Folkestone & Hythe District Council

2022 Annual Status Report

Bureau Veritas

June 2022

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Company Name	Bureau Veritas UK Limited	Folkestone & Hythe District Council
Contact Name	Daniel Clampin	Wai Tse
Position	Senior Consultant	Environmental Health Officer
Address	Atlantic House Atlas Business Park Wythenshawe Manchester M22 5PR	Civic Centre, Castle Hill Avenue, Folkestone, Kent, CT20 2QY

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Prepared By	J Mistry	Graduate Air Quality Consultant	X
Reviewed By	D Clampin	Senior Consultant	X

2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 (Amended 2021) Local Air Quality Management

Date: June 2022

Information	Folkestone & Hythe District Council Details
Local Authority Officer	Wai Tse
Department	Environmental Health
Address	Civic Centre, Castle Hill Avenue, Folkestone, Kent, CT20 2QY
Telephone	01303 853550
E-mail	wai.tse@folkestone-hythe.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in Folkestone & 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, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

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. Due to the strategic nature of the road links the majority of the vehicles are throughflow

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[3] Defra. Air quality appraisal: damage cost guidance, July 2021

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

traffic, they 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.

Due to Folkestone and Hythe District Council's consistent years of no reported exceedances of the annual mean NO_2 AQS (Air Quality Standard) , the area has good air quality. As a result of this, there have never been any declared Air Quality Management Areas (AQMAs) within the District. The Council continues to review its monitoring network, deploying new monitoring sites in areas where there has either never been any monitoring conducted, or where there is a possibility of there being elevated NO_2 concentrations. Two new monitoring sites were deployed in 2020 (DT17 and 18), reporting concentrations well below the NO_2 AQS.

During 2021, there were no reported exceedances of the annual mean NO_2 AQS, this continues the trend of no exceedances over the last 5 years, therefore there is no requirement to declare an AQMA. The maximum reported NO_2 concentration was 26.6µg/m^3 at passive monitoring location DT4.

An increase in concentrations from 2020 – 2021 is reported within this report, twelve passive monitoring sites underwent an increase, this is likely due to the result of the COVID – 19 pandemic had on traffic volumes across the UK, responsible for reduced concentrations in 2020. The 2021 monitoring was induced to pre-pandemic traffic volumes, therefore subject to increases in NO_2 concentrations.

There are no diffusion tube monitoring 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

Whilst air quality has improved significantly in recent decades and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Within Folkestone & Hythe District Council, since the initiation of the passive monitoring network, there has been no sites that have exceeded the AQS annual mean objective for NO_2, as a result, no AQMAs have been declared within Folkestone and Hythe District Council.

Air quality in 2021 displays complete compliance with the AQS and follows the same trend for the previous 5 years of monitoring.

Folkestone and Hythe District Council continue to progress with the Click2cycle innovative bike sharing service in Folkestone, Sandgate, and Hythe. The service was launched in June 2018 and continues to be endorsed.

The Council is still actively encouraging large developers at the planning stage to install electric charging points or the consideration of suitable infrastructure to allow for future cost-efficient installations.

As part of the Council's commitment to reduce the impacts of, and tackle climate change, the Council continues to progress and aim to hit net-zero carbon emissions by 2030. Please be aware this 2030 target is just for the council's own estate not the district. There are many measures to reduce CO_2 emissions, which have shared benefits in reducing both NO_2 and PM emissions. A new development within 2021 saw the installation of two new electric charging points within the visitors sections of the civic centre. We are also installing/have installed EV charging points in most of the council's car parks.

[5] Defra. Clean Air Strategy, 2019

[6] DfT The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Conclusions and Priorities

The passive monitoring results in 2021 report that all passive monitors are compliant and record concentrations well below the NO_2 AQS of 40µg/m^3. Although all eighteen passive monitors have reported complete compliance for the past 5 years, Folkestone & Hythe District Council, will continue to use the passive monitoring network to monitor air quality levels, and to ensure that compliance is maintained throughout the district

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 deploy new monitoring locations in areas where monitoring has not previously been undertaken and where it is believed that there may be elevated concentrations of NO_2 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;
- 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; and
- Continue to be an active member of the Kent and Medway Air Quality Partnership.

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. Folkestone & Hythe District Council have not progressed any additional public engagement work in 2021, therefore the same engagement schemes for 2020 are still active. 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 and pollutants can be found on the Council's website. Additional information on air quality monitoring data, details on the main pollutants associated with air quality, alongside an air quality email subscription service is available on the Kent Air website.

Local Responsibilities and Commitment

This ASR was prepared by the Bureau Veritas on behalf of the Environmental Health Department of Folkestone & Hythe District Council with the support and agreement of the following officers and departments:

Wai Tse, Environmental Protection Specialist, Environmental Health.

This ASR has been approved by:

Wai Tse, Environmental Protection Specialist, Environmental Health.

This ASR has not been signed off by a Director of Public Health.

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1 Local Air Quality Management

This report provides an overview of air quality in Folkestone & Hythe District Council during 2021. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) as amended by the Environment Act 2021 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 & Hythe District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

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 should prepare an Air Quality Action Plan (AQAP) within 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Folkestone & Hythe District Council currently does not have any declared AQMAs.

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

Defra's appraisal of last year's ASR concluded The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports:

1. *"Robust and accurate QA/QC procedures were applied. Calculations for bias adjustment and annualisation were outlined in detail.*
2. *The Council has included discussion and review of if AQMAs are needed and monitoring strategy, deploying new monitoring sites in areas where there has either never been any monitoring conducted, or where there is a possibility of there being elevated NO_2 concentrations. This demonstrates the Councils proactive and dedicated approach to improving air quality across the area.*
3. *Comments from last year's ASR have been mentioned and addressed. This is welcomed, and we encourage this to continue in future ASRs.*
4. *The Council will cease monitoring of BTEX in 2020.The Council should consider allocating resources somewhere else to improve the local air quality.*
5. *Overall, the report is detailed, concise and satisfies the criteria of relevant standards. The Council should continue their good and thorough work."*

Folkestone & Hythe District Council continues to use its monitoring network to review air quality is at a safe level, and to ensure that all residents have access to safe levels of air quality. New monitoring locations are positioned where the Council believes there may be elevated concentrations of NO_2 in areas of relevant public exposure, alongside areas where monitoring has not previously been undertaken. This proactive nature ensures that the Council can identify areas of potential concern at the nearest possible opportunity so that if required, effective mitigation measures can be implemented. This ensures that compliant levels of air quality are available to all of its residents.

Folkestone & Hythe District Council are employing many additional measures to help improve and progress air quality within their respected area. The 2021 ASR outlines the schemes and partnerships that Folkestone & Hythe District Council are involved in, these measures are still active for the 2021 reporting year:

Folkestone and Hythe District Council continues to be an active member of the Kent and Medway Air Quality Partnership. In 2020, the KentAir website was updated following a

change of provider. It is possible to subscribe to an air quality email system, whereby an air pollution forecasts and alerts are emailed to the subscriber's inbox.

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 attempted to promote alternative forms of travel which is accessible to help its residents lead active lifestyles. In July 2020 Click2cycle has relaunched a bespoke app to allow easy hiring of bikes.

The Council is still actively encouraging large developers at the planning stage to install electric charging points or the consideration of suitable infrastructure to allow for future cost efficient installations.

The Council is aiming to hit net-zero carbon emissions by 2030. This target is just for the council's own estate not the district. Many measures to reduce CO_2 emissions also have shared-benefits in reducing NO_2 and PM emissions.

The Council have launched a Local Cycling and Walking Infrastructure Plan and the Active Travel Fund, which is Government funding that is provided through KCC grants.

Local Cycling and Walking Infrastructure Plans (LCWIP) provide a new strategic approach to identifying cycling and walking improvements required at the local level. They enable a long-term approach to developing local cycling and walking networks, ideally over a 10-year period, and form a vital part of the Government's strategy to increase the number of trips made on foot or by cycle

The active travel fund is a grant funding that supports local transport authorities with the development of cycling and walking facilities.

Within Folkstone & Hythe District Council, the extensive passive monitoring network have shown complete compliance with the AQS annual mean objective for NO_2. As a result, there is no requirement to declare an AQMA.

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.

Folkestone and Hythe District Council does not currently undertake monitoring of either PM_{10} or $PM_{2.5}$, therefore no concentrations of these can be reported or estimated using the methodology described in Box 7.7 of LAQM.TG(16).

The current Defra background maps for Folkestone and Hythe (2018 reference year) show that all 2021 background concentrations of $PM_{2.5}$ are far below the recommended annual mean AQS objective for $PM_{2.5}$ of 20µg/m^3. The highest concentration is predicted to be 10.4µg/m^3 within the 1km x 1km grid square with the centroid grid reference of 622500, 136500. This is largely a residential area within Folkestone and includes much of the A259 and connecting junctions, alongside Folkestone Central railway station and the South Eastern Main Line.

The Public Health Outcomes Framework data tool compiled by Public Health England quantifies the mortality burden of $PM_{2.5}$ within England on a county and local authority scale. The 2020 fraction of mortality attributable to $PM_{2.5}$ pollution (indicator D01) across England is 5.6%, and in contrast the fraction within Folkestone and Hythe is slightly below the national average at 5.5%. The regional average for the South East is 6.0%. The 2020 fraction of mortality has been used as opposed to the 2021 fraction as the data has not been made available at the time of writing.

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

This section sets out the monitoring undertaken within 2021 by Folkestone & Hythe District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Folkestone & Hythe District Council did not undertake automatic (continuous) monitoring during 2021.

3.1.2 Non-Automatic Monitoring Sites

Folkestone & Hythe District Council undertook non- automatic (i.e., passive) monitoring of NO_2 at 18 sites during 2021. Table A.1 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. 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.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.2 in Appendix A compare 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 represents the concentration 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 2021 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.

During 2021, all NO_2 diffusion tubes reported annual mean concentrations below the annual mean NO_2 AQS objective of 40µg/m^3. The maximum reported annual mean concentration was 26.2µg/m^3 at the monitoring location DT5, a roadside site. All sites report concentrations <36µg/m^3, therefore all passive monitoring sites are compliant and not expected to exceed or be an area of concern.

From 2020 to 2021, twelve out of eighteen passive monitoring sites underwent an increase in NO_2 concentrations, with the remaining six sites reporting decreases in NO_2 in 2021. 67% of passive monitoring sites increasing in NO_2 concentrations is likely due to the impact COVID – 19 had on traffic volumes, whereby in 2020 there was a significant decrease in road and vehicle use nationally, in particular in urban areas.

There are no passive monitoring sites where the annual mean NO_2 concentration 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.

Appendix A: Monitoring Results

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT1	Cheriton Road	Roadside	622400	136100	NO_2	N	1.0	1.2	No	3.0
DT2	Cheriton Place	Roadside	622584	135820	NO_2	N	5.0	1.8	No	2.6
DT3	Cold Harbour	Roadside	614552	134012	NO_2	N	N/A	N/A	No	2.0
DT4	Sanford North	Urban Background	612694	136190	NO_2	N	N/A	N/A	No	2.0
DT5	Black Bull Road	Roadside	612900	138200	NO_2	N	1.0	5.0	No	3.0
DT6	Martello Cottages	Roadside	622734	136769	NO_2	N	7.0	10.0	No	2.5
DT7	Wear Bay Road	Roadside	609964	135279	NO_2	N	11.5	3.0	No	3.5
DT8	Oak	Roadside	622396	136976	NO_2	N	6.0	3.5	No	2.6
DT9	Cherry Garden Avenue	Roadside	621248	137352	NO_2	N	7.5	8.0	No	2.5
DT10	Martins Cottages	Roadside	604116	124888	NO_2	N	1.2	1.0	No	2.5
DT11	Hawking	Roadside	621436	139593	NO_2	N	1.2	1.0	No	3.0
DT12	Horn Street	Kerbside	618860	135899	NO_2	N	1.0	1.0	No	2.0
DT13	Kennett Lane	Rural	612481	137978	NO_2	N	91.0	0.0	No	2.0
DT14	Princes Parade	Roadside	618727	134797	NO_2	N	39.0	1.0	No	2.0
DT15	Dixiwell	Roadside	621361	135511	NO_2	N	15.0	0.0	No	2.0
DT16	Seabrook Road	Roadside	618680	134977	NO_2	N	8.0	0.0	No	2.0
DT17	St Andrews Road	Roadside	608206	124832	NO_2	N	21.5	0.0	No	2.0
DT18	Littlestone Road	Roadside	607675	124699	NO_2	N	16.3	0.0	No	2.0

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: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2021 (%) [2]	2017	2018	2019	2020	2021
DT1	622400	136100	Roadside	100.0	100.0	23.5	25.4	21.0	18.3	21.6
DT2	622584	135820	Roadside	100.0	100.0	27.9	19.6	25.7	15.6	16.7
DT3	614552	134012	Roadside	89.3	89.3	16.5	12.0	11.8	9.7	9.9
DT4	612694	136190	Urban Background	58.3	58.3	19.9	18.1	17.8	13.7	12.6
DT5	612900	138200	Roadside	100.0	100.0	30.2	29.7	27.9	22.6	26.2
DT6	622734	136769	Roadside	100.0	100.0	23.2	23.2	25.3	19.6	20.9
DT7	609964	135279	Roadside	100.0	100.0	22.5	17.2	17.7	14.2	13.2
DT8	622396	136976	Roadside	68.4	68.4	21.4	21.3	22.4	13.9	16.0
DT9	621248	137352	Roadside	100.0	100.0	29.5	28.8	30.0	19.7	23.2
DT10	604116	124888	Roadside	89.3	89.3	16.2	16.5	16.6	13.1	14.0
DT11	621436	139593	Roadside	100.0	100.0	22.5	19.8	19.3	14.5	16.8
DT12	618860	135899	Kerbside	94.0	94.0	19.2	18.8	16.2	14.1	14.7
DT13	612481	137978	Rural	90.9	90.9	18.5	16.7	13.6	10.9	10.8
DT14	618727	134797	Roadside	100.0	100.0	-	15.8	16.3	12.9	13.2
DT15	621361	135511	Roadside	100.0	100.0	-	-	24.3	20.1	20.2
DT16	618680	134977	Roadside	100.0	100.0	-	-	18.1	14.4	18.0
DT17	608206	124832	Roadside	100.0	100.0	-	-	-	9.9	9.6
DT18	607675	124699	Roadside	100.0	100.0	-	-	-	14.0	15.3

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☒ **Diffusion tube data has been bias adjusted.**

☒ **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 correction**

Notes:

The annual mean concentrations are presented as µg/m^3.

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**.

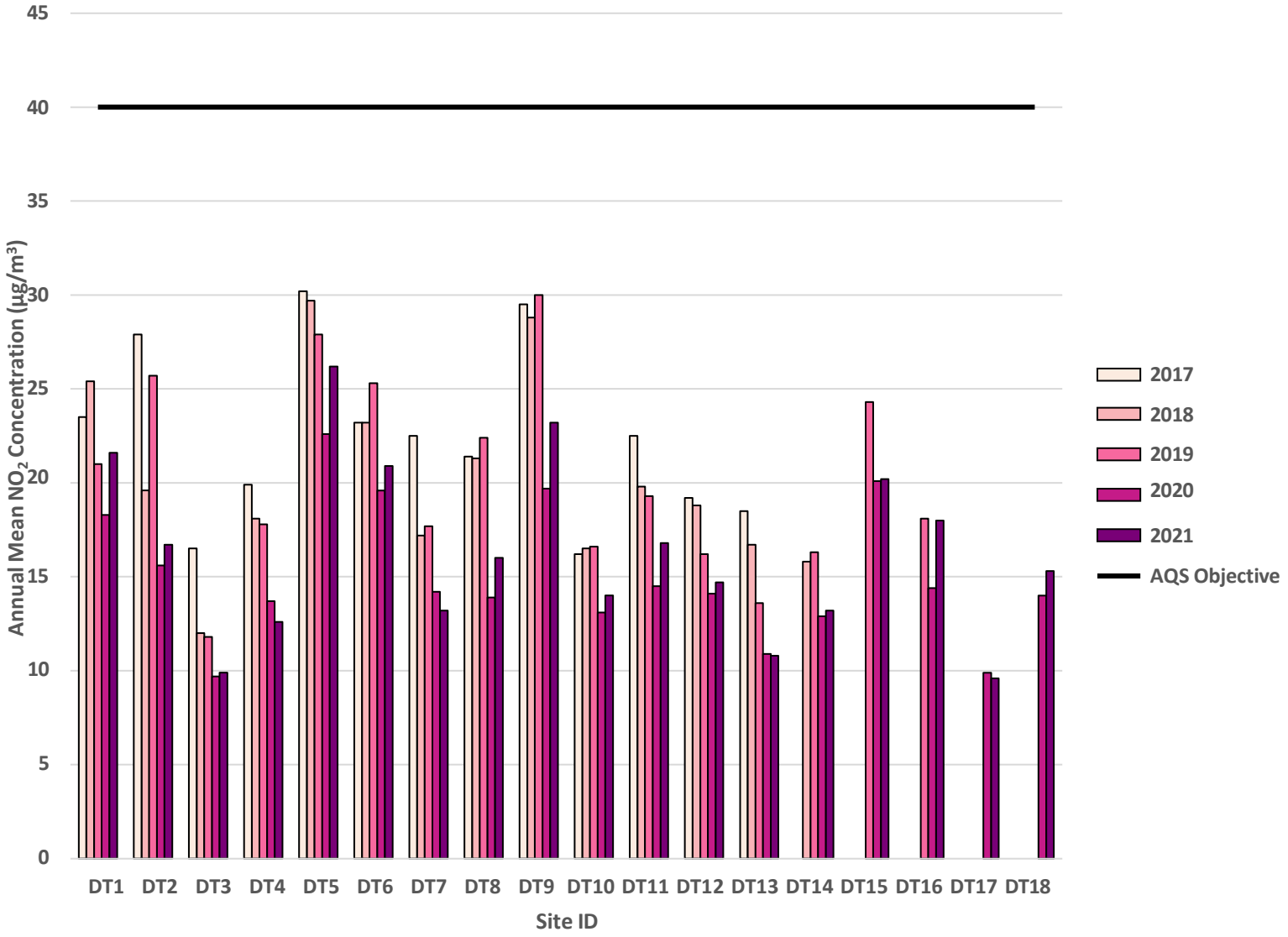
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

(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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT1	622400	136100	35.2	20.4	30.3	23.7	25.6	-	-	11.3	29.6	26.8	36.1	36.6	27.6	21.6		
DT2	622584	135820	22.8	27.7	23.2	21.0	24.2	-	-	7.1	25.9	17.5	22.5	22.4	21.4	16.7		
DT3	614552	134012	14.6	20.6	11.8	9.9	11.7	-	-	7.0	12.9	11.0	14.6	13.6	12.7	9.9		
DT4	612694	136190	-	20.3	-	13.8	-	-	-	9.0	15.0	15.7	-	18.1	15.3	12.6		
DT5	612900	138200	33.0	39.6	32.9	33.1	37.3	-	-	23.6	38.5	30.1	33.5	34.9	33.6	26.2		
DT6	622734	136769	30.2	-	28.1	26.6	30.7	-	-	18.4	30.6	22.8	24.0	29.1	26.7	20.9		
DT7	609964	135279	17.8	22.3	19.4	-	15.4	-	-	11.1	17.1	15.9	19.4	14.2	16.9	13.2		
DT8	622396	136976	24.2	24.1	18.1	17.6	21.1	-	-	10.1	25.6	21.0	21.4	22.4	20.5	16.0		
DT9	621248	137352	36.3	30.8	33.1	27.3	24.7	-	-	20.5	21.0	33.9	38.4	31.6	29.8	23.2		
DT10	604116	124888	21.3	33.1	16.6	-	14.5	-	-	10.5	14.1	15.0	22.6	15.5	18.0	14.0		
DT11	621436	139593	22.1	25.9	19.5	16.9	18.6	-	-	13.8	22.0	22.0	24.1	30.2	21.5	16.8		
DT12	618860	135899	22.4	27.0	16.0	17.8	18.7	-	-	8.4	20.4	16.7	19.1	21.5	18.8	14.7		
DT13	612481	137978	19.8	23.4	11.1	10.6	13.8	-	-	7.5	12.4	-	11.2	16.2	13.9	10.8		
DT14	618727	134797	18.9	27.6	15.5	14.8	17.8	-	-	8.0	22.5	12.8	16.7	15.9	16.9	13.2		
DT15	621361	135511	33.6	30.7	28.2	22.4	27.8	-	-	18.3	28.0	28.0	14.0	28.4	25.9	20.2		
DT16	618680	134977	45.2	29.0	22.1	18.5	20.3	-	-	12.3	17.0	20.2	24.8	23.8	23.1	18.0		
DT17	608206	124832	13.6	19.3	11.6	11.5	10.8	-	-	6.6	13.2	10.8	11.5	14.1	12.3	9.6		
DT18	607675	124699	22.3	24.3	21.3	18.7	16.8	-	-	11.0	21.9	19.0	21.5	19.6	19.6	15.3		

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **Folkestone & Hythe District Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Folkestone & Hythe District Council During 2021

Folkestone & Hythe District Council has identified one potential new source relating to air quality within the reporting year of 2021. Otterpool Park is a proposed Garden Town located in the Kent Countryside close to the seaside town of Folkestone, it is a long-term project spanning at least 30 years - proposed up to 10,000 new homes and supporting infrastructure.

Additional Air Quality Works Undertaken by During 2021

Folkestone & Hythe District Council has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

Folkestone and Hythe District Council's diffusion tubes in 2021 were supplied and analysed by SOCOTEC Didcot, using the 50% Triethanolamine (TEA) in acetone preparation method. SOCOTEC's laboratory is UKAS accredited, participating in the AIR-PT Scheme 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 AR036 (January – February 2020) and AIR PT AR040 (September – October 2020), SOCOTEC scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$.

Local authority co-location studies which use tubes supplied by SOCOTEC with the 50% TEA in acetone preparation method in 2021, with 20 studio rated as 'good' and 3 'poor', as shown by the precision summary results. This precision reflects the laboratory's performance and consistency in preparing and analysing the tubes, as well as the

subsequent handling of the tubes in the field. Tubes are considered to have a "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more monitoring periods during a year is less than 20%.

Monitoring in 2021 was completed in adherence with the 2021 Diffusion Tube Monitoring Calendar, whereby all changeovers were completed within ±2 days of the specified date.

Diffusion Tube Annualisation

The LAQM.TG(16) states that annualisation is required for any site which has a data capture of less than 75%, but greater than 25%. Diffusion tube site DT4 required annualisation due to insufficient data capture in 2021 (58.3%). Annualisation was completed using version 2.0 of the 'Diffusion Tube Data Processing Tool'. Due to there being insufficient continuous background monitoring locations, the four nearest AURN monitoring stations selected to annualise the data are:

- Canterbury;
- Rochester Stoke;
- Eastbourne; and
- St Osyth

These continuous background monitoring sites were applicable to use as they all had >85% data capture and therefore could be used for annualisation. Table C.2 presents the annualisation summary, taken from the 'Diffusion Tube Data Processing Tool'.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG16 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.

Folkestone & Hythe District Council have applied a national bias adjustment factor of 0.78 to the 2021 monitoring data. A summary of bias adjustment factors used by Folkestone & Hythe District Council over the past five years is presented in Table C.1.

No co-location studies are carried out by Folkestone and Hythe District Council therefore only a national factor can be applied. The national factor for SOCOTEC Didcot 50% TEA in acetone, as presented in the Diffusion Tube Bias Factors Spreadsheet v03_22, was 0.78 based on 23 studies. The National Bias Adjustment Spreadsheet is presented in Figure C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.78
2020	National	09/19	0.76
2019	National	06/18	0.75
2018	National	09/17	0.76
2017	National	06/16	0.77

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website.

No diffusion tube NO_2 monitoring locations within Folkestone & Hythe District Council required distance correction during 2021.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Canterbury	Annualisation Factor Rochester Stoke	Annualisation Factor Eastbourne	Annualisation Factor St Osyth	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
DT8	1.0462	1.0561	1.0636	1.0406	1.0516	15.3	16.0	

Figure C.1 – National Bias Adjustment Factor Spreadsheet (03/22)

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/22

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2022

LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data[2]

Step 4:

Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To see your selection, choose [All] from the pop-up list)	Year[5] (To see your selection, choose [All])	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2021	UB	Gravesham Borough Council	12	23	21	7.9%	G	**0.93**
Socotec Didcot	50% TEA in acetone	2021	UB	Gravesham Borough Council	11	27	23	18.2%	G	**0.85**
Socotec Didcot	50% TEA in acetone	2021	R	Horsham District Council	12	27	20	34.5%	G	**0.74**
Socotec Didcot	50% TEA in acetone	2021	R	Ipswich Borough Council	12	29	23	23.8%	G	**0.81**
Socotec Didcot	50% TEA in acetone	2021	R	Ipswich Borough Council	12	38	29	33.3%	G	**0.75**
Socotec Didcot	50% TEA in acetone	2021	UB	Kingston upon Hull City Council	11	24	17	39.7%	G	**0.72**
Socotec Didcot	50% TEA in acetone	2021	R	Kingston upon Hull City Council	12	30	25	22.3%	G	**0.81**
SOCOTEC Didcot	50% TEA in acetone	2021	UB	City of York Council	11	17	13	38.2%	G	**0.72**
SOCOTEC Didcot	50% TEA in acetone	2021	R	City of York Council	12	25	20	27.0%	G	**0.79**
SOCOTEC Didcot	50% TEA in acetone	2021	R	City of York Council	12	22	17	29.0%	G	**0.77**
SOCOTEC Didcot	50% TEA in acetone	2021	R	City of York Council	12	37	25	45.5%	G	**0.69**
SOCOTEC Didcot	50% TEA in acetone	2021	UI	North Lincolnshire Council	12	17	14	19.3%	G	**0.83**
Socotec Didcot	50% TEA in acetone	2021	R	Bridgend Borough County Council / Shared Regu	12	36	25	42.3%	G	**0.70**
Socotec Didcot	50% TEA in acetone	2021	UB	Derry City and Strabane District Council	12	11	9	28.4%	G	**0.78**
Socotec Didcot	50% TEA in acetone	2021	R	Derry City and Strabane District Council	12	30	30	2.4%	G	**0.98**
Socotec Didcot	50% TEA in acetone	2021	R	East Suffolk Council	11	30	25	22.3%	P	**0.82**
Socotec Didcot	50% TEA in acetone	2021	KS	Marylebone Road Intercomparison	10	56	42	32.3%	P	**0.75**
Socotec Didcot	50% TEA in acetone	2021	R	North East Lincolnshire Council	10	27	29	-7.6%	G	**1.08**
Socotec Didcot	50% TEA in acetone	2021	R	North East Lincolnshire Council	9	45	33	34.5%	P	**0.74**
Socotec Didcot	50% TEA in acetone	2021	R	Leeds City Council	13	40	29	35.5%	G	**0.74**
Socotec Didcot	50% TEA in acetone	2021	KS	Leeds City Council	12	34	25	37.3%	G	**0.73**
Socotec Didcot	50% TEA in acetone	2021	R	Leeds City Council	9	43	31	40.8%	G	**0.71**
Socotec Didcot	50% TEA in acetone	2021	UC	Leeds City Council	12	31	23	37.4%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2021		**Overall Factor[3] (23 studies)**				**Use**		**0.78**

Appendix D: Map(s) of Monitoring Locations and AQMAs

Figure D.1 – Map of All Non-Automatic Monitoring Sites across Folkestone & Hythe District Council

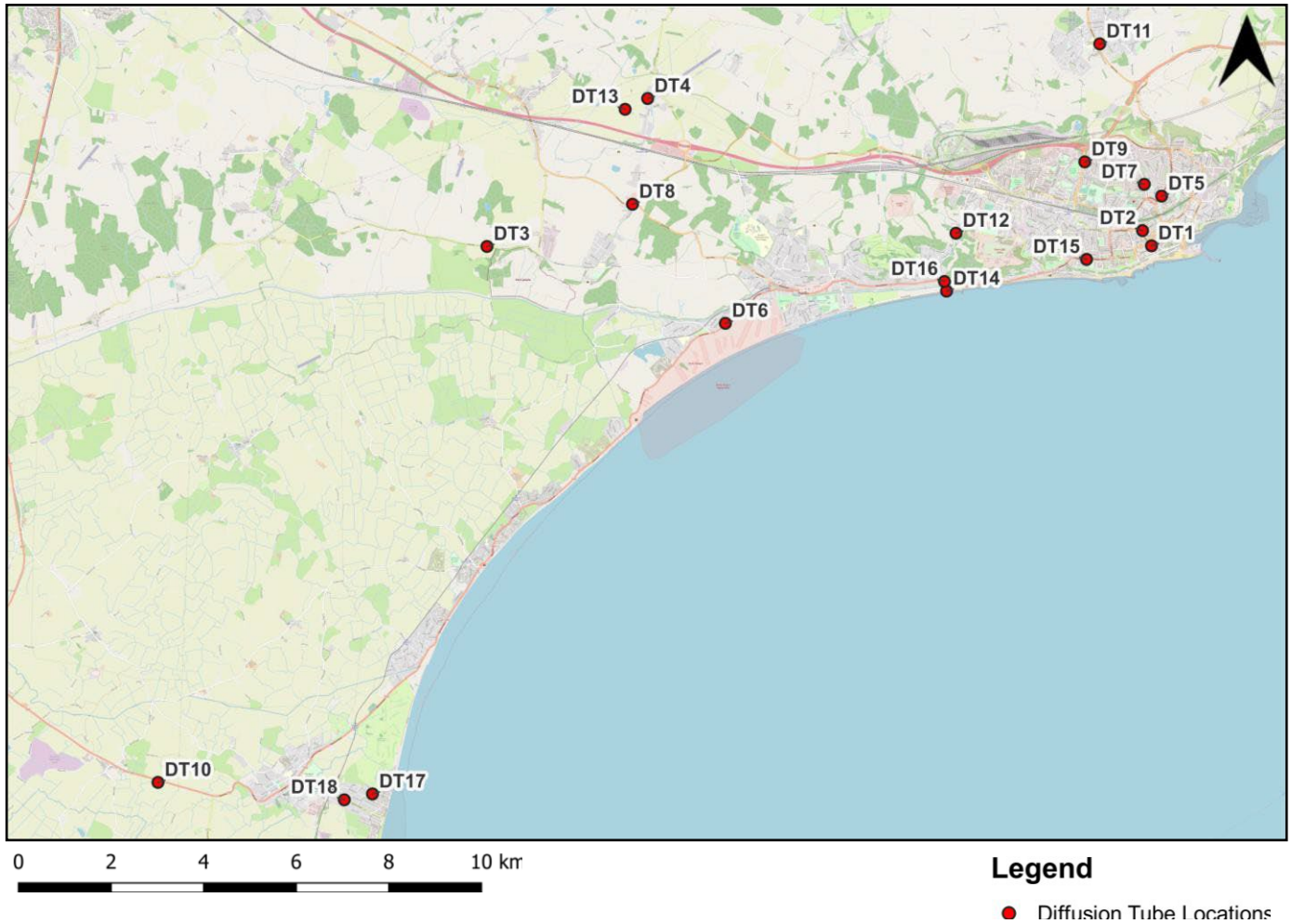


Figure D.2 – Map of All Non-Automatic Monitoring Sites near Lympne

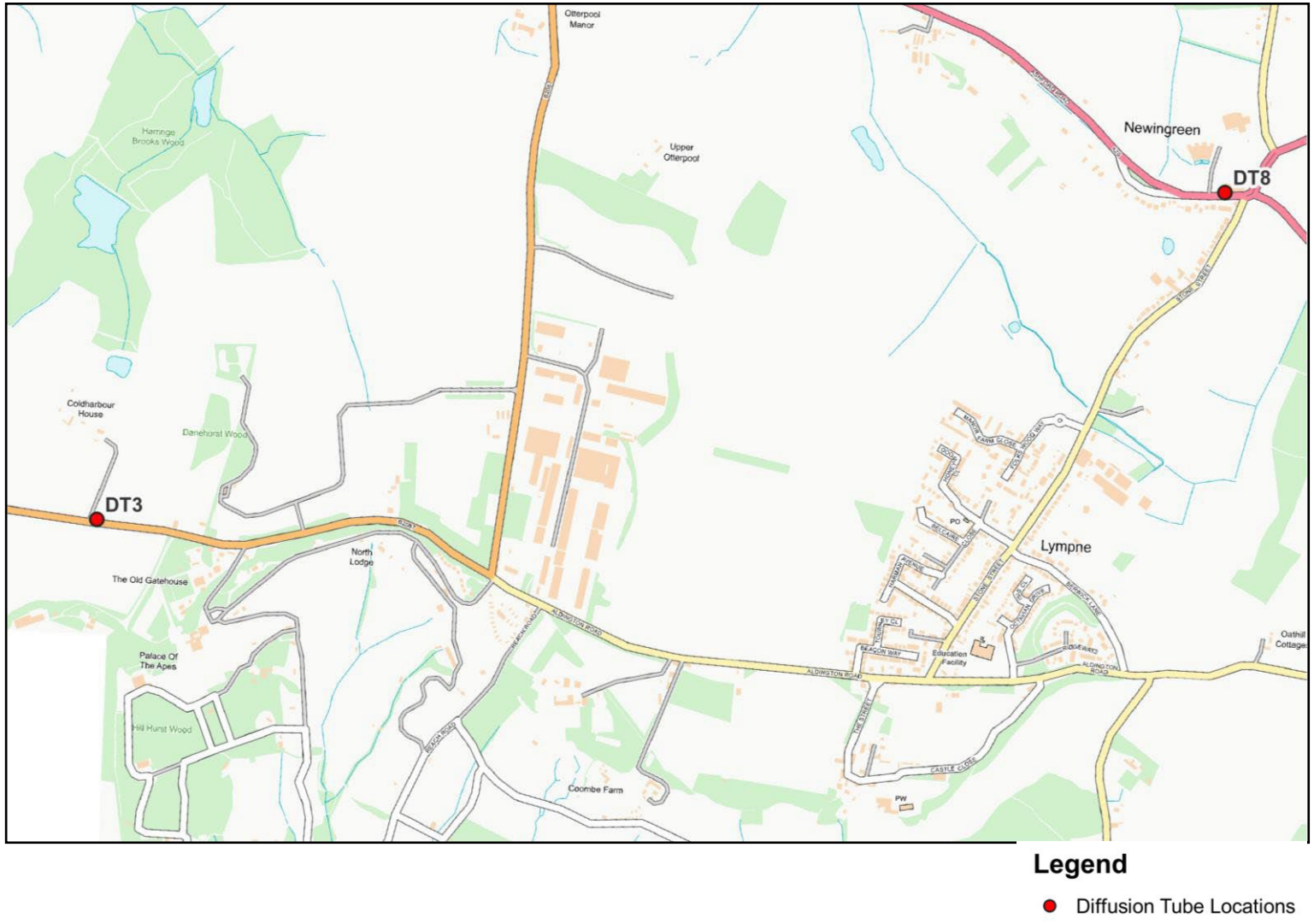


Figure D.3 – Map of All Non-Automatic Monitoring Sites in Folkestone

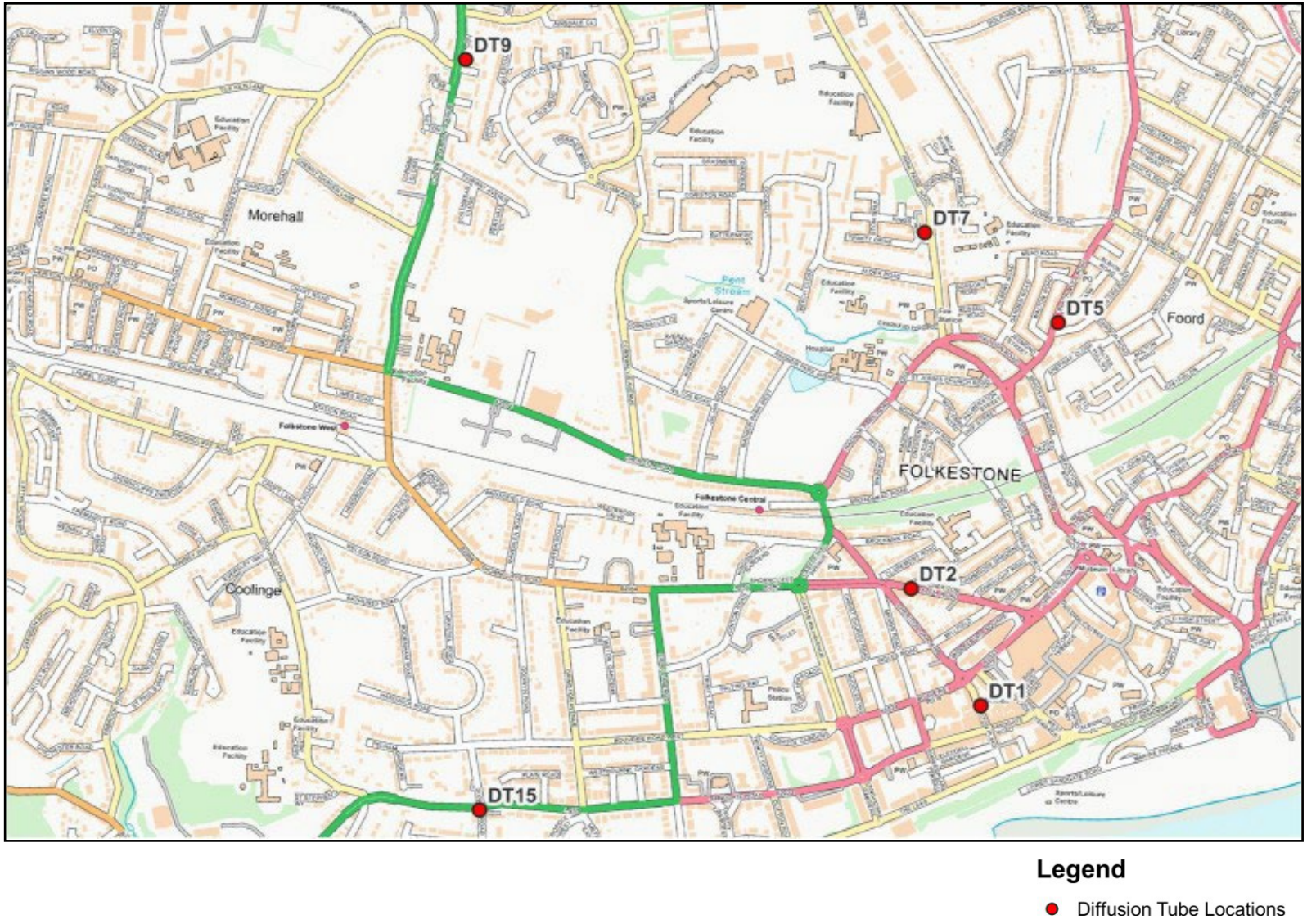


Figure D.4 – Map of All Non-Automatic Monitoring Sites in Hawkinge

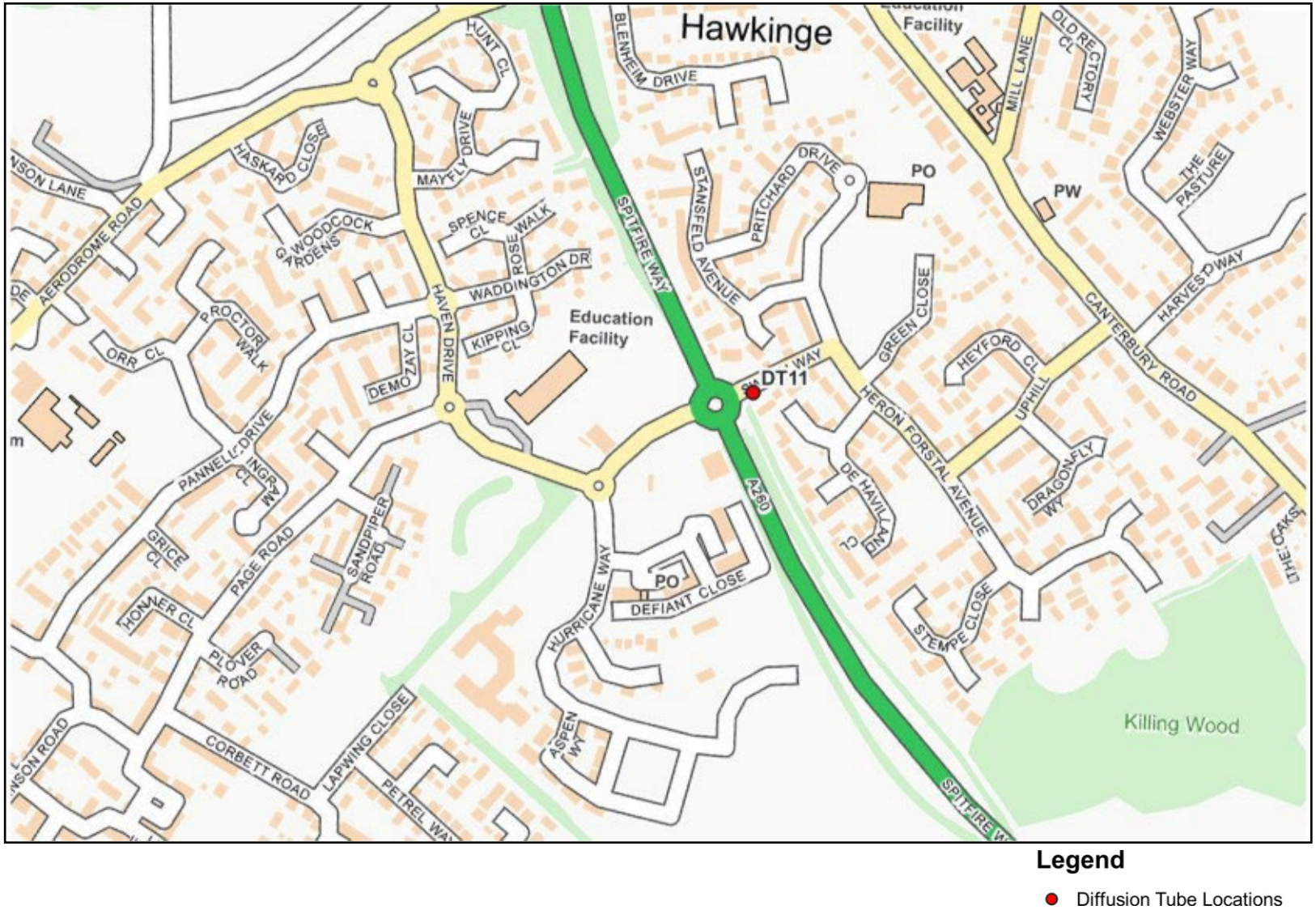


Figure D.5 – Map of All Non-Automatic Monitoring Sites in Pennypot

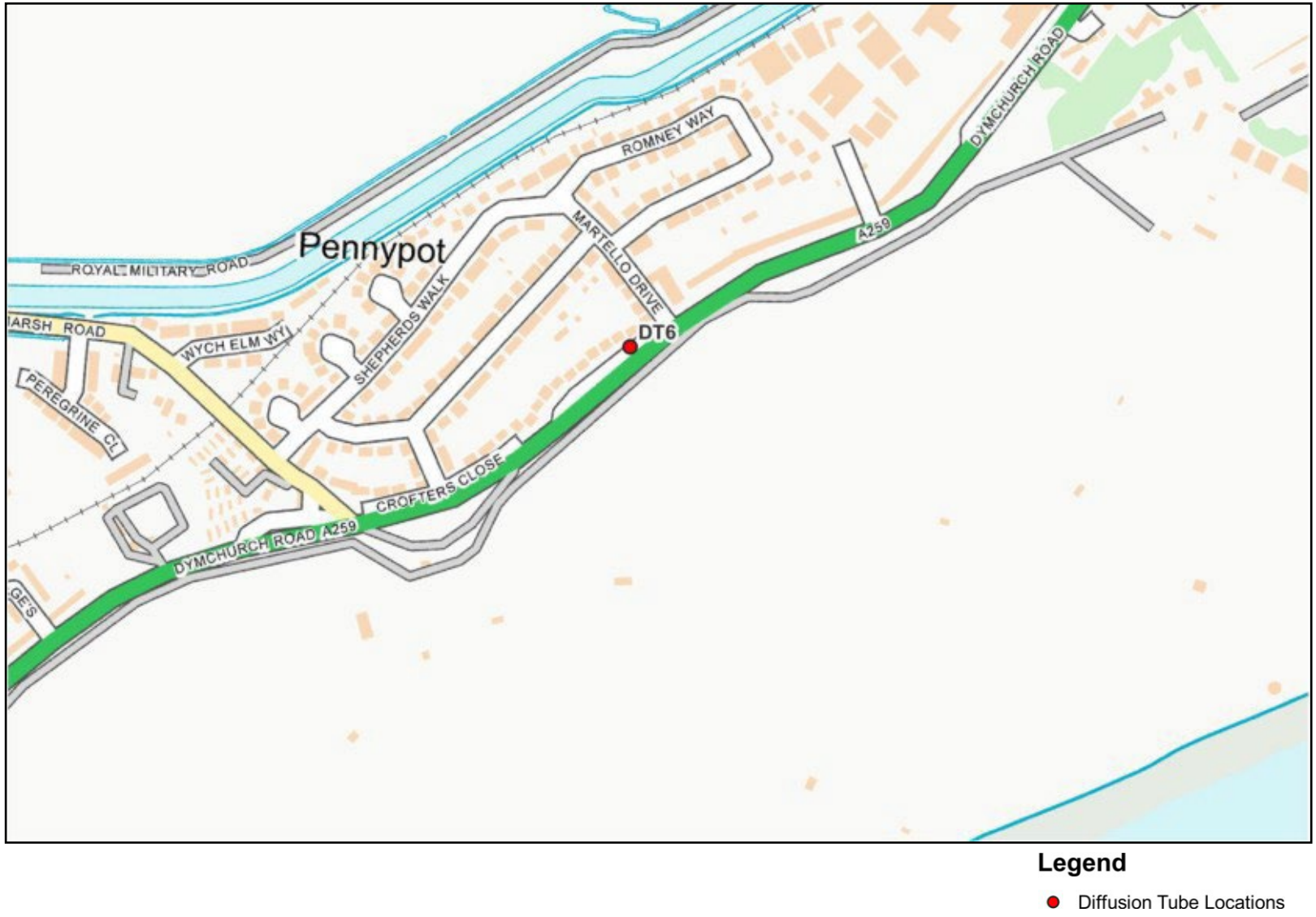


Figure D. 6 – Map of All Non-Automatic Monitoring Sites in Romney

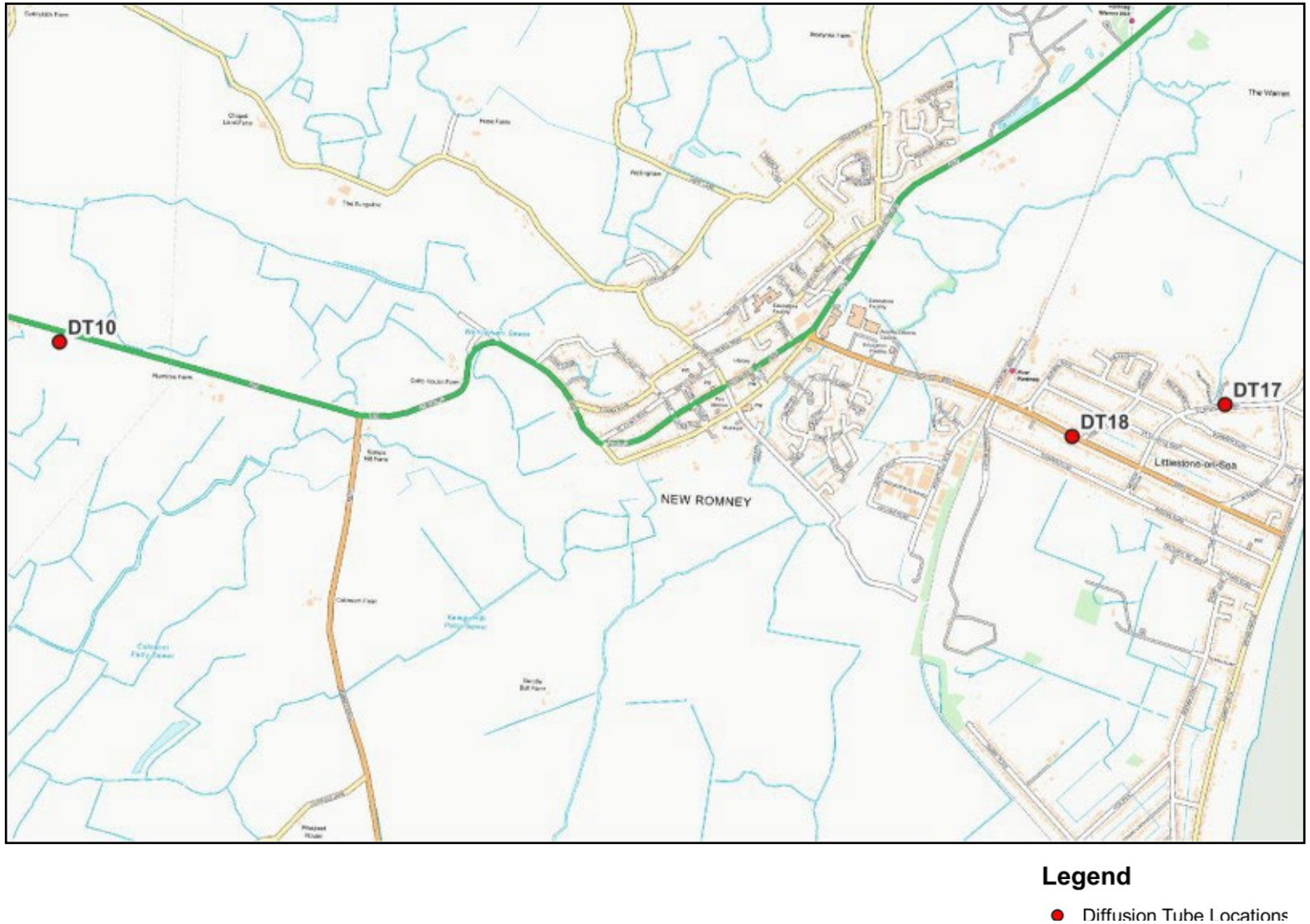
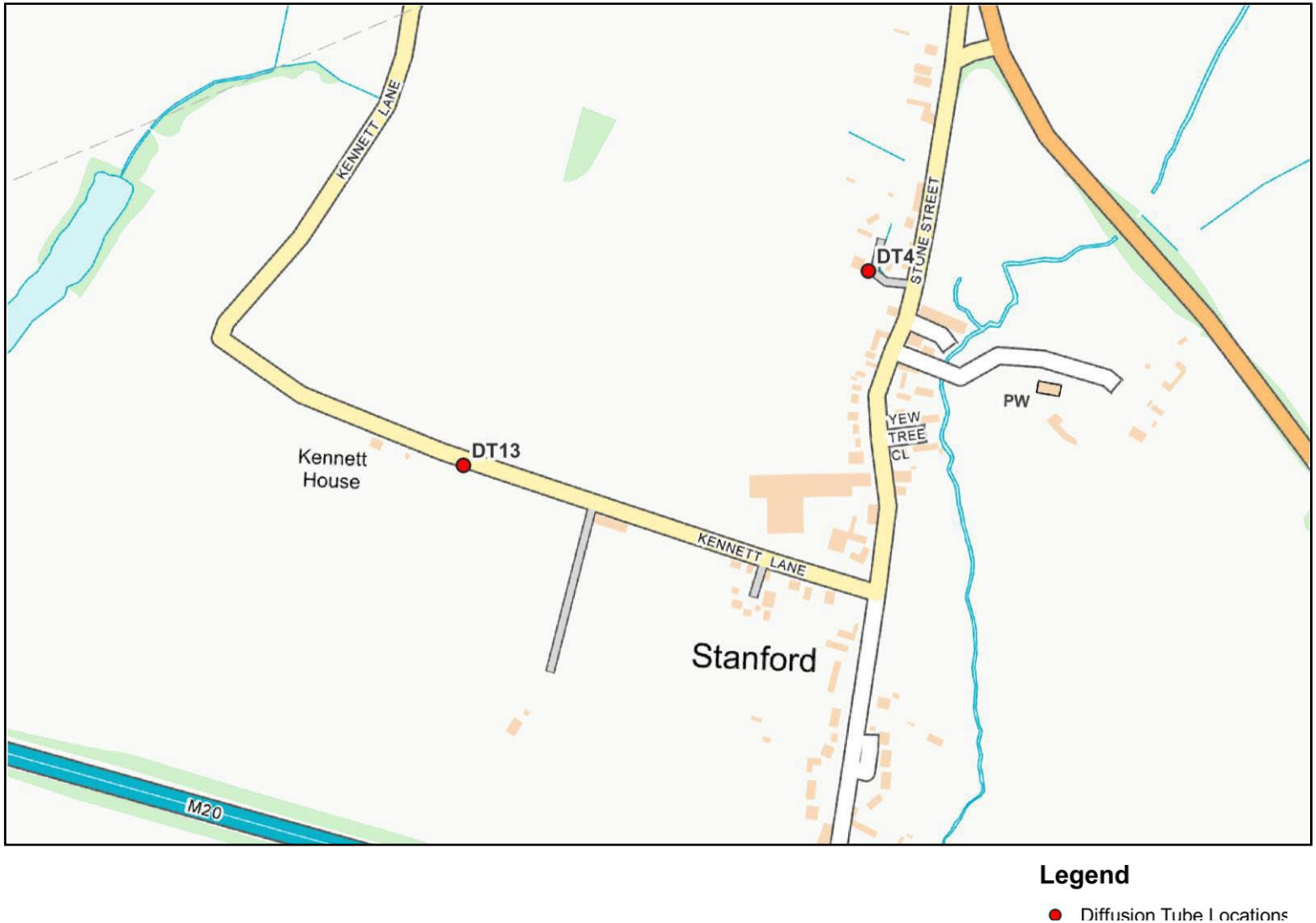


Figure D.7 – Map of All Non-Automatic Monitoring Sites in Seabrook

Figure D.8 – Map of All Non-Automatic Monitoring Sites in Stanford



Appendix E: Summary of Air Quality Objectives in England

Table E.1 - Air Quality Objectives in England

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

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	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
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 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
AQS	Air Quality Standard

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. 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.PG16. 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 Annual Status Report 2021