SAFEGUARDING THE BARFORD RESIDENTS' WELLBEING

PREPARED BY THE C4FF TEAM

C4FF
Developing the Future

AGENDA

1. What we thought we knew
2. What we know now
3. What we can do now

THE GAPS IN SUBMITTED FINDINGS

- Inappropriate areas chosen for the particulate matter readings baseline.
- Only average values were considered, maximum values are important.
- Submitted findings were strongly relied on models.
- Irrelevant meteorological data was used from a station 23km away.
- Potential impacts estimated is not acceptable.

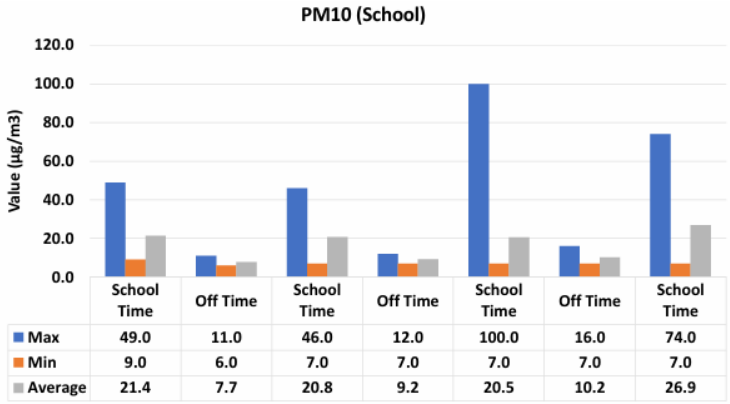
Figure 4.3, daily average concentrations were generally below the IAQM minerals guidance threshold (17 µg/m^3), with the exception of a significant spike in levels during mid-August (during which the daily average AQO was exceeded on two consecutive days), and an extended period of slightly elevated levels from late August to mid-September. Based on our understanding of current site operations and from correspondence with the client it is likely that these elevated levels are most likely related to arable agricultural activities, such as the harvesting of wheat in mid-August.

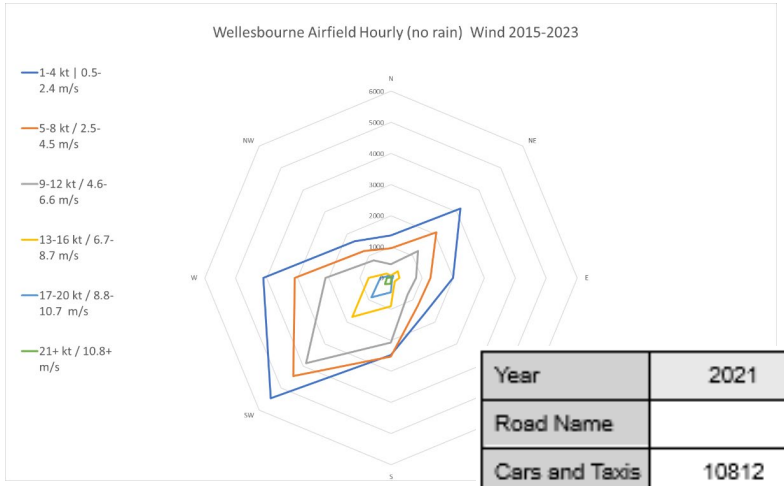
A wind rose showing the 'dry' hours[23] in 2017 - 2021 for Church Lawford, the nearest appropriate Met Office land surface observation station, approximately 23 km to the northeast of the site, is presented at Figure 3.1. This demonstrates

Key Pollutants and Government Targets

National air quality objectives and European Directive limit and target values for the protection of human health						
Pollutant	**Applies**	**Objective**	**Concentration measured as** [10]	**Date to be achieved by (and maintained thereafter)**	**European Obligations**	**Date to be achieved (by and maintained thereafter)**
Particles (PM_{10})	UK	50 µg/m³ not to be exceeded more than 35 times a year	24 hour mean	31 December 2004	50 µg/m³ not to be exceeded more than 35 times a year	1 January 2005
	UK	40 µg/m³	annual mean	31 December 2004	40 µg/m³	1 January 2005
	Indicative 2010 objectives for PM_{10} (from the 2000 strategy and Addendum) have been replaced by an exposure reduction approach for $PM_{2.5}$ (except in Scotland – see below)					
	Scotland	50 µg/m³ not to be exceeded more than 7 times a year	24 hour mean	31 December 2010	50 µg/m³ not to be exceeded more than 35 times a year	1 January 2005
	Scotland	18 µg/m³	annual mean	31 December 2010	40 µg/m³	1 January 2005
Particles ($PM_{2.5}$) Exposure Reduction	UK (except Scotland)	25 µg/m³	annual mean	2020	Target value - 25 µg/m³	2010
	Scotland	10 µg/m³		31 December 2020	Limit value - 25 µg/m³	1 January 2015
	UK urban areas	Target of 15% reduction in concentrations at urban background		Between 2010 and 2020	Target of 20% reduction in concentrations at urban background.	Between 2010 and 2020
Nitrogen dioxide	UK	200 µg/m³ not to be exceeded more than 18 times a year	1 hour mean	31 December 2005	200 µg/m³ not to be exceeded more than 18 times a year	1 January 2010
	UK	40 µg/m³	annual mean	31 December 2005	40 µg/m³	1 January 2010

- 24 hour mean target for PM_{10} is 50 µg/m³ Not to be exceeded more than 35 times a year. Annual mean is 40 µg/m³
- Annual mean target for $PM_{2.5}$ is 25 µg/m³ for Scotland 10 µg/m³
- 1 hour mean target for Nitrogen dioxide is 200µg/m³ not to be exceeded more than 18 times a year.
- According to the public health England in 2018, in UK **36,000 deaths** a year are attributed to manmade air pollution and 5% of death are due to poor air quality in England and its region.
- Over 1,140,000 new cases of disease are attributable to NO_2.





Year	2021	2022	2023
Road Name	A429		
Cars and Taxis	10812	11605	11892
Buses and Coaches	45	48	48
Light Good Vehicles (LGVs)	1812	2019	2059
HGVs 4 or more rigid axles	69	71	66
All HGVs	1031	1061	1035

BARFORD IS ALREADY POLLUTED – WHY ADD A QUARRY?

- During school time there is a hike in PM_{10}, $PM_{2.5}$ and NO_2 maximum values.
- The topography at Church Lawford is different to Wellesbourne and Barford. Therefore, there is an important difference in wind flow direction.
- Meteorological data from Wellesbourne Airfield, 6km away from the proposed quarry shows prevailing wind towards Barford and Wasperton villages.
- A daily average of 66 lorries are already travelling on A429 which is in adjacent to Barford and Wasperton villages.

POTENTIAL IMPACTS OF THE QUARRY (1)

Traffic

- The number of lorries using the A429 could increase by an average of 200 per day, with an estimated 266 daily, assuming each lorry makes a single trip.
- This increase may lead to 150 exceedance per day where NO_2 levels exceed 200 µg/m³, surpassing the yearly exceedance limit of 18 times.
- Frequent starting and stopping of vehicles contributes to higher NO_2 emissions.

NO_2 poses significant health risks, particularly by aggravating the respiratory system, increasing susceptibility to infections, and exacerbating conditions such as asthma. Prolonged exposure to NO_2 has also been linked to cardiovascular problems
Diesel engines powering heavy machinery like excavators and trucks are major contributors to NO_x emissions (a mixture of NO and NO_2)

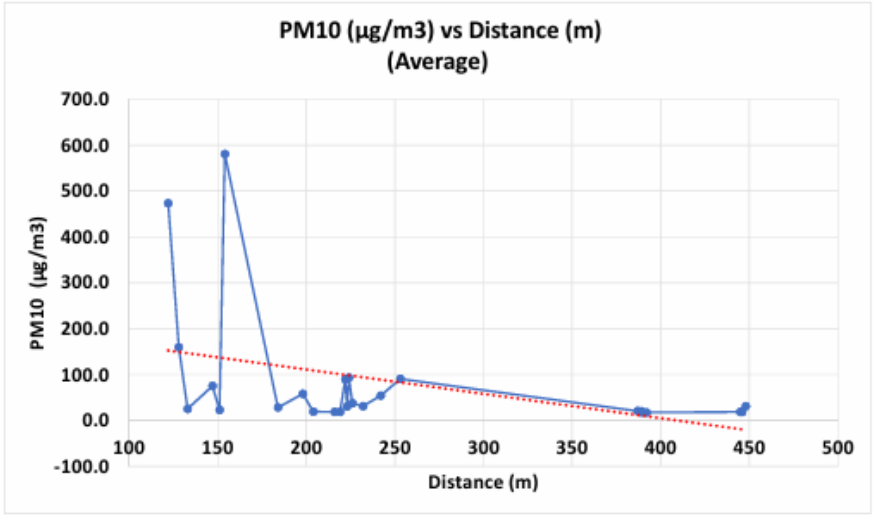
Lorries tonne	Number of lorries	Trips per hour	Hourly NO_2 during stop and start (µg/m³)	Number of daily exceedances (limit ×18 per year)	Hourly NO_2 during travel (µg/m³)	Number of daily exceedances (limit ×18 per year)
30	22	3	18,000	90	3,000	15
25	30	4	20,000	100	4,000	20
18	40	5	25,000	125	5,000	25
Standard	200	25	125,000	625	25,000	125

The figures in the Table are concerning, especially since the emissions and exceedances have been calculated based only on one-way trips. These numbers will likely increase further when restoration activities begin 3.5 years into the project.

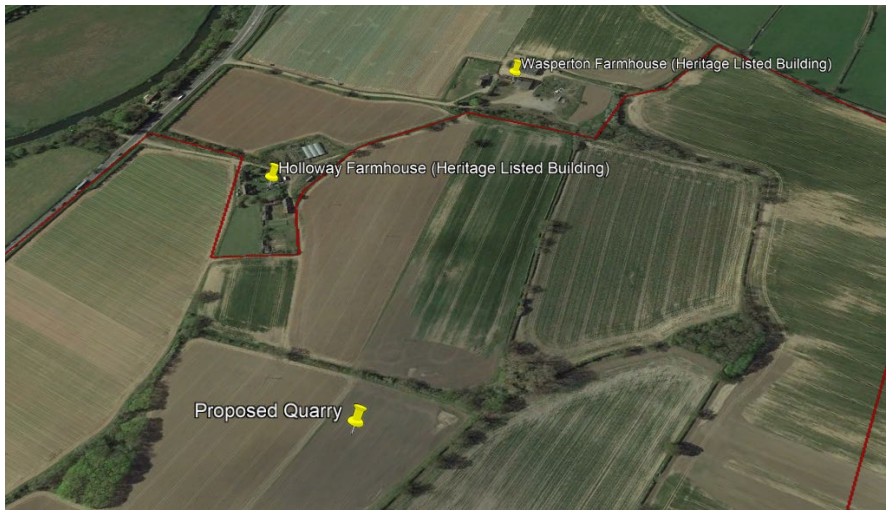
POTENTIAL IMPACTS OF THE QUARRY (2)

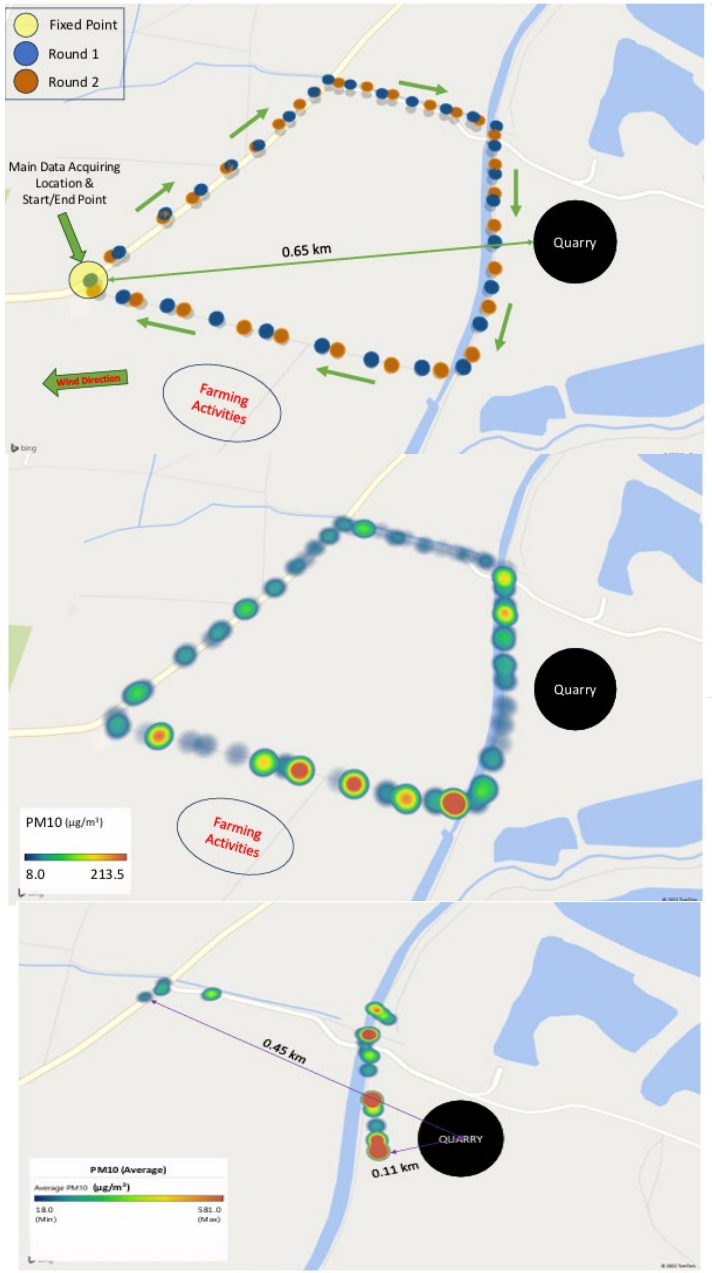
Air Quality

- At a distance of 300m the level of PM_{10} was noted to be in the region of 70 µg/m³ .
- At the quarry the level of PM_{10} exceed over 200 µg/m³.
- The direction of the wind significantly affects the dispersion of particulate matter around the quarry. Particulate matter readings increase as proximity to the quarry decreases
- Two inhabited Farmhouses within 100m to the edge of the quarry.



By conducting a correlation analysis between the distance and the Particulate Matter readings, it was observed that pollution levels increased as the monitoring location moved closer to the quarry, as evident in both Figure 25 and Figure 26





WHAT CAN WE DO NOW?

- Advocate for rejection
- Mobilize Community Support
- Highlight legal and regulatory violations
- Increase political pressure

THANK YOU

Prepared by the C4FF team to support the residents of Barford and Wasperton in preventing further pollution of their villages.

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