken following the Sussex AQEMGFS and Defra's Damage Cost guidance[17]. The latest Defra Air Quality Damage Cost Appraisal Toolkit[18] was utilised in the assessment.

Emissions Cost Calculation

4.26 The emissions calculation utilised the latest Defra Emissions Factors Toolkit (EFT)[19] to determine the total transport related emissions (NO_X & $PM_{2.5}$) that would be generated by the proposed development.

4.27 Defra provides *Damage Costs*, which are set of impact values, defined per tonne of pollutant for use in this calculation. Damage costs estimate the societal costs associated with changes in pollutant emissions and are then combined with the forecasted emissions changes to provide an approximate valuation of the cost (or benefit) to society caused by a development's associated traffic emissions.

4.28 Noting that no transport consultant was appointed for this project, it was recommended by Adur's EHO that a similar approach undertaken for an Air Quality Assessment for a nearby, similarly sized residential re-development (AWDM/1996/20) be adopted when conducting the required EMA. Therefore, the trip generation per residential unit from the application listed above was multiplied by the total number of residential units proposed, as a result of the re-development of the Old Town Hall.

4.29 Defra's Appraisal Toolkit[18], which incorporates the latest damage cost values, was used in the calculation. The principal of the calculation is summarised in the equation below:

EFT output x Damage costs x 5 years = 5 year exposure cost value (in £)

4.30 As a number of the inputs are based on assumptions, the resulting figure should be treated with caution, but it can be used to give an idea of the scale of a development in terms of total generated transport emissions and therefore a gauge of what level of mitigation might be appropriate.

4.31 It is usual for costs established in this way to be apportioned to low emission measures associated with a proposed development. In doing this it should be possible for damage costs to be offset.

17 Defra. (2023). *Defra Damage Cost*.
18 Defra. (2022). *Air Quality Damage Cost Appraisal Toolkit*.
19 Defra. (2021). *Emissions Factor Toolkit (V11.0)*.

Consultation

4.32 ADC's Environmental Health Officer (EHO) was contacted on the 26th of June 2023 to discuss and agree the proposed scope of the assessment. A response was received on the 6th of July 2023 stating that the proposed scope of assessment was considered acceptable.

4.33 ADC's EHO stipulated that an EMA was required, noting the location of the proposed re-development within the Shoreham AQMA, despite no available development-specific traffic generation data being available. Therefore, and as referenced above, it was suggested by Adur's EHO that the EMA be undertaken using the approach and available traffic data from a nearby, similarly sized residential development (AWDM/1996/20).

5. Construction Phase Impacts

5.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust.

5.2 The estimates for the dust emission magnitude for demolition, earthworks, construction and trackout below are based on the professional experience of Phlorum's consultants, information provided by the client and Google Earth imagery.

Dust Emission Magnitude

Demolition

5.3 There will be no requirement for demolition ahead of the proposed re-development of the existing Old Town Hall. Therefore, the demolition phase will not be considered further within this report.

Earthworks

5.4 Furthermore, there will be no requirement for any Earthworks throughout the construction phase and, therefore, this phase will not be considered further within this report.

Construction

5.5 Localised use of cement powder and general handling of construction materials also have the potential to generate dust emissions, as does the effect of wind-blow from stockpiles of friable materials.

5.6 It is estimated that the total building volume of the residential units to be re-developed will be below 25,000m^3, falling within the IAQM's *Small* dust emission magnitude category[11]. The overall dust emission magnitude for the construction phase is therefore considered to be *Small*.

Trackout

5.7 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and to also add soil to the local road network. During dry weather, soiled roads can lead to dust being emitted due to physical and turbulent effects of vehicles. When accessing the site during construction, vehicles will use Town Quay; an existing road located to the west of the Old Town Hall. It is therefore expected that only paved road surfaces will be utilised during the construction phase.

5.8 The exact number of construction related HDV movements is currently unknown, but it is unlikely that more than 10 HDVs would access the application site each day during the internal re-development.

5.9 Therefore, considering the above, and with reference to the IAQM guidance, the dust emission magnitude for the trackout phase is considered to be *Small.*

Emission Magnitude Summary

5.10 A summary of the dust emission magnitude as a result of the activities of the Construction and Trackout phases as specified in the IAQM guidance, and discussed above, are listed in Table 5.1 below. As discussed above, no demolition or earthworks are proposed and therefore these elements are not considered further.

Table 5.1: Dust Emission Magnitude for the Construction Activities, Based on the IAQM's Guidance.

Activity	Dust Emission Magnitude
Construction	Small
Trackout	Small

Sensitivity of the Area

5.11 Having established the emission magnitudes for each phase above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor.

5.12 High sensitivity human receptors include residential dwellings, schools, and hospitals, but can also include locations such as car showrooms when considering the impacts of dust soiling. Medium sensitivity receptors include locations where individuals would expect to enjoy a reasonable level of amenity, but not the same level as would be expected in their homes, examples include workplaces and parks.

5.13 The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source and conditions are dry.

5.14 With the exponential decline in dust concentrations with distance from dust generating activities, it is considered that for receptors more than 350m from the site boundary, the risk is negligible. Furthermore, the risks at over 100m only have the potential to be significant in certain weather conditions (e.g. downwind of the source during dry periods).

5.15 The approximate number of high sensitivity human receptors in the vicinity of the site are detailed in Table 5.2 below and shown in Figure 2.

Table 5.2: Approximate Number of High Sensitivity Receptors Within 350m of the Application Site.

Distance to site (m)	Number of *High Sensitivity* Receptors	Receptor Details
<20	Approx. 25	Residential Dwellings
<50	Approx. 55	Residential Dwellings
<100	>150	Residential Dwellings
<350	>500	Residential Dwellings; Mini Motor Sports Centre; Shoreham Health Centre; Harbour View Healthcare; Church View Surgery; Happy Hours Nursery; and Sunshine Day Nursery.

5.16 Figure 3 shows that the predominant wind direction at the closest relevant meteorological station at Shoreham Airport (2019) is from the south-west, with stronger, but less frequent, winds from the north also. There are numerous high sensitivity receptors within 20m of the site downwind, namely residential dwellings that line the banks of the River Adur, and as such, the sensitivity of the area to dust soiling impacts can be defined as *High.*

5.17 UK-AIR have predicted annual mean concentrations of PM_{10} below 24.0 $\mu g.m^{-3}$ within the vicinity of the site between 2019 and 2024[20]. However, ADC's nearby automatic monitoring station, AD1, recorded an annual mean PM_{10} concentrations of 24.3 $\mu g.m^{-3}$ in 2019. Noting the close proximity of this monitor to the application site, and that it is located adjacent to the same road link (pollutant source) as the Old Town Hall, this recorded concentration should be considered largely representative of baseline PM_{10} conditions at the application site. Noting that there are approximately 25 sensitive receptors within 20m of the site boundary, the sensitivity of the area to human health impacts is defined as *High*; with reference to IAQM guidance[11].

5.18 Review of the MAGIC website[16], which incorporates Natural England's interactive maps, has identified that the Adur Estuary Site of Special Scientific Interest (SSSI) is located approximately 20m to the south of the application site boundary. Therefore, the proposed re-development can be considered to have a *Medium* impact on the nearby Adur Estuary SSSI, based on its ecological designation and distance from the application site.

20 The 24.0$\mu g.m^{-3}$ 'threshold' is taken from Table 3 of the IAQM's construction dust guidance. This threshold, along with the number of receptors, their sensitivity, and their distance from source (construction site), helps establish the sensitivity of an area in terms of potential human health impacts from exposure to PM_{10}. According to the guidance, baseline annual mean PM_{10} concentrations below 24.0$\mu g.m^{-3}$ indicate that the sensitivity of the area in terms of human health impacts is *Low* in all cases except when there are a large number (>100) of highly sensitive receptors within 20m of the construction site.

Risk of Impacts

5.19 Having established the potential dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 5.3, below.

Table 5.3: Summary of Impact Risk by Construction Stage Based on the IAQM's Dust Guidance.

Stage	Impact Risk		
	Nuisance Dust	PM_{10} Health Effects	Ecology
Construction	Low Risk	Low Risk	Low Risk
Trackout	Low Risk	Low Risk	Negligible Risk

5.20 Overall, and for conservative purposes, the proposed development is considered to be *Low Risk* for nuisance dust soiling effects, PM_{10} health effects and impacts on nearby ecological receptors, in the absence of mitigation.

Site Specific Mitigation

5.21 The GLA guidance[12] suggests a number of mitigation measures that should be adopted in order to minimise impacts from dusts and fine particles. Appropriate measures that could be included during construction of the proposed development include:

- ideally cutting, grinding and sawing should not be conducted on-site and pre-fabricated material and modules should be brought in where possible;
- where such work must take place, water suppression should be used to reduce the amount of dust generated;
- skips, chutes and conveyors should be completely covered and, if necessary, enclosed to ensure that dust does not escape;
- no burning of any materials should be permitted on site;
- any excess material should be reused or recycled on-site in accordance with appropriate legislation;
- developers should produce a waste or recycling plan;
- hard surfaces should be used for haul routes where possible;
- haul routes should be swept/washed regularly;
- vehicle wheels should be washed on leaving the site;
- all vehicles carrying dusty materials should be securely covered; and

- delivery areas, stockpiles and particularly dusty items of construction plant should be kept as far away from neighbouring properties as possible.

5.22 In addition, the IAQM lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended mitigation measures for *Low Risk* sites are included in Appendix A of this report.

5.23 Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures should be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of activities that are likely to generate a particularly significant amount of dust.

Residual Effects

5.24 After the implementation of the mitigation measures listed above and in Appendix A, the significance of each phase of the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*.

6. Operational Phase

Site Suitability

6.1 The primary source of air pollution in the vicinity of the application site is motor vehicles travelling on the local road network, namely the A259 Brighton Road.

6.2 Department for Transport (DfT) traffic counts are available for the A259 Brighton Road[21], which runs adjacent to the proposed development site. Traffic counts indicate that the A259 Brighton Road hosted Annual Average Daily Traffic (AADT) flows of 17,668 vehicles in 2019, and as such, it can be classified as a *Busy* road; as per the AEA guidance[14].

6.3 The closest proposed residential unit will be located approximately 3.5m from the westbound carriageway of the aforementioned road link, and as such, the site is considered, according to the criteria outlined within the AEA guidance[14], to be located in a *Roadside* setting with respect to this pollutant source.

6.4 As the Site can be reasonably considered to be set in a *Roadside* location, it is expected that pollutant concentrations across these areas are likely to be similar to those identified at roadside monitoring sites within the vicinity of the application site.

6.5 As presented in their latest *ASR*[9] (2022), ADC operate one automatic monitor (AD1) and two diffusion tubes (S17 and S50) within approximately 50m of the Old Town Hall; all of which are located directly adjacent to the A259 Brighton Road.

6.6 The highest NO_2 concentration recorded in 2019 at each of these three monitors was at ADC's diffusion tube S17, located approximately 50m to the west of the application site. In 2019, an annual mean NO_2 concentration of 30.4 $\mu g.m^{-3}$ was recorded; 24% below the respective AQS. In contrast, at ADC tube 50, located approximately 20m to the east of the application site, an annual mean NO_2 concentration of 22.2 $\mu g.m^{-3}$ was recorded in 2019; 45% below the respective AQS.

6.7 Noting their location in close proximity to the application site, baseline concentrations of NO_2 at the Old Town Hall are likely to be representative of the range of concentrations recorded at each of these three monitors (22.2 $\mu g.m^{-3}$ - 30.4 $\mu g.m^{-3}$). Assuming that the most 'representative' concentration of baseline NO_2 at the Old Town Hall was recorded at diffusion tube S17, for conservative purposes, baseline concentrations at the application site would still be well below the respective long-term AQS for NO_2.

21 Department for Transport. (2023). *Manual Count Point 56668*. Available at: https://roadtraffic.dft.gov.uk/manualcountpoints/56668

6.8 It should also be noted that all proposed residential dwellings will be located above ground-floor level, and thus baseline concentrations at these receptors are likely to be further reduced in comparison to roadside concentrations; the result of greater pollutant dispersion with increasing height.

6.9 Automatic monitor AD1, located approximately 50m to the west of the application site, is the only monitor that recorded concentrations of PM_{10} within ADC's authoritative boundary throughout the 2018 to 2021 monitoring period. In 2019, an annual mean PM_{10} concentration of 24.3 $\mu g.m^{-3}$ was recorded; 39% below the respective 40.0 $\mu g.m^{-3}$ AQS. It is therefore unlikely that exceedances of the annual mean AQS for PM_{10} will be exceeded at the application site.

6.10 Although AD1 does undertake continuous monitoring of $PM_{2.5}$ concentrations, monitoring only commenced in 2021. In this year, an annual mean concentration of 16.2 $\mu g.m^{-3}$ was recorded; 19% below the respective 20.0 $\mu g.m^{-3}$ AQS. It is therefore unlikely that exceedances of the annual mean AQS for $PM_{2.5}$ will be exceeded at the application site.

6.11 Furthermore, within HM Government's Environmental Improvement Plan 2023[22] (page 78), maps displaying modelled $PM_{2.5}$ concentrations across England highlight the contribution and scale of both anthropogenic and non-anthropogenic $PM_{2.5}$ sources and their influence on overall baseline concentrations across the country. Produced by Imperial College London, these maps indicate that, within the Adur region, approximately 4–6 $\mu g.m^{-3}$ of the total recorded baseline $PM_{2.5}$ concentration would typically comprise $PM_{2.5}$ contributions from natural sources, international shipping, and transboundary European pollution.

6.12 UK-AIR background pollutant concentration estimates further indicate that NO_2, PM_{10}, and $PM_{2.5}$ concentrations across the development site are likely to be well below their relevant AQSs and are expected to decrease further in future years.

6.13 As such, despite being located adjacent to a busy road, in a roadside setting, local monitoring data and national mapped pollutant concentration data indicate that the site is anticipated to be suitable for the introduction of new receptors that are relevant for the proposed end use (residential units).

Impact on Local Air Quality

6.1 The latest EPUK & IAQM planning guidance[13] provides indicative thresholds for changes in traffic flows which would require a detailed air quality assessment. These are a change in annual average daily traffic (AADT) flows of >100 LDVs and/or >25 HDVs when situated within the boundaries of an AQMA and >500 LDVs and/or >100 HDVs on roads outside these designated management areas.

22 HM Government. (2023). *Environmental Impact Plan 2023*.

6.2 No transport consultant was appointed for this project and, therefore, the projected number of traffic flows associated with the re-development of the Old Town Hall is unknown.

6.3 However, nearby Planning Application AWDM/1996/20, encompassing the development of 5 no. residential units with no additional parking provision, was anticipated by the project's respective Air Quality Consultants to generate total AADT flows of 13 (0 HDVs). As 6 no. residential units are proposed as a result of the re-development of the Old Town Hall, it can be reasonably assumed that traffic flows generated by these units are likely to be marginally greater than those generated by Application AWDM/1996/20.

6.4 With this in mind and noting that the proposed development is 'car-free', it is highly unlikely that any traffic generation associated with the re-development will exceed the indicative EPUK & IAQM thresholds on any specific road link within the Shoreham AQMA. Therefore, the proposed development can be reasonably assumed to have an insignificant impact on local air quality.

7. Emissions Mitigation Assessment

Emission Cost Calculation

7.1 Following the 2023 update to Defra's Emissions Cost Calculation guidance[17], the emissions cost calculation below has been carried out to estimate the value of the impact of NO_x and $PM_{2.5}$ emitted as a result of the proposed development. Defra's 2023 update of the calculation puts greater emphasis on $PM_{2.5}$ as it is deemed to have greater health implications. As such, the calculation has costed for the impacts of NO_x and $PM_{2.5}$.

7.2 To evaluate the scale of a proposed development's total emissions, Defra recommends an emissions cost calculation using the following formula:

Road Transport Emission Increase (Cost, £) =

Estimated trip rate for 5 years × Emission Rate/10km/vehicle type × Damage Costs

7.3 The latest Defra Emissions Factor Toolkit was used to determine the total transport related emissions that would be generated by the proposed development; the inputs used in the calculation are shown in Table 7.1, below. 2024 is the anticipated opening year of the proposed development, so the five-year period used in the calculation runs from 2024 to 2028 inclusive.

Table 7.1: Calculation Inputs

Input	Value	Unit	Source/guidance
Trip Length	10	km	AQEMGFS
Development Traffic Flow	16 (0 HDVs)	AADT	Traffic Data derived from the Air Quality Assessment for AWDM/1996/20 (Suggested by Adur EHO)
EFT Road Type	Urban (not London)	-	EFT
EFT Year	2024 – 2028	-	In line with EFT estimates
Average Speed	50	$km.hr^{-1}$	AQEMGFS
Appraisal period	5	years	AQEMGFS

7.4 The total emission 'damage' cost was calculated using Defra's appraisal toolkit and is presented in Tables 7.2 and 7.3.

7.5 The calculation accounts for an 'uplift factor' of 2% cumulatively per annum and a 'discount rate', in line with the latest 2023 guidance[17]. Central estimate damage costs for '*Road Transport Urban Medium*' were based on Defra 2023 prices.

Table 7.2: Emission Cost Calculation for NO_x

	2024	2025	2026	2027	2028
NO_X increase (tonnes)	0.0109	0.0099	0.0089	0.0080	0.0071
Central Damage cost (NO_X)	£9,339	£9,339	£9,339	£9,339	£9,339
Adjusted Damage cost (NO_X)	£102	£91	£80	£71	£63
Total	**£407**				

Table 7.3: Emission Cost Calculation for $PM_{2.5}$

	2024	2025	2026	2027	2028
$PM_{2.5}$ increase (tonnes)	0.0010	0.0010	0.0010	0.0010	0.0010
Central Damage cost ($PM_{2.5}$)	£65,771	£65,771	£65,771	£65,771	£65,771
Adjusted Damage cost ($PM_{2.5}$)	£67	£66	£65	£64	£62
Total	**£324**				

7.6 The total damage costs are summarised as follows:

NO_X emission 'damage' cost' = £407 +

$PM_{2.5}$ emission 'damage' cost' = £324

TOTAL (cost, £) = £731

Mitigation

7.7 The resulting value of the 'emissions cost', as calculated above, is indicative of the value of an appropriate package of mitigation measures to minimise any potential impacts from the proposed development. The mitigation package should at least equate to this 'emissions cost'.

7.8 Noting that the re-development will not include any additional parking for the six residential units, no provision of electric vehicle charging infrastructure has been proposed. Noting the location of the Old Town Hall within the town centre of Shoreham-By-Sea, and its location in close proximity to the town's railway station, the use of public transport will be actively encouraged. A welcome pack for all new occupants will be available, encouraging the use of sustainable transport modes.

7.9 In addition to this, the developer is committed to providing cycle storage facilities to further encourage the use of non-emitting transport modes.

7.10 The proposed heating strategy will be implemented on a design and build basis; however, it should be aligned with the criteria stated within AQEMGFS[15]. This stipulates that the heating strategy should ensure that:

"All gas-fired boilers are expected to meet a minimum standard of <40mgNO_x/kWh, with consideration given to renewable energy sources; […]".

7.11 Mechanical Ventilation with Heat Recovery (MVHR) will be installed to provide filtered air into the units, whilst retaining a large proportion of the heat generated by the building.

7.12 Although the scheme's proposed mitigation package is likely to at least equate to the calculated 'emissions cost', additional measures could be considered if the proposed mitigation package ultimately does not at least match this cost; with potential measures listed within AQEMFGS[15].

8. Discussion

Construction Phase Impacts

8.1 The construction phase of the proposed development could potentially give rise to emissions which could cause dust soiling effects on adjacent uses. Following IAQM guidance, the construction phase of the proposed development can be considered to be *Low Risk* with regard to dust soiling effects, PM_{10} health effects and potential impacts on ecological receptors.

8.2 Following the implementation of the mitigation measures provided in Appendix A and listed in Section 5.21, emissions from the construction programme will be reduced and the residual significance of impact for the construction phase is expected to be *Negligible*, thus complying with the requirements of the NPPF.

Operational Phase Impacts

8.3 The need for a detailed pollutant dispersion modelling assessment of the proposed development's sensitivity to local air quality has been screened out using GLA and Defra guidance, along with AEA guidance and ADC's monitoring data. This was primarily due to baseline conditions and concentrations being anticipated to be below their respective AQS' within the immediate vicinity of the application site. Therefore, the site is considered to be suitable for the introduction of new residential receptors, and no further assessment of site suitability is considered necessary.

8.4 As the proposed development is not expected to generate traffic flows exceeding the EPUK & IAQM thresholds on any specific road link, the need to undertake a detailed dispersion modelling assessment of the proposed development's impact on local air quality at existing sensitive receptor locations has been screened out. Therefore, it can be reasonably assumed that the operation of the proposed development would have an insignificant impact on local air quality.

Emissions Mitigation Assessment

8.5 The Sussex-Air emissions mitigation guidance requires an Emissions Mitigation Assessment for all developments proposed within an existing AQMA, to help minimise the potential for incremental impacts on local air quality.

8.6 Following the latest Defra Damage Cost guidance and guidance from Sussex-Air (2021), an 'emissions cost' of **£731** was calculated as a result of emissions of NO_x and $PM_{2.5}$ expected to be generated by traffic associated with the scheme, in its first five operational years. The traffic generation data associated with the damage cost calculation was derived from a similarly sized residential development in close proximity to the application site, on the advice of ADC's EHO.

8.7 Current plans to offset potential air quality impacts include the provision of cycle storage and a Welcome Pack for new residents to encourage the use of sustainable transport methods. Given that no additional parking provision is proposed for the residential units, Electric Vehicle Charging Points (EVCP) have not been considered.

8.8 The proposed heating strategy will be required to be implemented in line with AQEMFGS. It is, however, anticipated that the proposed mitigation measures are likely to offset the calculated 'Damage Cost'. Should the mitigation measures proposed not fully offset the 'emissions cost', further mitigation should be considered to ensure that the 'emissions cost' is achieved.

9. Conclusions

9.1 KSD Group Limited commissioned Phlorum Limited to undertake an Air Quality Assessment in support of a planning application for the proposed re-development of existing business units ('The Annexe') into six residential dwellings, with one business unit to remain, at the Old Town Hall, Shoreham-By-Sea.

9.2 Local air quality monitoring results suggest that air quality within the district is generally good, even at roadside measurement sites adjacent to major roads comprising Adur's strategic road network. Furthermore, data from the UK Air Information Resource indicate that background pollutant concentrations across the site are likely to be well below relevant UK Air Quality Standard concentrations.

9.3 The construction phase of the development could give rise to emissions which could cause dust soiling effects on adjacent uses. However, by adopting appropriate mitigation measures to reduce emissions and their potential impact, there should be no significant residual effects, thus complying with the requirements of the National Planning Policy Framework.

9.4 The operation of the proposed development is not expected to introduce new receptors into an area of poor air quality.

9.5 As the development is considered 'car-free', and that any increases in traffic flows as a result of the residential units are expected to be minimal, the proposed re-development is not anticipated to significantly impact local air quality at existing receptors surrounding the application site.

9.6 To mitigate for future emissions and offset the 'emissions cost', the development will include mitigation measures considered appropriate considering its scale. Should the mitigation measures proposed not fully offset the 'emissions cost', further mitigation should be considered to ensure that the 'emissions cost' is fully offset.

9.7 Therefore, the proposed development is expected to comply with all relevant local, regional and national air quality policy, and as such, Air Quality should not pose any significant obstacles to the planning process.

Figures and Appendices

Figure 1: Site Location Plan



Figure 1: Site Location Plan

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Job No: 12223.S
Drawn by: M.Batchelor
Printed at: 30/06/2023
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Figure 2: Construction Phase

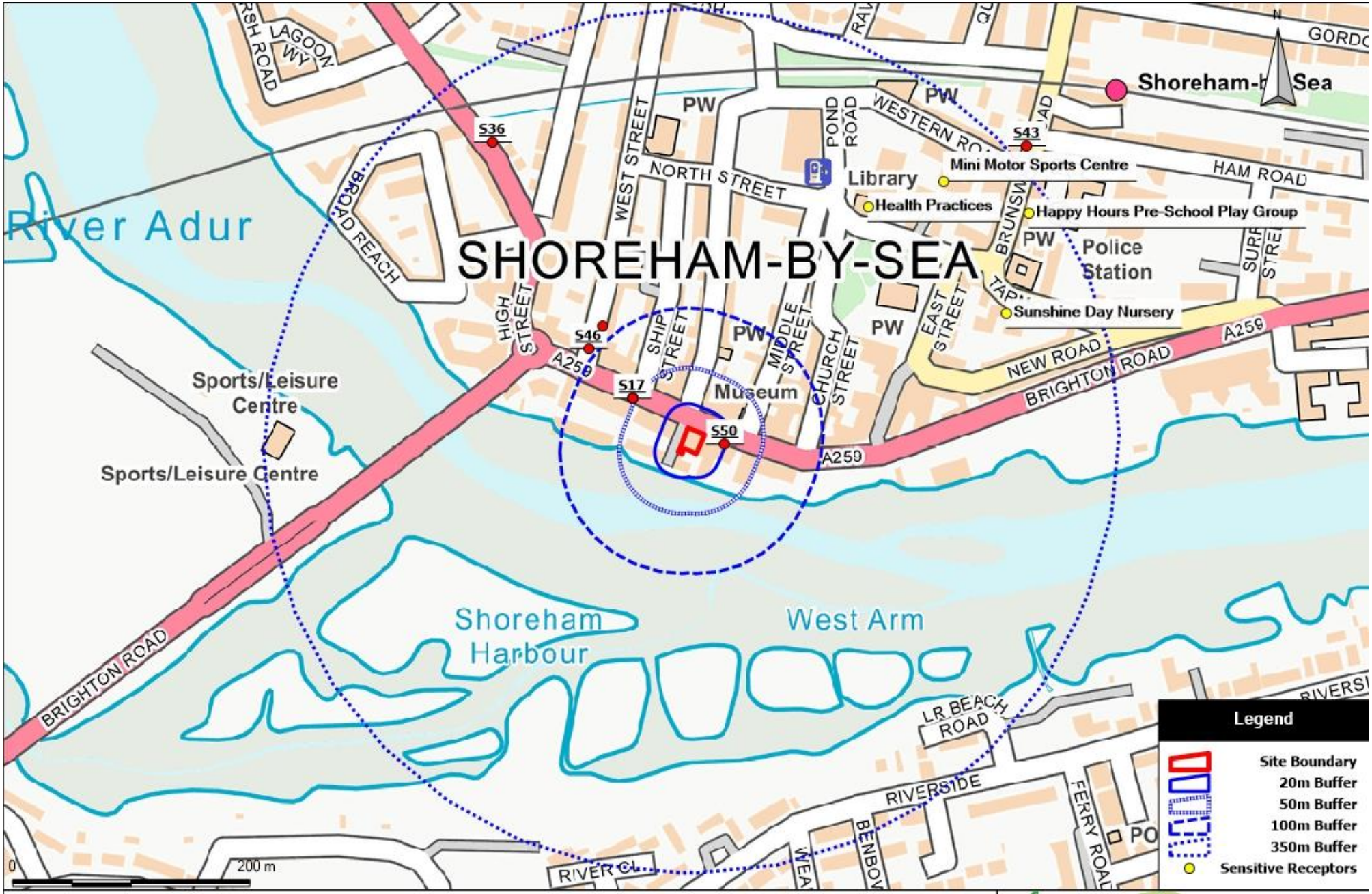

Figure 2: Construction Phase

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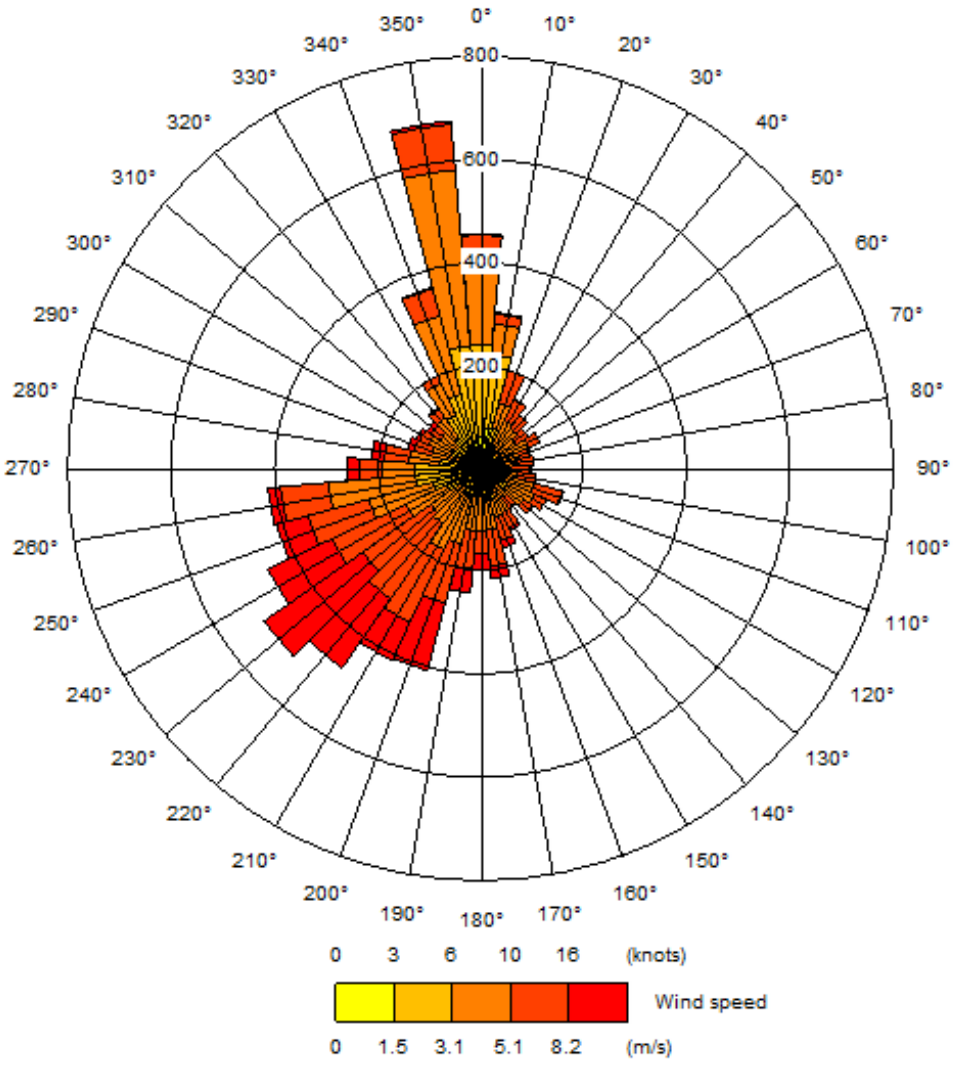
Figure 3: Wind Rose for Shoreham Airport (2019)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280°
290°
300°
310°
320°
330°
340°
350°
800
600
400
200
0 3 6 10 16 (knots)
Wind speed
0 1.5 3.1 5.1 8.2 (m/s)

Appendix A: IAQM Highly Recommended Mitigation Measures for Low Risk Sites

Appendix A: IAQM Highly Recommended Mitigation Measures for sites with a Low Risk of Dust Impacts

Please refer to the IAQM's *Guidance on the Assessment of Dust from Demolition and Construction (2014)*[11] and *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (2018)*[23] for further, "desirable", mitigation measures.

Communications

- 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.

Site Management

- 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 exception incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.

Monitoring

- Carry out regular site inspections to monitor compliance with the Dust Management Plan, 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.

Preparing and Maintaining the Site

- 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 or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.

23 Institute of Air Quality Management. (2018). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites*.

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on equipment wherever appropriate.

Waste Management

- Avoid bonfires and burning of waste materials.



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