

1 Introduction

Kairus Ltd has been appointed by Mr Allam to prepare a technical note setting out a review of the air quality issues associated with the proposed development of a new single annex building at Greenacre, Tregrehan Mills, St Austell PL25 3TQ. The Site falls within the administrative boundary of Cornwall Council (CC).

The 0.1381 hectare (Ha) Site is located within the grounds of Greenacre in the hamlet of Tregrehan Mills, which lies approximately 2.7km to the northeast of St Austell.

In the wider area the Site is surrounded by residential properties to the north, west and south with farmland to the east. Brookside Flower Farm also lies immediately to the north and is a small sustainable, eco-friendly farm and floral design studio. The location of the Site is shown in Figure 1.1.

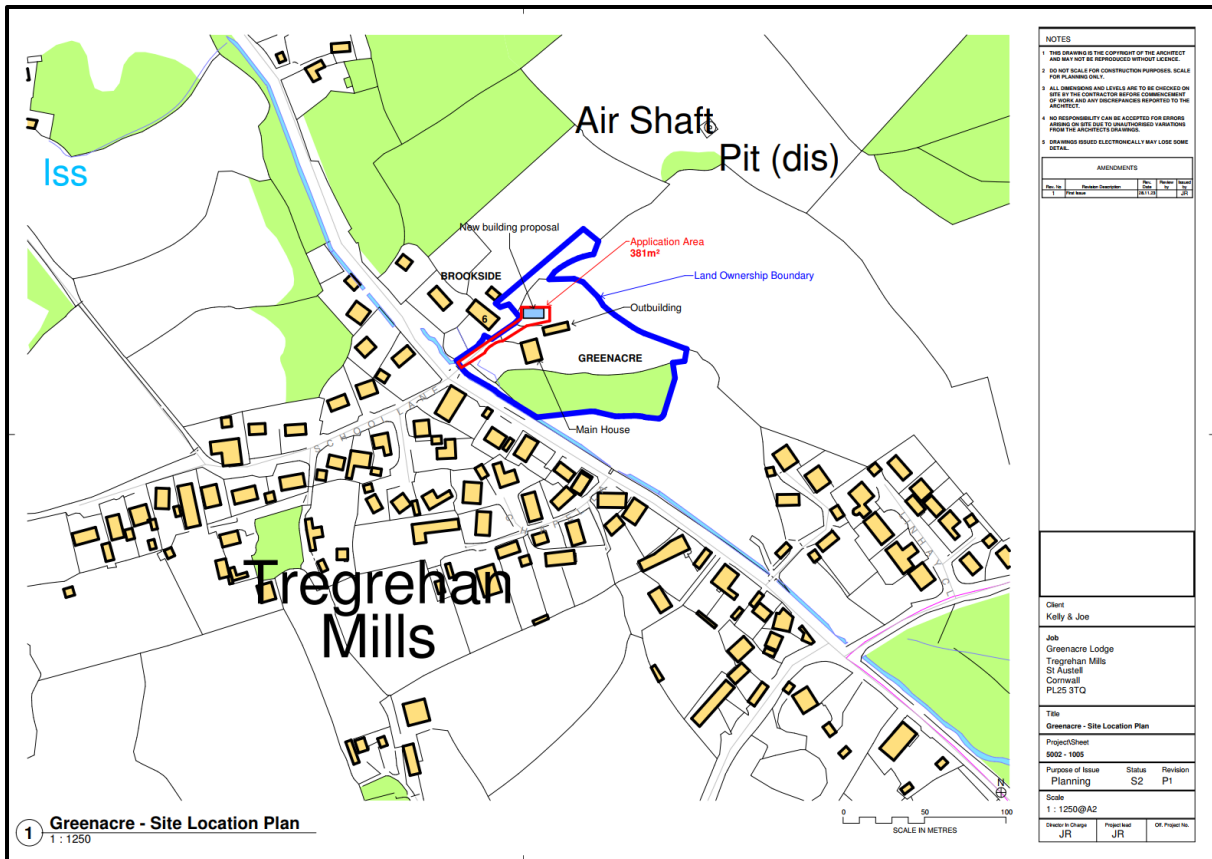


Figure 1.1: Site Location

3 Baseline Air Quality

The site falls within CC. Due to exceedances of the national air quality annual mean objective for nitrogen dioxide (NO₂), CC has declared a number of Air Quality Management Areas (AQMAs) across the county. The Site is not located within an AQMA but lies approximately 0.53km to the northeast of the boundary of the St Austell AQMA.

A review of the CC air quality review and assessment reports, in particular the 2023 Annual Status Report², indicates that historically there has been no monitoring of NO₂ or PM₁₀ within Tregrehan Mills. The nearest NO₂ monitoring sites to Greenacre are located along Holmbush Road in St Austell approximately 1.3km to 1.9km to the south southwest of the Site. Annual mean NO₂ concentrations recorded at the nearest monitoring locations are set out in Table 3.1.

Table 3.1: Diffusion Tube Annual Average Nitrogen Dioxide Concentrations (µgm-3)						
Site	Classification	Year				
		2018	2019	2020 ¹	2021 ¹	2022
STA14 -104 Holmbush Road	R	38.6	33.3	29.2	29.6	32.2
STA12- 68 Holmbush Road	R	41.4	35.0	31.0	33.5	36.8
STA11- 56 Holmbush Road	R	35.5	32.6	28.5	29.4	34.6
STA9 – Holmbush Road opp field	R	35.5	30.8	26.0	23.2	27.0
STA10- Holmbush Road opp Arc	R	40.3	38.6	34.3	32.5	35.6

R – roadside

Numbers in **BOLD** represent exceedance of the annual mean NO₂ objective limit of 40 µg/m³

¹ data for 2020 and 2021 has been included for consistency purposes only. Due to travel restrictions as a result of the COVID -19 pandemic, pollution levels during 2020 and 2021 were significantly suppressed. Data from both years is therefore considered unsuitable for assessing baseline concentrations.

The data shows annual mean concentrations below the limit value at the diffusion tube monitoring sites along Holmbush Road apart from sites STA12 and STA10 in 2018 when there was an exceedance of the 40µg/m³ annual mean objective.

CC currently monitors PM₁₀ concentrations at four sites across the county, none of which are located in St Austell. Automatic monitoring is also undertaken at the DEFRA operated AURN site in Saltash. PM₁₀ concentrations across the county are significantly below the annual mean (40 µg/m³) and 24-hour objective limits. Monitoring also shows PM_{2.5} concentrations are well below the annual mean objective of 25 µg/m³ across the county.

4 Potential Impacts

When considering development proposals there are a number of potential impacts that need to be considered in relation to air quality. These include:

- Exposure of occupants/users of the Site;
- Impacts associated with operational traffic;
- Impacts associated with proposed construction works.

² Cornwall Council (2023) Cornwall Council 2023 Air Quality Annual Status Report (ASR), June 2023

4.1 Exposure

When considering a new development, pollution levels at the Site should be assessed to determine the suitability of the Site for that specific development and resulting issues in respect to exposure.

The monitoring sites set out in Table 3.1 are all located adjacent to Holmbush Road, the main traffic route through St Austell and a significant source of traffic pollution affecting air quality within the town. The road also falls within the ST Austell AQMA and experiences in the region of 29,000 vehicle movements per day (based on data taken from the Department of Transport (DfT) Road Traffic Statistics for 2022³).

The Site is located in a semi-rural location and the proposed annex would be set back approximately 50m from Trenowah Road, the main road through the Tregrehan Mills. This road experiences significantly lower traffic flows compared to Holmbush Road. Although no data is available for Trenowah Road, 2022 flows along Par Moor Road, to the south of Holmbush Road, were in the region of 8,00 per day. Vehicle movements along Trenowah Road are expected to be lower than on Par Moor Road. It is therefore reasonable to conclude that pollution levels within Tregrehan Mills and adjacent to Trenowah Road will be significantly lower than recorded on Holmbush Road.

As the data set out in Table 3.1 shows NO₂ concentrations are meeting the annual mean NO₂ limit value, it can safely be concluded that concentrations at the Site are also comfortably meeting the limit value.

Based on monitoring of both PM₁₀ and PM_{2.5} carried out across the county, concentrations of both pollutants will also be below the relevant objective limits at the Site.

Local Air Quality Management Technical Guidance, published by DEFRA⁴ concludes that where annual mean NO₂ concentrations are below 60 µg/m³ the short-term concentrations will be meeting the 1-hour limit value. Based on the data set out in Table 3.1 and monitoring of PM₁₀ across the county shows that concentrations of both pollutants will also be meeting the relevant short-term limit values at the Site.

The proposed development will not introduce new receptors into a location of poor air quality therefore impacts in terms of new exposure will be negligible.

4.2 Operational Traffic

4.2.1 Traffic Emissions

The air quality planning guidance published by (IAQM)⁵ sets out criteria for establishing when there is a risk of significant impacts on local air quality as a result of traffic generated by a proposed development. The guidance states that where the following criteria are exceeded there is a risk of significant impacts on local air quality and a more detailed assessment is required:

- An increase in light duty vehicles (LGV) of more than 100 vehicles per day within or adjacent to an AQMA, an increase of more than 500 per day elsewhere;
- An increase in HGV or more than 25 vehicles per day within or adjacent to an AQMA, an increase of more than 100 per day elsewhere.

3 <https://roadtraffic.dft.gov.uk/manualcountpoints/99661>

4 Defra (2022) Local Air Quality Management Technical Guidance (TG22)

5 IAQM, Land-use Planning and Development Control: Planning for Air Quality, January 2017

Based on professional experience, the trip generation from a single dwelling will be minimal and fall significantly below the criteria set out above. Impacts on local air quality as a result of operational traffic would be negligible.

4.2.2 On-site Emissions

The proposed energy strategy for the annex will be the provision of all heating and hot water via electric means. There will be no on-site emissions sources therefore impacts during use of the annex will be negligible in terms of building emissions.

4.3 Construction Impacts

Construction phase activities associated with developments may result in the generation of fugitive dust emissions (i.e dust emissions generated by site specific activities that disperse beyond the construction site boundaries).

If transported beyond the site boundary, dust can have an adverse impact on local air quality. The IAQM has published a guidance document for the assessment of demolition and construction phase impacts⁶. The guidance considers the potential for dust nuisance and impacts to human health and ecosystems to occur due to activities carried out during the following stages of construction:

- Demolition (removal of existing structures);
- Earthworks (soil-stripping, ground-leveling, excavation and landscaping);
- Construction (activities involved in the provision of a new structure); and
- Trackout (the transport of dust and dirt from the construction site onto the public road network where it may be deposited and then re-suspended by vehicles using the network).

The nearest receptor (residential property) is Brookside located approximately 15 m to the west northwest with further residential receptors located >40m from the Site. A review of data held on the DEFRA MAGIC website shows no sites designated as important for wildlife within 50 m of the Site. Based on the scale of the development (one residential property), and proximity and number of receptors, the site would be categorised as a low risk/negligible site for dust soiling effects, according to the 2014 IAQM guidance on the assessment of dust from demolition and construction.

As the proposed development is so small, any air quality impacts associated with the construction of the Annex would be minimal and therefore not significant and this has not been considered any further within this assessment.

5 Conclusion

Kairus Ltd has been appointed by Mr Allam to prepare a technical note setting out a review of the air quality issues associated with the proposed development of a new single annex building at Greenacre, Tregrehan Mills, St Austell PL25 3TQ.

The Clean Air for Cornwall Strategy sets out criteria for determining when an AQIA should accompany a planning application and guidance on what should be included within the assessment.

Based on the criteria set out in the Strategy and the IAQM guidance, which the Strategy is based upon, there is no requirement to assess operational traffic impacts due to the development trips falling significantly below the relevant thresholds set out within the documents. Building emissions

⁶ IAQM, Guidance on the assessment of dust from demolition and construction Version 1.1 June 2016

will also be negligible therefore operational impacts will not be significant. Furthermore, a review of local air quality has shown that impacts in terms of new exposure would be negligible.

Construction impact effects associated with the development would be minimal due to the proposed activities and therefore not significant.

Based on the results of this technical note air quality does not pose a constraint to development of the Site for the proposed use.