Folkestone & Hythe District Council

Annual Status Report 2020

Bureau Veritas

June 2020

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2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2020

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Executive Summary: Air Quality in Our Area

Air Quality in Folkestone and Hythe District Council

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

The District of Folkestone and Hythe is situated in Kent on the south east coast of England, approximately 75 miles from London. It occupies a key strategic position on the M20 as a gateway to continental Europe with the Channel Tunnel and London Ashford Airport all within its boundary. The District contains an area of 140 square miles and boasts a rich variety of attractive landscape. More than 33% of the District falls within the Kent Downs Area of Outstanding Natural Beauty (AONB) and there are over 15 Sites of Special Scientific Interest (SSSI).

In comparison to the rural areas of the District, the largest urban area is the town of Folkestone, where approximately half of the District's 100,000 population live. Other population centres within the District are Hythe, New Romney and Hawkinge.

The main source of pollution with the District is from road traffic emissions originating from major roads including the M20, A20, A259, A260 and A2034 that pass through the District, the majority of the vehicles do not start nor end their journeys within Folkestone and Hythe. Other pollution sources including commercial, industrial and domestic sources also contribute to pollutant concentrations within the District.

There have never been any exceedances of the AQS annual mean objective for NO_2 recorded by the current monitoring network across Folkestone and Hythe. As a result, no Air Quality Management Areas (AQMAs) have ever been declared within Folkestone and Hythe.

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Similar to previous years, during 2019 there were no exceedances of the NO_2 annual mean objective. This meant Folkestone and Hythe District Council, within the current monitoring network, retained its achievement of not recording any exceedances within the past five years. The highest NO_2 annual mean concentration in 2019 was recorded at DT9 (Cherry Garden Avenue), with a reported concentration of 30.0µg/m^3.

Historically, Site 5 had previously reported the highest NO_2 levels, most likely due to it being situated along the A259; however, the concentrations at this site have declined year on year since 2016. In comparison, the NO_2 annual mean concentration reported at DT9 has been increasing since 2015. DT9 is situated on a road leading from the M20, which likely explains the higher concentrations reported. Nonetheless, the NO_2 annual mean concentration is still well below the annual mean AQS objective of 40µg/m^3.

When comparing results from 2019 to 2018, NO_2 annual mean concentrations have decreased at half of the locations monitored, and increased in concentration at the remaining half. Despite these slight increases, all concentrations remain significantly below the annual mean AQS objective for NO_2. It should be noted that the January 2019 diffusion tube results at all sites reported unusually high concentrations, which had not been seen in previous years. This could likely have contributed to the increases reported in 2019. Reviewing the 2020 diffusion tube data set for January will help ascertain whether these January results are consistent and accurate.

There are no sites where the NO_2 annual mean is greater than 60µg/m^3, therefore in accordance with Defra LAQM.TG(16) there are no sites likely to be at risk of exceeding the 1-hour mean AQS objective.

Actions to Improve Air Quality

There are currently no designated AQMAs within Folkestone and Hythe and therefore the Council has not produced any AQAPs, however the Council has continued to develop and implement specific measures related to the control and mitigation of air pollution sources.

- Folkestone and Hythe District Council has welcomed the Click2cycle innovative bike sharing service in Folkestone, Sandgate and Hythe. The service was launched in June 2018 and continues to be endorsed. The scheme aims to replicate notable cycle sharing schemes often found in large metropolitan areas

(e.g. Santander Cycles, Mobike, Lime). The Click2cycle scheme compliments the coastal cycling route, which stretches from Folkestone Harbour to Dungeness in an attempt to promote alternative forms of travel which is accessible to help its residents lead active lifestyles. In July 2020 click2cycle have relaunched a bespoke app to allow for easy hiring of bikes.

- The Council has started ensuring appropriate engagement with developers at the planning stage is carried out to help encourage the installation of electric charging points within the scheme or the consideration of suitable infrastructure to allow for future cost efficient installation. Furthermore, engagement with developers has helped to encourage alternative fuel options rather than fitting gas boilers.
- The Council have recently employed a Low Carbon & Sustainability Specialist who has been tasked with helping the Council hit net-zero carbon emissions by 2030. The officer will also engage with local businesses to promote low emission strategies across the district.

Conclusions and Priorities

The monitoring results from 2019 show that NO_2 annual mean concentrations within Folkestone and Hythe remain well below the relevant AQS objectives at all monitoring sites. Nonetheless, Folkestone and Hythe District Council will continue to monitor air quality levels and act accordingly, to ensure any potential exceedances do not occur.

The following actions are considered to be key priorities in ensuring the air quality conditions within Folkestone and Hythe continue to comply with the AQS objectives:

- Constantly review the current monitoring programme, explore the need to relocate existing monitoring stations to locations where monitoring has not previously been undertaken and where exceedances may be likely in areas of relevant public exposure;
- Actively engage with large residential developers to consider installing electric vehicle charging points or alternatively, provide passive provisions for future installations;

- To work in conjunction with the County Council to investigate the scope for the introduction of traffic management initiatives where appropriate, including lorry management and traffic speed control;
- Provide an integrated transport network to facilitate the efficient movement of pedestrian and vehicular traffic, goods and services within the District;
- Continue to improve accessibility to key services and facilities and to direct development to sustainable locations in order to achieve sustainable development; and
- Continue to limit the quantity of traffic on the District's roads by actively encouraging effective public transport, cycling and walking and by the careful integration of residential areas, shopping and recreational facilities and the workplace.

Local Engagement and How to get Involved

Due to the main source of air pollution within Folkestone and Hythe being from transport sources, the public can get involved in helping reduce the release of air pollution and thus improving air quality within the District by looking at alternative means of travel. The following are possible alternatives to private travel that would contribute to improving air quality within the District:

- Use public transport where available – This reduces the number of private vehicles in operation reducing pollutant concentration through the number of vehicles and reducing congestion;
- Walk or cycle if your journey allows – From choosing to walk or cycle for your journey the number of vehicles is reduced and also there is the added benefit of keeping fit and healthy;
- Car/lift sharing – Where a number of individuals are making similar journeys, such as travelling to work or to school car sharing reduces the number of vehicles on the road and therefore the amount of emissions being released. This can be promoted via travel plans through the workplace and within schools; and
- Alternative fuel / more efficient vehicles – Choosing a vehicle that meets the specific needs of the owner, fully electric, hybrid fuel and more fuel efficient cars

are available and all have different levels benefits by reducing the amount of emissions being released.

Further information about air quality including monitoring data, details on the main pollutants associated with air quality and an emissions calculator for travel options is included on the KentAir website[4].

[4] KentAir, available online at http://www.kentair.org.uk/

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1 Local Air Quality Management

This report provides an overview of air quality in Folkestone and Hythe District during 2020. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Folkestone and Hythe District to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Folkestone and Hythe District Council currently does not have any AQMAs. For reference, maps of Folkestone and Hythe District Council's monitoring locations are presented in Appendix D.

2.2 Progress and Impact of Measures to address Air Quality in Folkestone and Hythe District Council

Defra's appraisal of last year's ASR concluded that the report was a very good example of an ASR in a council with no AQMAs. Based on the evidence provided, the conclusions reached within last year's ASR are acceptable for all sources. The report was well structured, detailed, and provides the information specified in the Guidance. As a consequence, there were no further recommendations that needed to be carried through into the 2020 ASR.

Folkestone and Hythe District Council is committed to ensuring all residents have access to safe levels of air quality, therefore the monitoring locations have been, and will continue to be reviewed. Folkestone and Hythe District Council will be proactive with exploring the need to relocate existing monitoring stations to locations where monitoring has not previously been undertaken and where exceedances may be likely in areas with relevant public exposure. This will ensure the Folkestone and Hythe District Council monitoring programme remains effective in identifying areas of potential concern and will enable the Council to facilitate accurate mitigation measures where required, ensuring compliant levels of air quality to its residents.

In 2019 two additional sites were added to the monitoring network:

- DT15 – A roadside location at the junction of Dixwell Road and Sandgate Hill, and;
- DT16 – A roadside location outside a school along Seabrook Road.

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Currently there is no monitoring of PM_{10} or $PM_{2.5}$ completed within Folkestone and Hythe, therefore no concentration values can be reported or estimated using the method described in Box 7.7 of LAQM.TG(16). The Defra 2019 background maps for Folkestone and Hythe (2017 based)[5] show that all background concentrations are far below the annual mean target value of 25µg/m^3 for $PM_{2.5}$. The highest concentration is predicted to be 10.8µg/m^3 within the 1 x 1km grid square with the centroid grid reference of 621500, 137500. This grid square is located north of Folkestone within close proximity to the Park Farm Industrial Estate as well as the M25 motorway.

There are currently no designated smoke control areas within Folkestone and Hythe and information on the potential nuisance from bonfire smoke is provided to the public within the bonfire section of the councils website[6]. The Public Health Outcomes Framework data tool[7], compiled by Public Heath England, quantifies the mortality burden of $PM_{2.5}$ within England on a county and local authority scale. The 2018 fraction of mortality attributable to $PM_{2.5}$ pollution in Folkestone and Hythe is 5.2%, which is below the South East's average of 5.6 % and the same as the national average of 5.2%.

LAQM.TG(16) Table A.1 Action toolbox presents a list of measures that can be implemented to help reduce concentrations of $PM_{2.5}$. Where required, Folkestone and Hythe District Council will review any proposed actions to be implemented with the Public Health team to consider the potential impact of the actions and whether any further action is required.

[5] Defra Background Mapping data for local authorities (2017-based), available online at https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2017
[6] Folkestone and Hythe District Council, Air Quality, available online at https://www.folkestone-hythe.gov.uk/environmental-protection/bonfires
[7] Public Health Outcomes Framework, Public Health England. data tool available online at http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000043/pat/6/par/E12000009/ati/102/are/E06000028

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Folkestone and Hythe District Council did not carry out any automatic monitoring of pollutants in 2019.

3.1.2 Non-Automatic Monitoring Sites

Folkestone and Hythe District Council undertook non-automatic (passive) monitoring of NO_2 at 16 sites during 2019, an increase of two sites when compared to 2018; the additional sites are located on Dixwell Road and Seabrook Road. Table A.1 in Appendix A presents the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix D: Maps of Monitoring Locations and AQMAs. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. “annualisation” and/or distance correction), are included in Appendix C.

In addition to the NO_2 diffusion tube monitoring that has been completed, monitoring of BTEX compounds benzene, toluene, ethylbenzene and xylenes has been completed using ADT (analytical thermal deposition) tubes at four locations within the District.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias[8], “annualisation” (where the data capture falls below 75%), and distance correction[9]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented in Table A.2 represents the concentration

[8] https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html
[9] Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

The results for 2019 have been bias adjusted using a national bias adjustment factor of 0.75. Full details of the bias adjustment and QA/QC procedure are provided in Appendix C.

There were no exceedances of the NO_2 annual mean objective reported in 2019. The highest NO_2 annual mean concentration in 2019 was recorded at DT9 (Cherry Garden Avenue) with a concentration of 30.0µg/m^3, which is still well below the annual mean AQS objective of 40µg/m^3.

Table A.2 shows the annual mean NO_2 concentrations for the past five years. When comparing results from 2019 to 2018, NO_2 annual mean concentrations have decreased at half of the locations monitored and increased in concentration at the remaining half. Despite these slight increases, all concentrations remain well below the annual mean AQS objective for NO_2. It should be noted that the January 2019 diffusion tube results at all sites reported unusually high concentrations, which had not been seen in previous years. This could likely have contributed to the increases reported in 2019. Reviewing the 2020 diffusion tube data set for January will help ascertain whether these January results are consistent and accurate.

There are no sites where the NO_2 annual mean is greater than 60µg/m^3, therefore in accordance with Defra LAQM.TG(16) there are no sites likely to be at risk of exceeding the 1-hour mean AQS objective.

3.2.2 Other Pollutants

Table B.2 in Appendix B presents the period concentrations for the BTEX compounds monitored at the four locations. Only benzene has an air quality objective within the Air Quality Strategy; an annual average of 5µg/m^3 and a running annual mean of 16.25µg/m^3. Contentrations monitored at the four sites are below these objectives.

Note: The provided values for the Wear Bay Road location during September-October period are abnormally high when compared to all other monitored data, and thus seem

to be anomalous. As such, they have been excluded for the purpose of calculating the annual mean value.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
DT1	10 Cheriton Place	Roadside	622584	135820	NO_2	NO	1	1.2	NO	3
DT2	72 Cheriton Road,	Roadside	622400	136100	NO_2	NO	5	1,8	NO	2.6
DT3	Coldharbour House	Rural	609964	135279	NO_2	NO	N/A	N/A	NO	2
DT4	Stanford North	Urban Background	612900	138200	NO_2	NO	N/A	N/A	NO	2
DT5	Blackbull Road	Roadside	622734	136769	NO_2	NO	1	5	NO	3
DT6	Martello Cottages	Roadside	614552	134012	NO_2	NO	7	10	NO	2.5
DT7	Wear Bay Road	Roadside	622396	136976	NO_2	NO	11.5	3	NO	3.5
DT8	Royal Oak Motel	Roadside	612694	136190	NO_2	NO	6	3.5	NO	2.6
DT9	Cherry Garden Avenue	Roadside	621248	137352	NO_2	NO	7.5	8	NO	2.5
DT10	Martinfield Cottage	Roadside	604116	124888	NO_2	NO	1.2	1	NO	2.5
DT11	Swann Way Hawkinge	Roadside	621436	139593	NO_2	NO	1.15	1	NO	3
DT12	41a Horn Street,	Kerbside	618860	135899	NO_2	NO	1	1	NO	2
DT13	Kennett Lane Stanford	Rural	612481	137978	NO_2	NO	91	0	NO	2
DT14	Princes Parade	Roadside	618727	134797	NO_2	NO	39	1	NO	2

DT15	Dixwell Road	Roadside	621361	135511	NO_2	NO	15	<1	NO	2
DT16	Seabrook Road	Roadside	618680	134977	NO_2	NO	8	<1	NO	2

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3) (4)				
							2015	2016	2017	2018	2019
DT1	622584	135820	Roadside	Diffusion Tube	83	83	20.0	21.5	23.5	25.4	21.0
DT2	622400	136100	Roadside	Diffusion Tube	83	83	23.3	28.6	27.9	19.6	25.7
DT3	609964	135279	Rural	Diffusion Tube	83	83	13.7	14.9	16.5	12.0	11.8
DT4	612900	138200	Urban Background	Diffusion Tube	83	83	17.4	19.6	19.9	18.1	17.8
DT5	622734	136769	Roadside	Diffusion Tube	83	83	28.6	30.4	30.2	29.7	27.9
DT6	614552	134012	Roadside	Diffusion Tube	83	83	24.3	25.1	23.2	23.2	25.3
DT7	622396	136976	Roadside	Diffusion Tube	83	83	18.8	20.7	22.5	17.2	17.7
DT8	612694	136190	Roadside	Diffusion Tube	83	83	20.2	22.7	21.4	21.3	22.4
DT9	621248	137352	Roadside	Diffusion Tube	83	83	25.8	28.7	29.5	28.8	30.0
DT10	604116	124888	Roadside	Diffusion Tube	75	75	15.3	18.8	16.2	16.5	16.6
DT11	621436	139593	Roadside	Diffusion Tube	83	83	17.7	17.4	22.5	19.8	19.3
DT12	618860	135899	Kerbside	Diffusion Tube	83	83	19.5	20.0	19.2	18.8	16.2
DT13	612481	137978	Rural	Diffusion Tube	83	83	-	14.0	18.5	16.7	13.6
DT14	618727	134797	Roadside	Diffusion Tube	75	75	-	-	-	15.8	16.3

DT15	621361	135511	Roadside	Diffusion Tube	75	75	-	-	-	-	24.3
DT16	618680	134977	Roadside	Diffusion Tube	83	83	-	-	-	-	18.1

☒ **Diffusion tube data has been bias corrected**

☒ **Annualisation has been conducted where data capture is <75%**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance adjustment**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

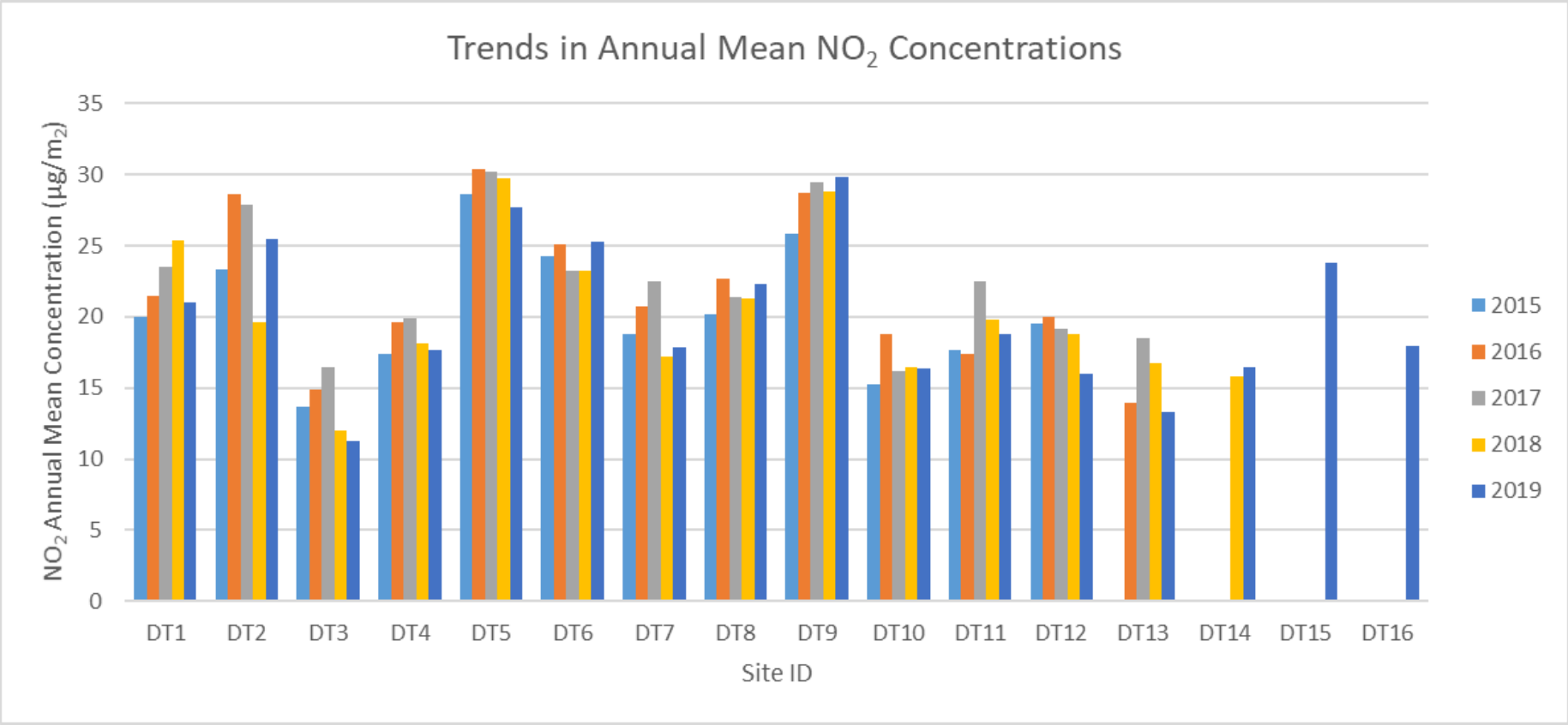
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(4) Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
DT1	622584	135820	58.2	-	1.1(3)	32	24.1	25.9	22.6	23.1	21.6	21.3	27.9	23.5	28.0	21.0	
DT2	622400	136100	92.4	-	28.5	31.8	26.5	26.5	24.7	28.5	26.5	28.7	37.8	25.6	34.0	25.7	
DT3	609964	135279	18.2	-	17.4	18.5	12.5	12.4	13.3	13.8	14.8	13.6	22.5	15.4	15.0	11.8	
DT4	612900	138200	58.3	-	18.4	24.8	17	19.9	18.6	16.4	23.7	18.4	25.3	20.7	23.6	17.8	
DT5	622734	136769	53.9	-	35.2	41.3	36.4	36.5	34.3	32.8	32.2	31.9	40.4	34.8	36.9	27.9	
DT6	614552	134012	78	-	30	30.9	27.1	28.8	23.9	30.8	26.3	28.6	33	33.2	33.8	25.3	
DT7	622396	136976	64.3	-	19.9	25.6	17.1	20.4	20.3	18.4	16.6	17.9	22.5	17.2	23.8	17.7	
DT8	612694	136190	71	-	25.5	24.9	26.3	22.4	24.8	27.9	27.1	23.5	31.3	23.8	29.7	22.4	
DT9	621248	137352	98.4	-	40	28.4	30.6	28.1	32.5	34.5	33	35.6	42.4	36.3	39.7	30.0	
DT10	604116	124888	52	-	13.2	25.2	17.3	17.9	17.5	22.7	17.9	-	25.1	13.1	21.9	16.6	
DT11	621436	139593	51.9	-	25.1	24.8	20.9	21.7	20.8	28.4	16.9	16.2	32.8	24.2	25.1	19.3	
DT12	618860	135899	34.6	-	13.5	27	19.7	19.5	20.5	20.5	19.7	17.8	23.9	20.3	21.3	16.2	
DT13	612481	137978	51.7	-	14.9	13	12.7	12.5	13.7	12.5	16.8	14.9	22.3	14.6	17.7	13.6	
DT14	618727	134797	52.9	-	17.9	22.6	15.5	17.8	17.3	21.4	13.9	18	19.9	-	21.9	16.3	
DT15	621361	135511	-	-	34.5	28.4	24.6	27	28.1	34	31.3	32.3	38.3	45.2	31.7	24.3	
DT16	618680	134977	36.9	-	24.7	20.9	21.5	21.6	20.7	24	20	19.5	27	29	23.9	18.1	

☒ **National bias adjustment factor used**

☒ **Annualisation has been conducted where data capture is <75%**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

(3) Not included in annual average calculation due to outlier.

Table B.2 - ADT Diffusion Tube BTEX Results for 2019

Site and Pollutant Concentration (µg/m³)	Monitoring Period												
	14/01/19 to 06/02/19	06/02/19 to 05/04/19	06/03/19 to 05/04/19	05/04/19 to 03/05/19	03/05/19 to 06/06/19	06/06/19 to 01/07/19	1/07/19 to 07/08/19	07/08/19 to 05/10/19	05/10/19 to 04/10/19	04/10/19 to 07/11/19	07/11/19 to 10/12/19	10/12/19 to 10/01/20	Annual Average
Cheriton Road													
Benzene	2	NR	1	0.9	0.7	<0.6	NR[1]	0.7	<0.6	0.8	0.7	1	1.0
Toluene	5	NR	2	4	1	<1	NR[1]	3	1	2	1	2	2.3
Ethyl-Benzene	8	NR	0.4	0.7	0.2	<0.3	NR[1]	0.7	0.4	0.6	0.3	0.3	1.3
m,p-Xylene	3	NR	2	2	0.9	<0.8	NR[1]	1	2	2	0.9	0.9	1.6
0-Xylene	2	NR	0.6	0.8	0.4	<0.4	NR[1]	0.5	0.8	0.8	0.4	0.4	0.7
Cheriton Place													
Benzene	4	NR	NR	1	0.7	0.8	<0.4	0.6	<0.6	0.7	0.9	0.8	1.2
Toluene	8	NR	NR	4	1	2	1	2	2	2	2	1	2.5
Ethyl-Benzene	1	NR	NR	0.6	0.3	<0.3	<0.2	0.4	0.3	<0.2	0.3	<0.2	0.5
m,p-Xylene	4	NR	NR	2	1	1	0.7	1	1	0.8	1	<0.7	1.4
0-Xylene	1	NR	NR	0.9	0.4	0.4	0.3	0.5	0.5	0.4	0.6	<0.3	0.6
Wear Bay Road													
Benzene	2	NR	0.9	0.9	0.5	0.7	<0.4	0.6	0.7	0.7	0.9	0.8	0.9
Toluene	4	NR	6	1	<0.7	1	0.8	0.9	160[2]	2	2	1	2.1
Ethyl-Benzene	0.7	NR	10	<0.3	<0.2	<0.3	<0.2	0.3	4.6	0.2	0.6	0.3	2.4
m,p-Xylene	2	NR	10	0.9	<0.6	<0.8	<0.6	<0.7	8	0.9	2	0.9	3.5
0-Xylene	1	NR	3	0.4	<0.3	<0.4	<0.3	<0.4	3.9	0.4	0.6	0.4	1.4

Site and Pollutant Concentration (µg/m^3)	Monitoring Period												
	14/01/19 to 06/02/19	06/02/19 to 05/04/19	06/03/19 to 05/04/19	05/04/19 to 03/05/19	03/05/19 to 06/06/19	06/06/19 to 01/07/19	1/07/19 to 07/08/19	07/08/19 to 05/10/19	05/10/19 to 04/10/19	04/10/19 to 07/11/19	07/11/19 to 10/12/19	10/12/19 to 10/01/20	Annual Average
Cherry Garden Avenue													
Benzene	3	NR	NR	1	1	0.8	0.9	0.8	2	0.8	1	2	1.3
Toluene	7	NR	NR	2	2	5	4	2	6	2	5	1	3.6
Ethyl-Benzene	1	NR	NR	0.3	0.3	1	0.4	5.5	1	0.4	0.6	<0.2	1.2
m,p-Xylene	5	NR	NR	1	1	2	0.9	7.1	4	2	2	0.8	2.6
0-Xylene	2	NR	NR	0.5	0.4	0.9	0.3	2	2	0.7	0.8	0.4	1.0

NR = No result

(1) = The GCMS analysis showed that the tube was damaged during the exposure period, therefore there are no results available.

(2) = This sample was abnormally high when compared to all other monitored data, as such, it has been excluded for the purpose of calculating the annual mean value

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

The diffusion tube data has been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The Defra LAQM.TG(16) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for diffusion tubes, Defra LAQM.TG(16) and the LAQM Helpdesk[10] recommend the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

Folkestone and Hythe District Council does not operate any continuous monitoring within the District and therefore a co-location study is not available to derive a local bias factor, thus the national bias adjustment factor spreadsheet[11] has been used.

Diffusion tube data for Folkestone and Hythe District Council are supplied and analysed by Socotec Didcot using the 50% triethanolamine (TEA) in acetone preparation method. The national bias adjustment factor for Socotec (Didcot) 50% TEA in acetone is 0.75 for the year 2019 (based on 24 studies, version 03/20) as derived from the most recent national bias adjustment factor spreadsheet. The bias adjustment factors used by Folkestone and Hythe over the past five years are presented in Table C.1 below and show good consistency year to year.

[10] Laqm.defra.gov.uk
[11] National Diffusion Tube Bias Adjustment Factor Spreadsheet version 03/20 available at https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

Table C.1 – Bias Adjustment Factors

Year	Bias Adjustment Factor
2015	0.79
2016	0.77
2017	0.77
2018	0.76
2019	0.75

QA/QC of Diffusion Tube Monitoring

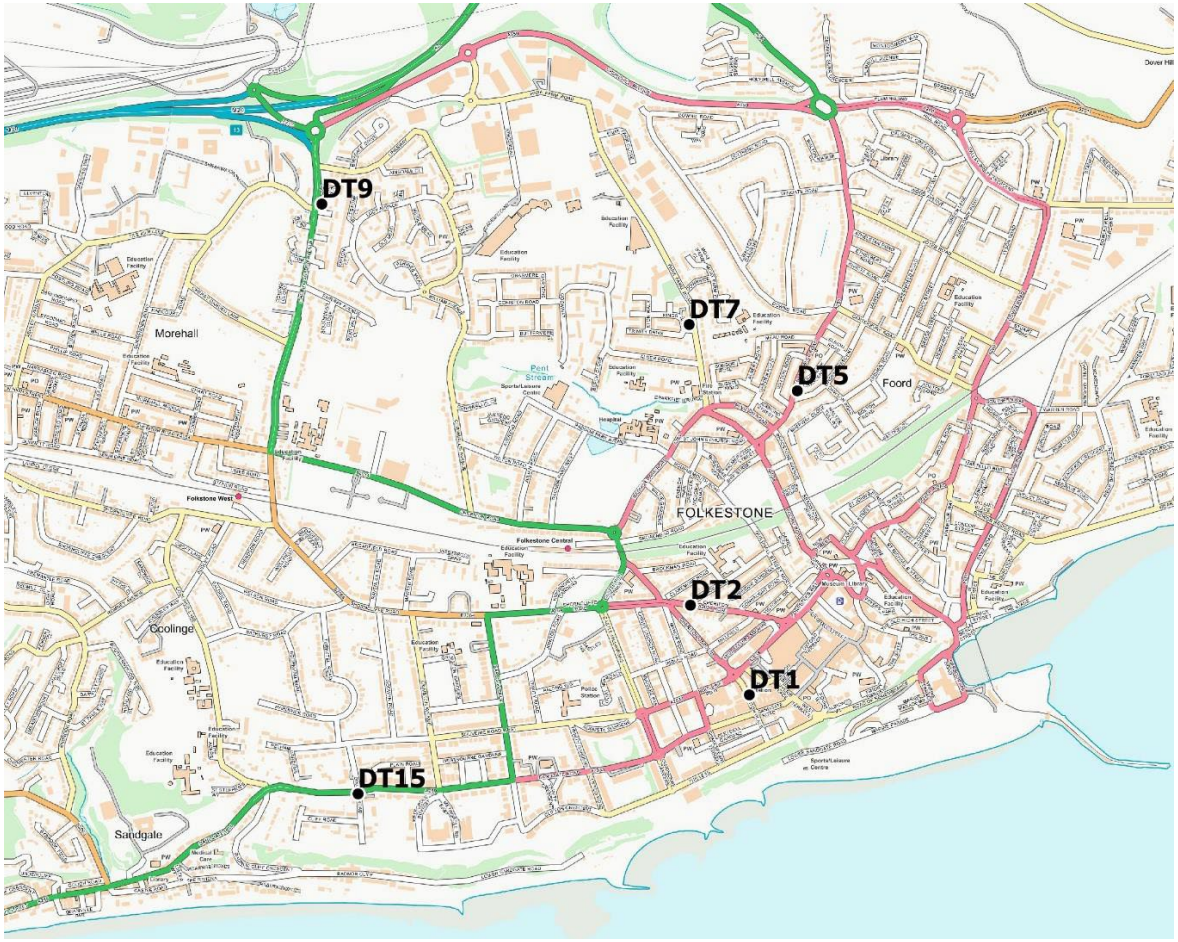
Socotec is a UKAS accredited laboratory and participates in the in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance in the latest available AIR-PT results, AIR-PT AR030 (January to February 2019) scored 87.5% and AIR-PT AR031 (April to May), AIR-PT AR033 (July to August 2019) and AIR-PT AR034 (September to November 2019) scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of < ±2.Short-term to Long-term Data Adjustment.

Short-term to Long-term Data Adjustment

All diffusion tube sites installed in 2019 recorded data capture as 75% or above. As a result, no annualisation was required for the 2019 data set.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Non-Automatic Monitoring Sites: Folkestone



Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	Folkestone and Hythe District Council
Title	Map of Non-Automatic Monitoring Sites: Folkestone
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.1

Figure D.2 – Map of Non-Automatic Monitoring Sites: Coldharbour House/Newingreen

Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

Folkestone and Hythe District Council

Title

Map of Non-Automatic Monitoring Sites: Coldharbour House/Newingreen

By	Approved
HS	PB
Scale	**Job Ref**
Not To Scale	7493241
Date	**Figure No.**
June 2020	D.2

Figure D.3 – Map of Non-Automatic Monitoring Sites: Stanford

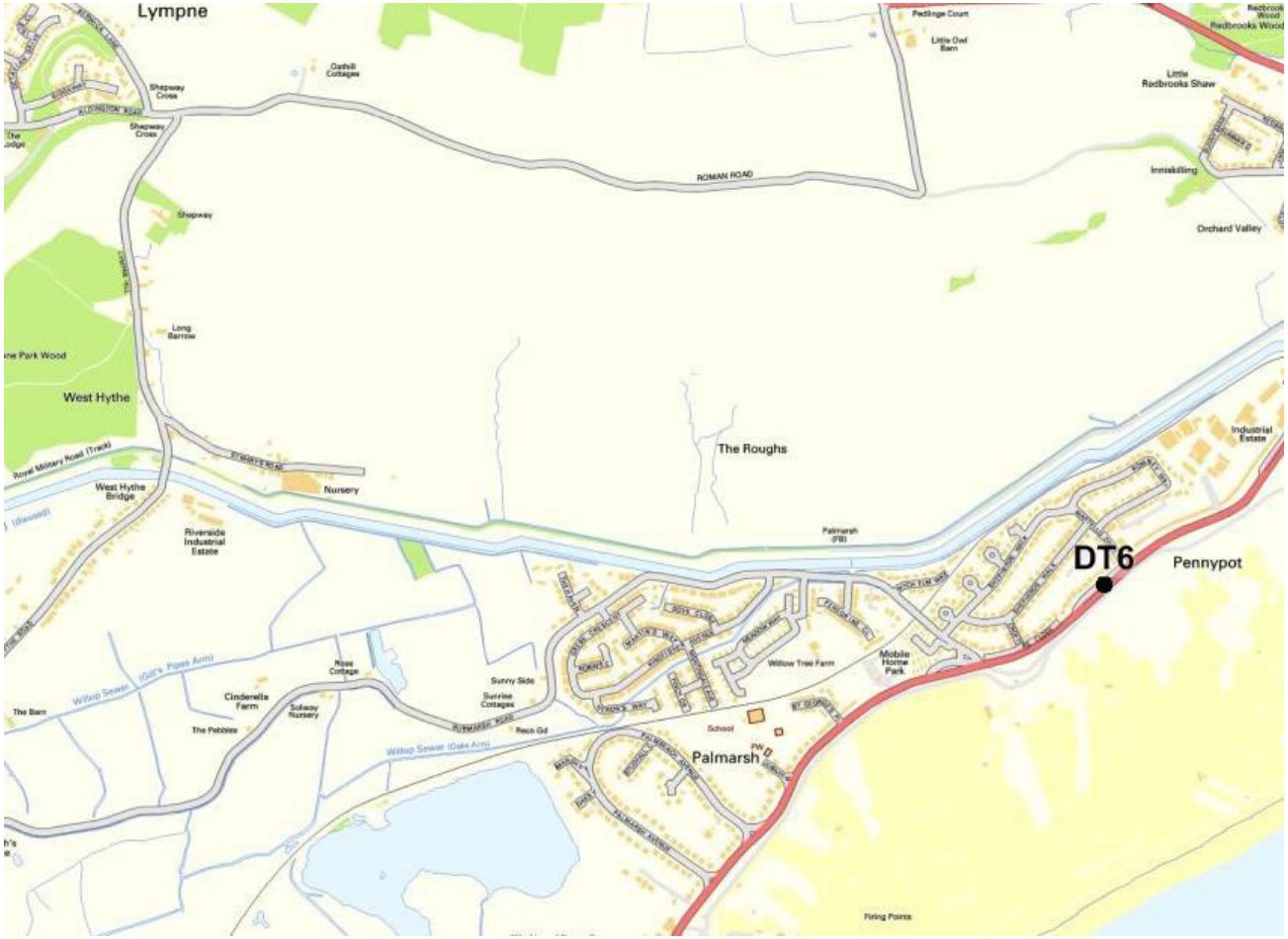
Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Folkestone and Hythe District Council	
Title Map of Non-Automatic Monitoring Sites: Stanford	
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.3

Figure D.4 – Map of Non-Automatic Monitoring Sites: Hythe



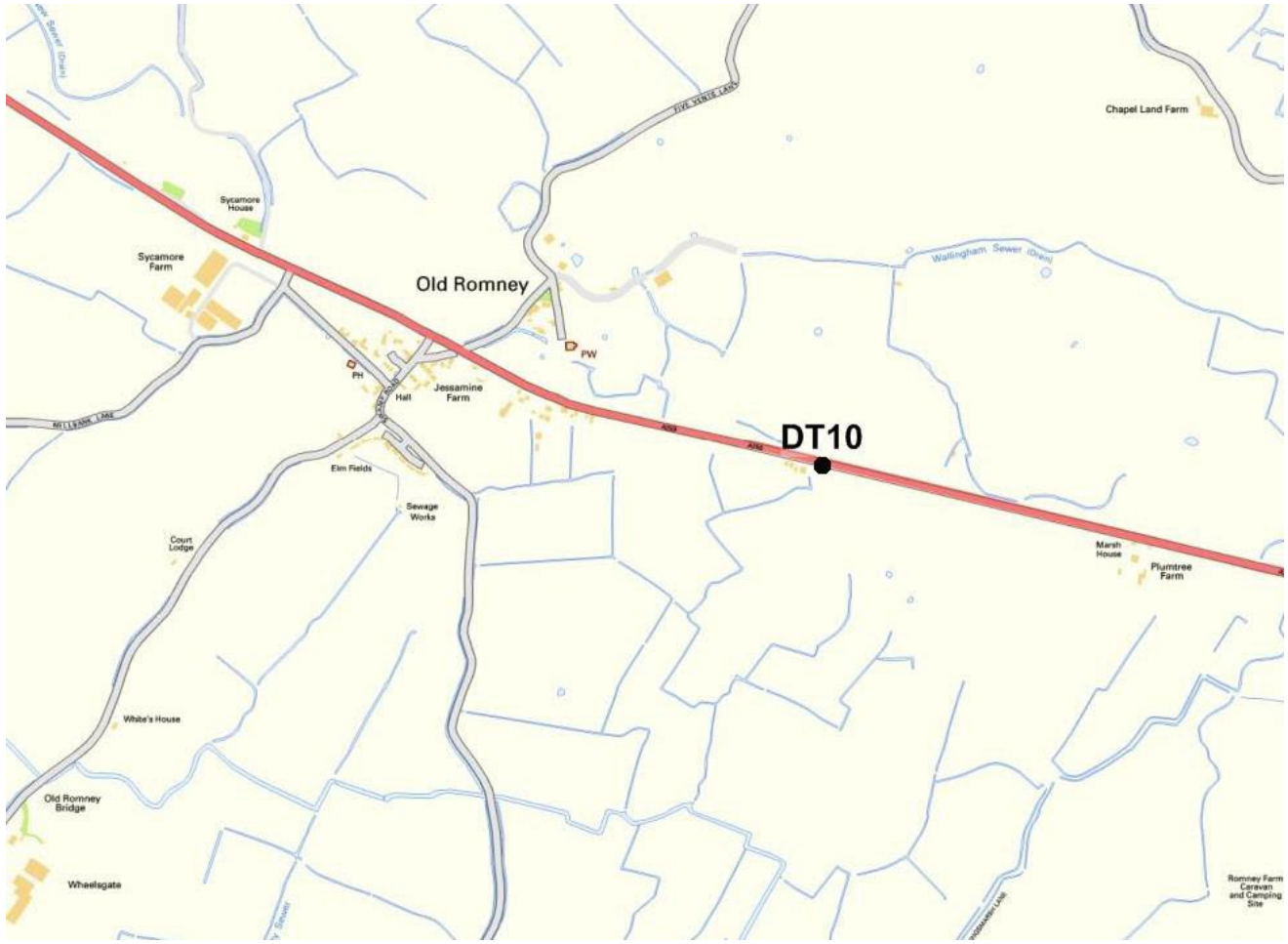
Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Folkestone and Hythe District Council	
Title N Map of Non-Automatic Monitoring Sites: Hythe	
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.4

Figure D.5 – Map of Non-Automatic Monitoring Sites: Romney



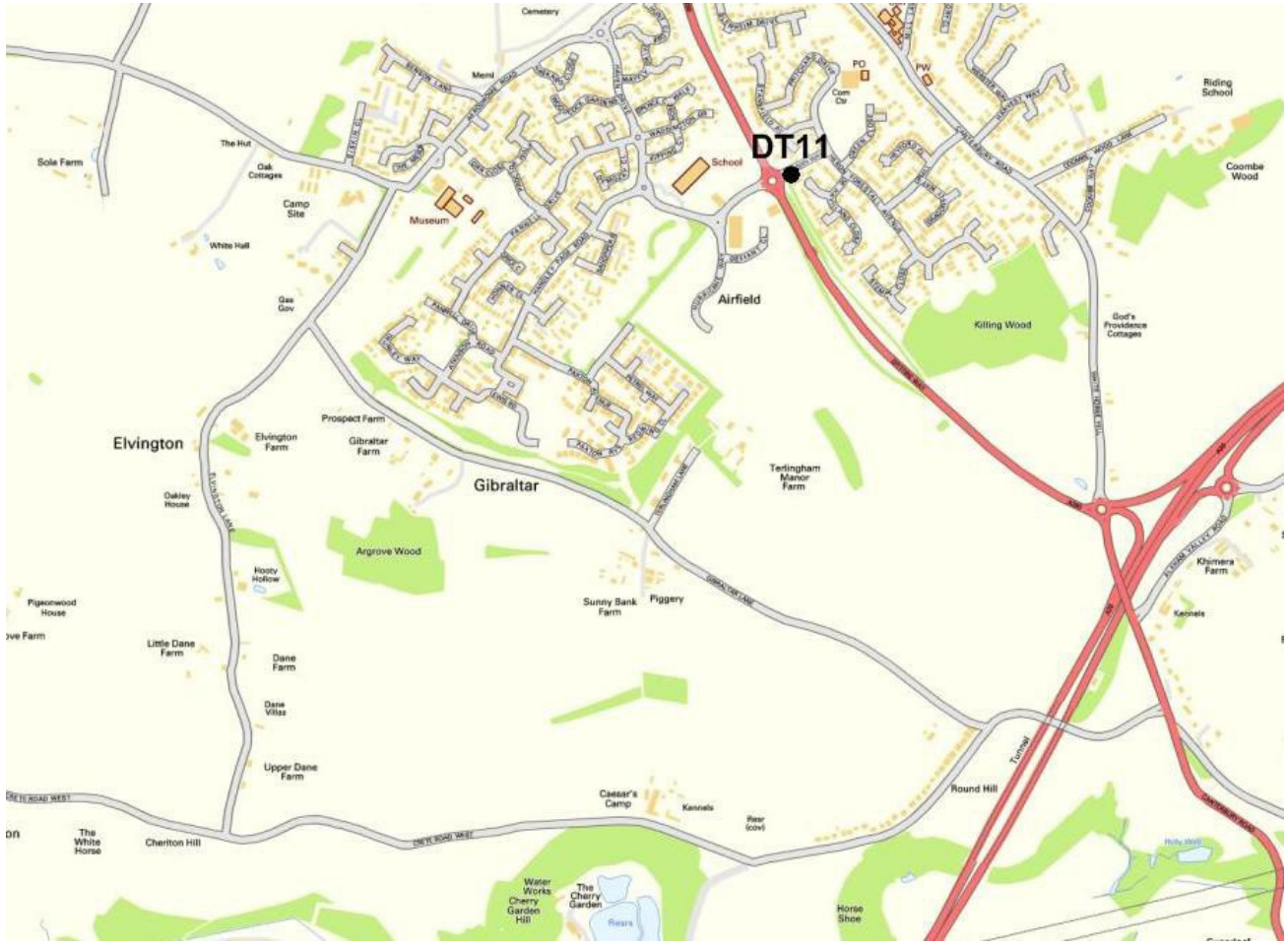
Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Folkestone and Hythe District Council	
Title Map of Non-Automatic Monitoring Sites: Romney	
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.5

Figure D.6 – Map of Non-Automatic Monitoring Sites: Hawkinge



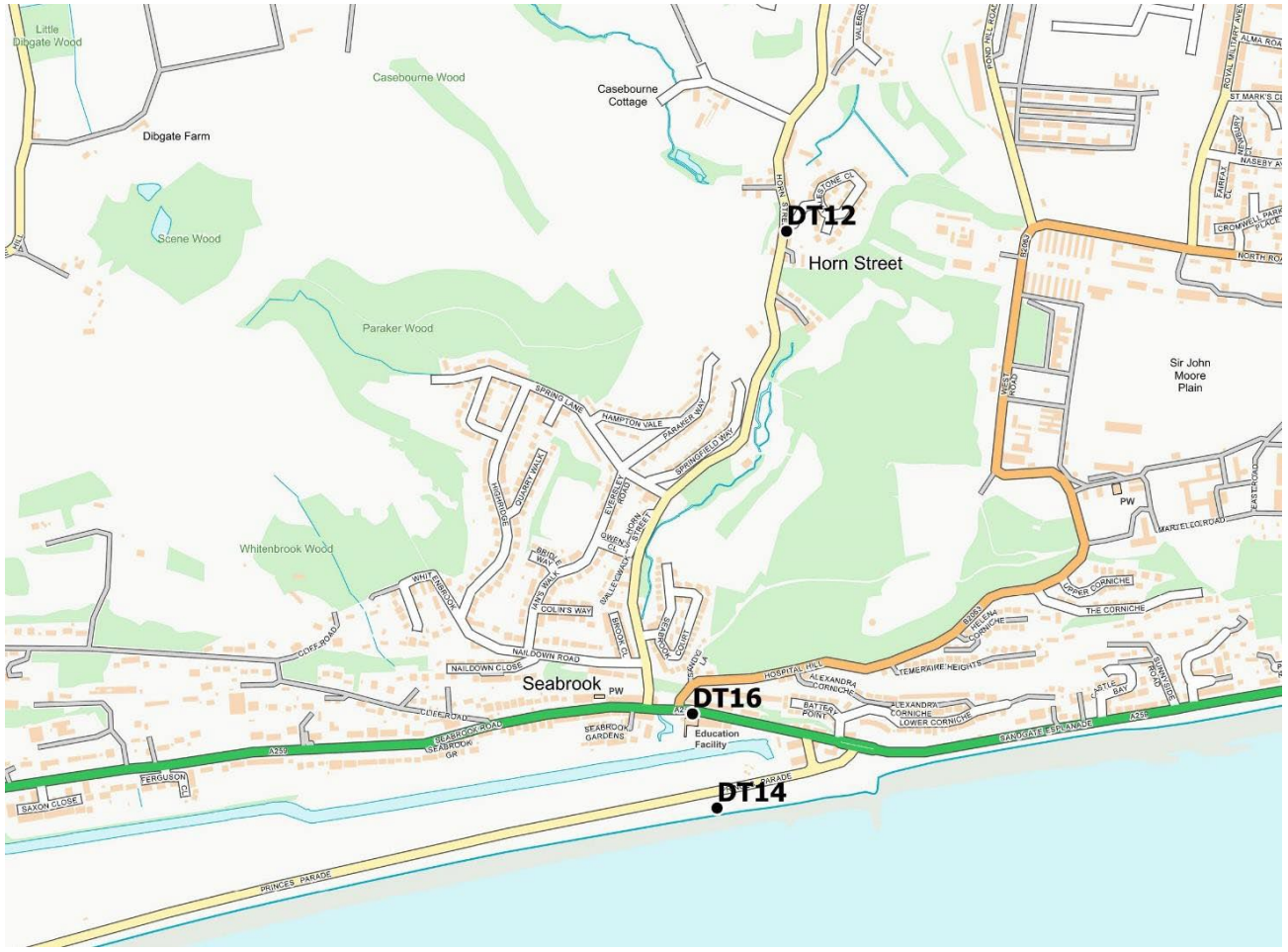
Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Folkestone and Hythe District Council	
Title Map of Non-Automatic Monitoring Sites: Hawkinge	
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.6

Figure D.7 – Map of Non-Automatic Monitoring Sites: Seabrook



Legend

● Diffusion Tube Location

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Folkestone and Hythe District Council	
Title Map of Non-Automatic Monitoring Sites: Seabrook	
By HS	**Approved** PB
Scale Not To Scale	**Job Ref** 7493241
Date June 2020	**Figure No.** D.7

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[12]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[12] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG(16). February 2018. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG(16). May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Folkestone and Hythe District Council 2018 Annual Status Report.
- National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 03/20 published in April 2020.
- https://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html (AIR-PT Rounds 24 - 34, Jan 2018 to Nov 2019)
- Folkestone and Hythe District Council, Core Strategy 2013.
- Kent & Medway Air Quality Partnership, Air Quality Planning Guidance, December 2015 (Mitigation Options A and B).