

Air Quality and Dust Monitoring Monthly Report – September 2021

Buckinghamshire Council



Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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A report prepared by EWCs and MWCCs on behalf of HS2 Ltd.

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Monthly Summary

- 1.1.1 This Summary Report is published in fulfilment of commitments detailed in the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, Annex 1: Code of Construction Practice, for the nominated undertaker to present the results of dust monitoring undertaken in Buckinghamshire Council (BC) area during September 2021.
- 1.1.2 Figure 1 to Figure 7 in Appendix A indicate the current worksites together with the dust monitoring locations.
- 1.1.3 This summary should be read in conjunction with the overview monitoring report available from www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2, which highlights the applicable standards and guidance, as well as the air quality and dust monitoring methodologies to be implemented by nominated undertakers throughout construction.
- 1.1.4 The current phase of construction works commenced in March 2020 and is currently ongoing. The current worksites, as presented in Appendix A, Figure 1 to Figure 7, include:

CVV LTP1

- Jetty piling: piling plant form, platforms, support plant and compound;
- Cofferdam sheet piling: piling plant and support plant;
- Causeway piling: Sheet pile installation and support piling;
- Permanent main piling works: boring pile, de-sanding pile bore at pile position, installing reinforcement cage and concreting pile, bored pile break-down to prepare pile surface, grout curtain around viaduct pile groups maintenance plant and clean up around piles;
- Haul road 28,220 - 29,200: preparation works, earthworks and drainage;
- North Embankment Compound: compound operation;
- Ground Investigation works: GI works and overwater GI works;
- DWSC Compound: compound operation and de-sanding compound;
- River Colne Realignment;
- Thames water diversion;
- Construction of north abutment pile wall;
- Yard Support of north abutment works;
- P41 retaining wall;
- Core drilling for integrity test of concrete piles; and
- Cofferdam excavation, dewatering, waling beams and concrete plugs.

Chalfont St Peter Vent Shaft

- General plant;
- Shaft base slab: preparation works;
- Collar construction bore TBM crossing: cast in- situ RC collar part 1 & 2;
- Basement secant piling works: shallow box retaining wall contiguous & secant piles, excavate & cut contiguous & secant piles;

- Road maintenance works;
- Stockpile management at ventilation shaft site and management of temporary stockpile;
- Shaft dewatering;
- All auxiliary plant 01-07; and
- Post treatment injection works including dewatering.

Amersham Vent Shaft

- General site activity: general plant;
- Earthworks: stockpile management;
- Ground post treatment: drilling and grouting; and
- Water Treatment;

Chalfont St Giles Vent Shaft

- General site activity: general plant;
- Earthworks: stockpile management;
- Ground post treatment: drilling and grouting;
- Dewatering; and
- Secant piling: secant piling

Little Missenden Vent Shaft

- General site activity: general plant;
- Earthworks: stockpile management;
- D-Wall works: excavation, concreting, desanding and mud treatment; and
- Water treatment.

Aylesbury

- Construction of A418 Oxford Road Main Compound; and
- Drainage earthworks (ditches, attenuation ponds).

Calvert Area

- Expansion of the West Street Compound car park;
- School Hill Batching Plant Compound mobilisation works (including compound civils and underground utilities, compound foundations and footings, and testing of batching plant priority mixes);
- Addison Road Overbridge enabling works;
- East West Rail overbridge preparation;
- Perry Hill overbridge temporary drainage construction and mobilisation for piling works;
- School Hill at-grade crossing and expansion of the site access road from Perry Hill to Portway watercourse;
- OXD line earthworks (including removal of ballast, destumping, stockpile preparation, temporary drainage installation, removal of the OXD embankment and creation of earthwork screening bunds);
- Culvert cutting works (included stockpile preparation, temporary drainage and destumping);

- FCC bridleway upgrades (included devegetation works, grass trimming, ditch crossings and laying of stone causeways); and
- Calvert south access road works (including replacement of existing culverts, topsoil stripping, laying and compacting of the road access surface, and completion of concrete protection slabs).

Lower Bottom House Farm Lane

- Earthworks (including excavation and stockpiling);
- Reconstruction and widening of the existing Bottom House Farm Lane;
- Topsoil strip;
- Cut/fill placing and compaction;
- Utility diversions;
- Install ducting and drainage;
- Lay and compact CBGM and/or engineered fill;
- Lay asphalt and compact;
- Road lining; and
- Road signage and landscaping.

- 1.1.5 Twenty-five (25) dust monitors are installed around the worksites, where works are underway. These sites returned a medium dust risk rating.
- 1.1.6 Dust monitoring locations and results are presented in Appendix B, Table 2, together with line charts of monthly data from each dust monitor, in Figure 8. All continuous dust monitoring is undertaken using indicative monitors. Despite being Environment Agency (MCERTS) certified, indicative monitors carry a higher level of uncertainty than reference monitors, and therefore cannot be strictly compared with Air Quality Standards for human health and the environment. The purpose of the monitoring undertaken is to ensure the effectiveness of the on-site mitigation.
- 1.1.7 The trigger level for PM₁₀ concentrations of 190 µg/m³, measured as a 1-hour mean, in accordance with the updated guidance document '*Guidance on Monitoring in the Vicinity of Demolition and Construction Sites – (October 2018)*' has been applied.
- 1.1.8 There were multiple dust trigger alerts, linked to power supply challenges, recorded during the monitoring period (September 2021). Triggers are presented in Appendix B, Table, 3. All other results were in line with expected ranges.
- 1.1.9 Data capture was below 90% for multiple monitors, as a result of power supply issues which are being rectified.
- 1.1.10 Table 1 provides a summary of the complaint information relating to dust or air quality, received during the reporting period, together with the findings of any related investigations.

Table 1: Summary of complaints received during September 2021

Complaint Reference No.	Worksite Reference	Description of complaint	Results of investigation
HS2-21-42610-C	N/A	White dust from a vent shaft covering everything.	AQ monitors showed low readings for the period in question. Confirmed site is dampened down, as per the mitigation measures outlined in the Code of Construction Practice. The site team have been reminded about the importance of effective dust suppression and remain extra vigilant, particularly during dry spells.

Appendix A – Worksite and Dust Monitoring Locations


Figure 1 to 7: Worksites and monitoring locations within the BC



- Legend**
- Dust Monitor
 - District Borough Unitary Boundaries
 - Worksite

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Map Number
Map Name Monitoring Locations In BC (Sheet 1)
Buckinghamshire County

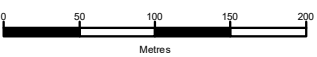


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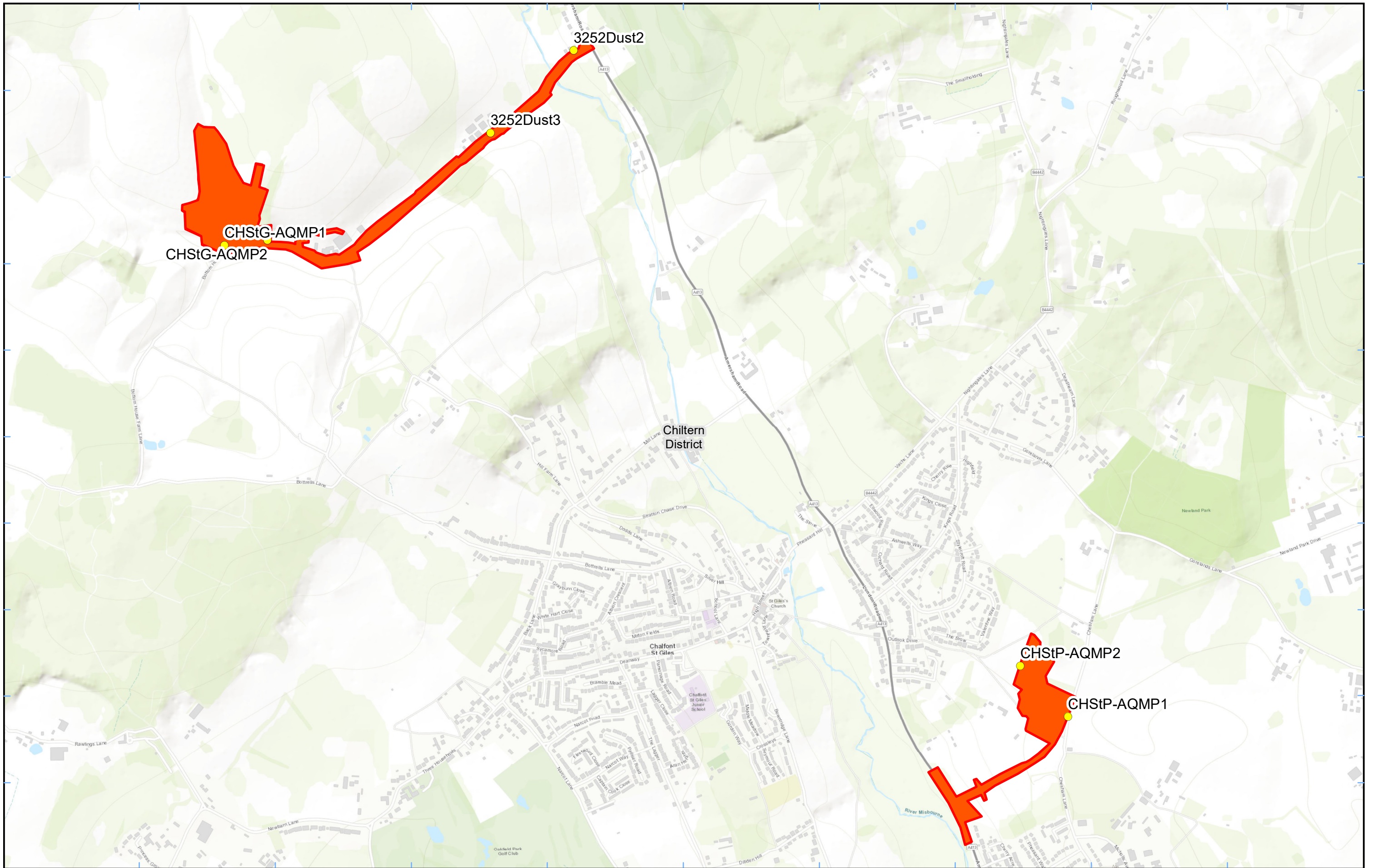


Metres



Date: 03/11/21

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Legend
 Worksites
 Dust Monitor
 District Borough Unitary Boundaries

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Map Number
 Map Name
**Worksite and Monitoring Locations
 In BC (Sheet 2)**
 Buckinghamshire County

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- Legend**
- Dust Monitor
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 - Worksite

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Map Number
 Map Name
**Monitoring Locations
 In BC (Sheet 3)**
 Buckinghamshire County

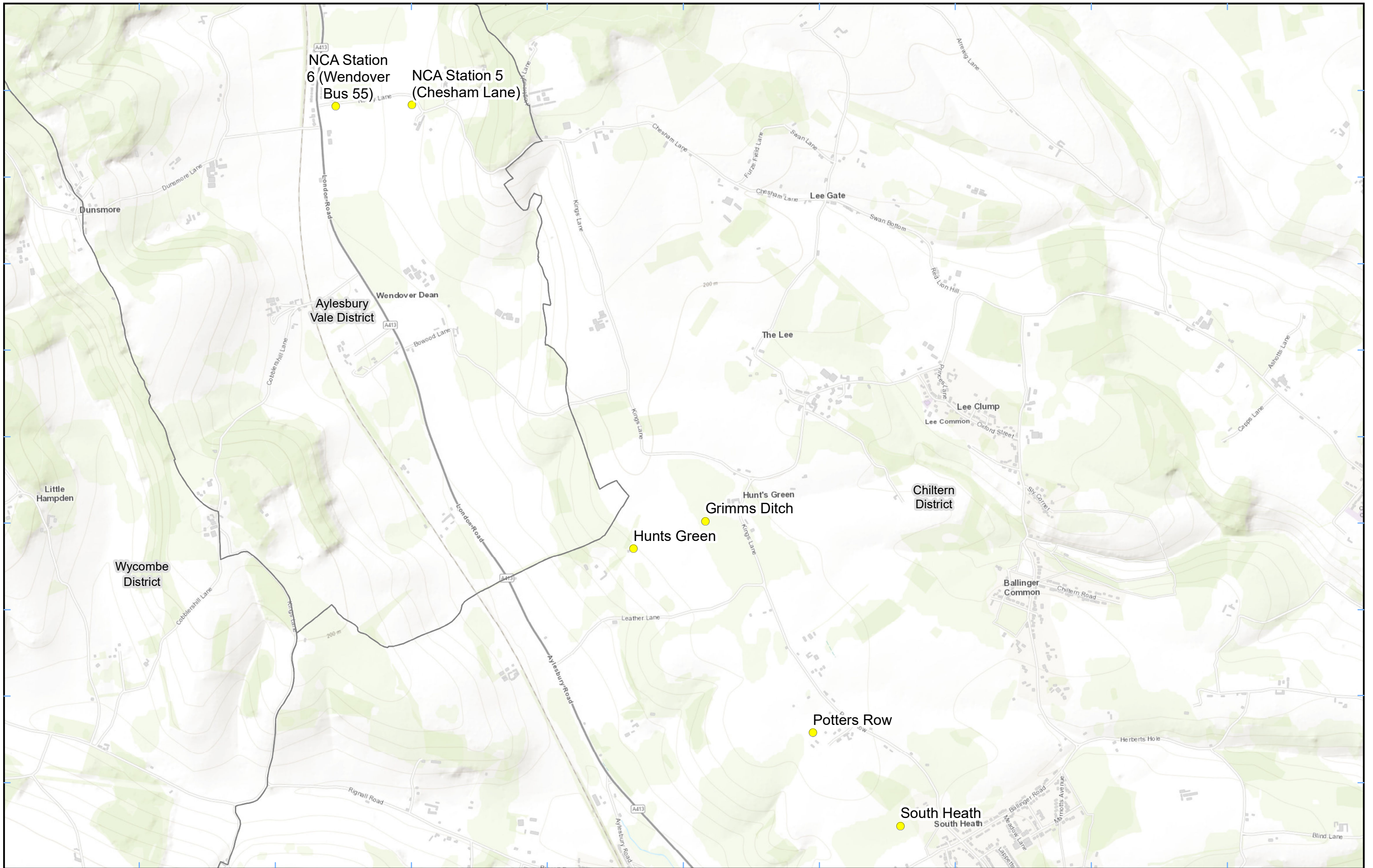
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Legend

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Map Number

Map Name

**Monitoring Locations
In BC (Sheet 4)**


Buckinghamshire County



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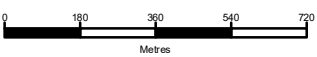
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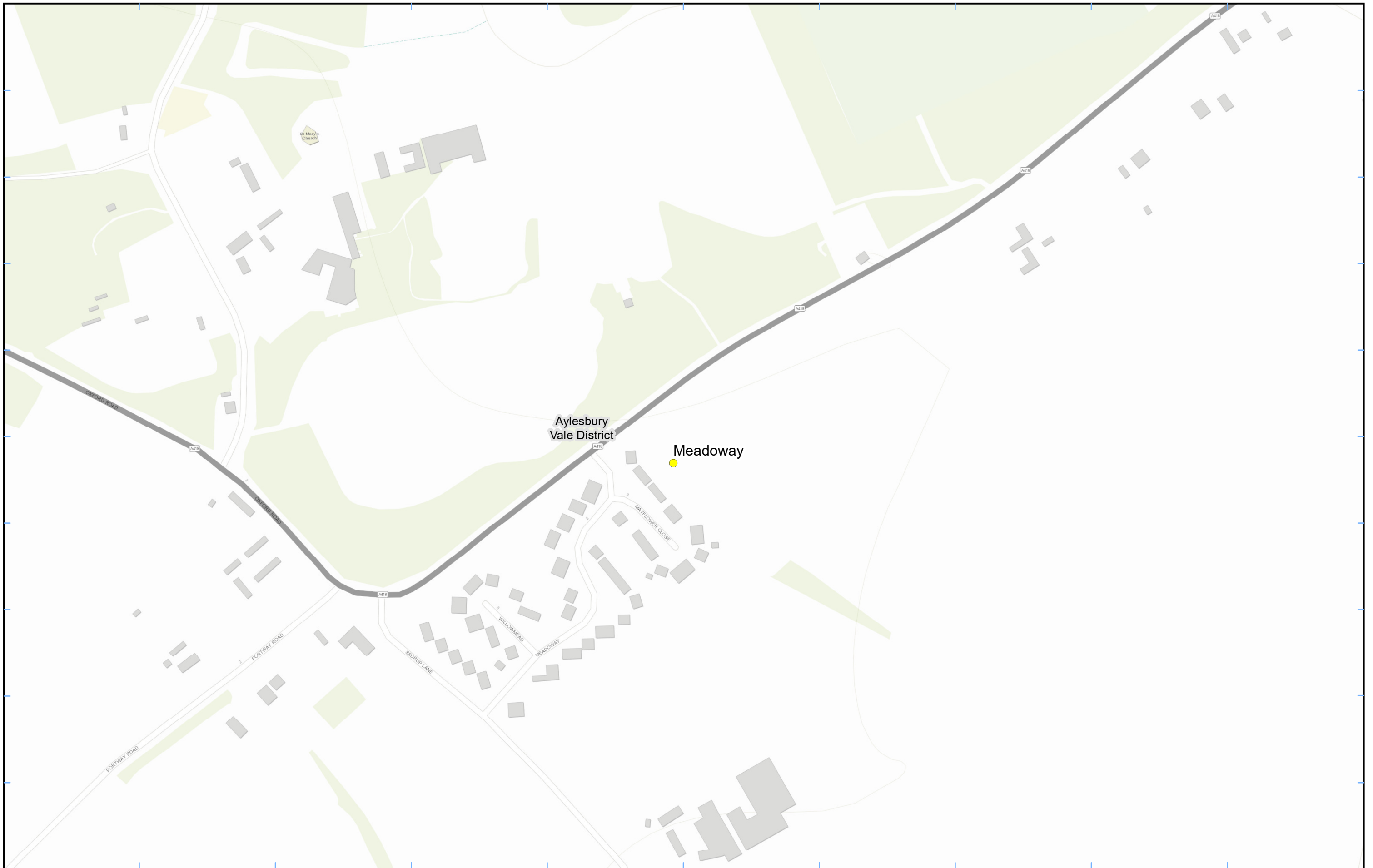
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- Dust Monitor
- District Borough Unitary Boundaries

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Map Number

Map Name
**Monitoring Locations
 In BC (Sheet 5)**

Buckinghamshire County

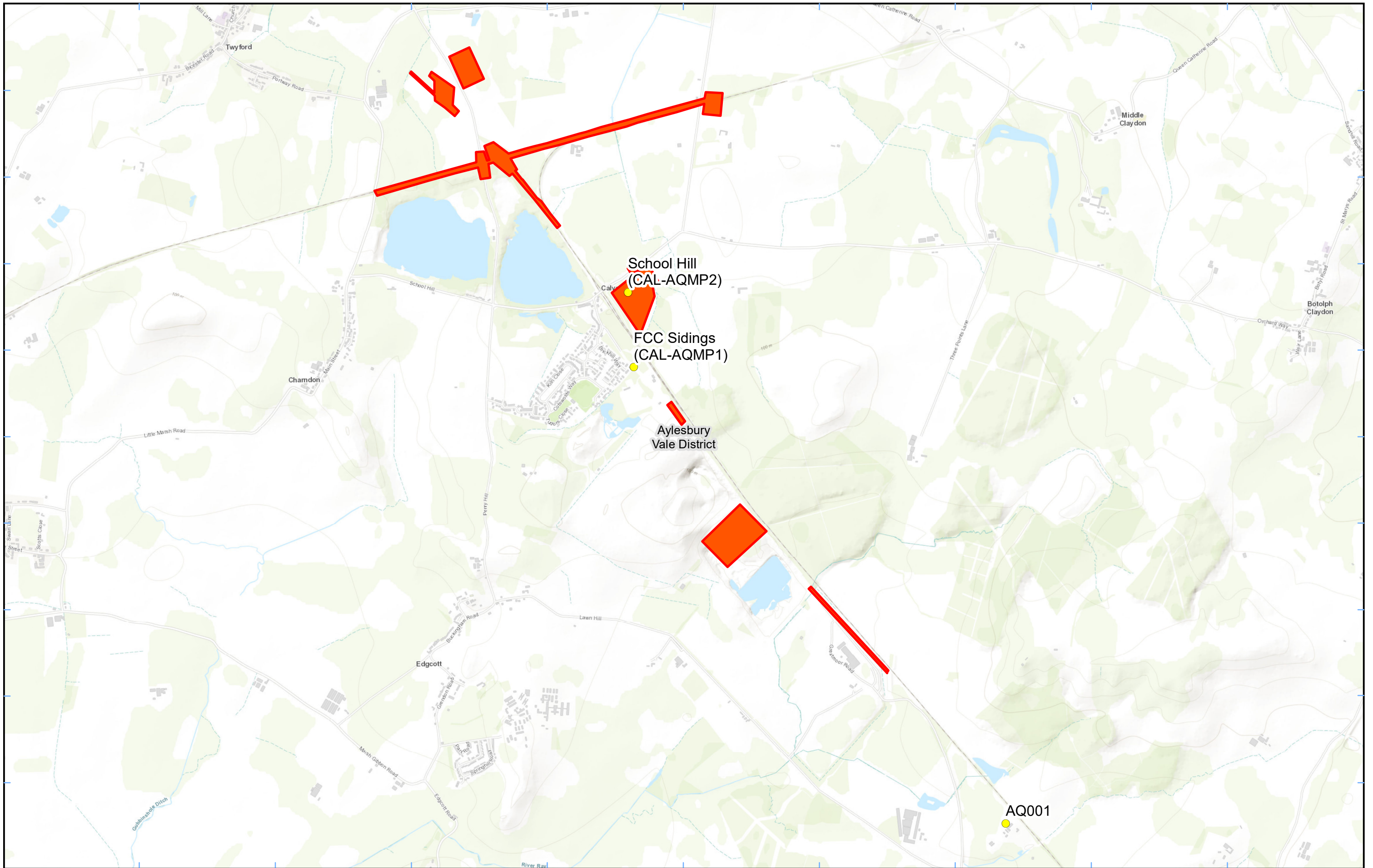
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Legend
 Worksites
 District Borough Unitary Boundaries
 Dust Monitor

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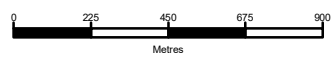
Map Number
 Map Name
**Worksite and Monitoring Locations
 In BC (Sheet 6)**
 Buckinghamshire County

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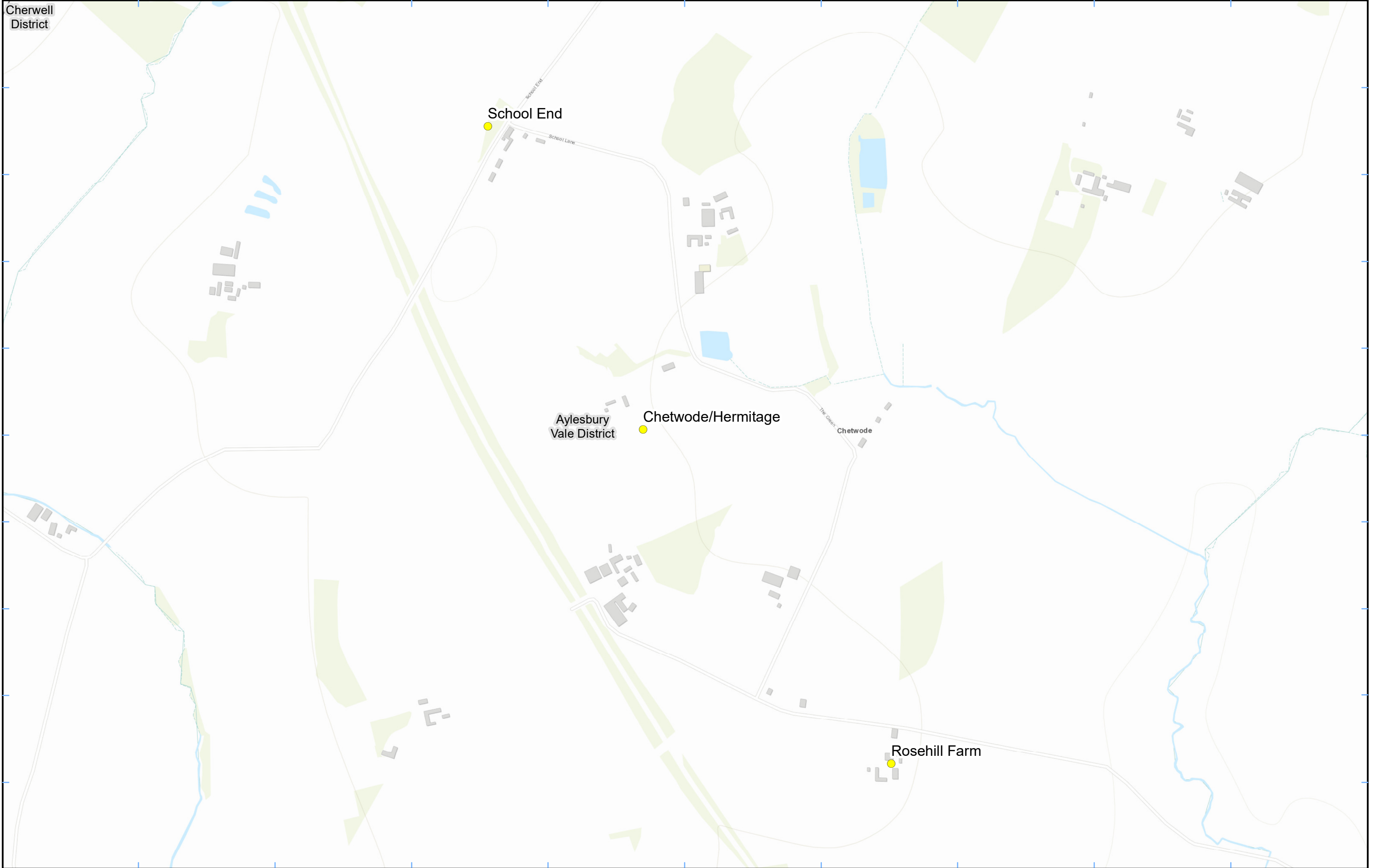
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Legend
 ● Dust Monitor
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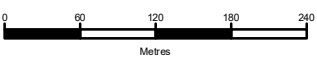
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Map Number
 Map Name
**Monitoring Locations
 In BC (Sheet 7)**
 Buckinghamshire County


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Appendix B – Dust Monitoring Results

Table 2: Dust monitoring locations and September 2021 Results

Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM ₁₀ concentration (µg/m ³)	Minimum 1-hour PM ₁₀ concentration (µg/m ³)	Maximum 1-hour PM ₁₀ concentration (µg/m ³)	Number of 1-hour periods exceeding trigger level of 190 µg/m ³	Data capture (%)
CVW-AQMP1	503612, 189846	On the north boundary of LTP1	M	Yes	Yes	14.5	1.0	973.0	4	97.9
CVW-AQMP2	503662, 189775	On the south boundary of LTP1	M	Yes	Yes	10.1	1.0	53.0	0	96.0
CHStP-AQMP1	500118, 193105	On the eastern boundary of the site with Chesham Lane	M	Yes	Yes	10.2	1.0	55.0	0	99.6
CHStP-AQMP2	499951, 193282	On the western boundary of the site	M	Yes	Yes	10.3	1.0	59.0	0	98.8
AMER-AQMP1	495367, 196722	On the north-eastern boundary of Amersham	M	Yes	Yes	10.6	1.0	56.0	0	99.0
AMER-AQMP2	495263, 196590	On the south-western boundary of Amersham	M	Yes	Yes	10.4	1.0	56.0	0	96.7
CHStG-AQMP1	497170, 194752	On the southern boundary close to Hobbs Hole Cottage	M	Yes	Yes	9.9	1.0	51.0	0	99.9
CHStG-AQMP2	497320, 194770	On southern boundary next to carpark	M	Yes	Yes	10.3	1.0	56.0	0	99.7

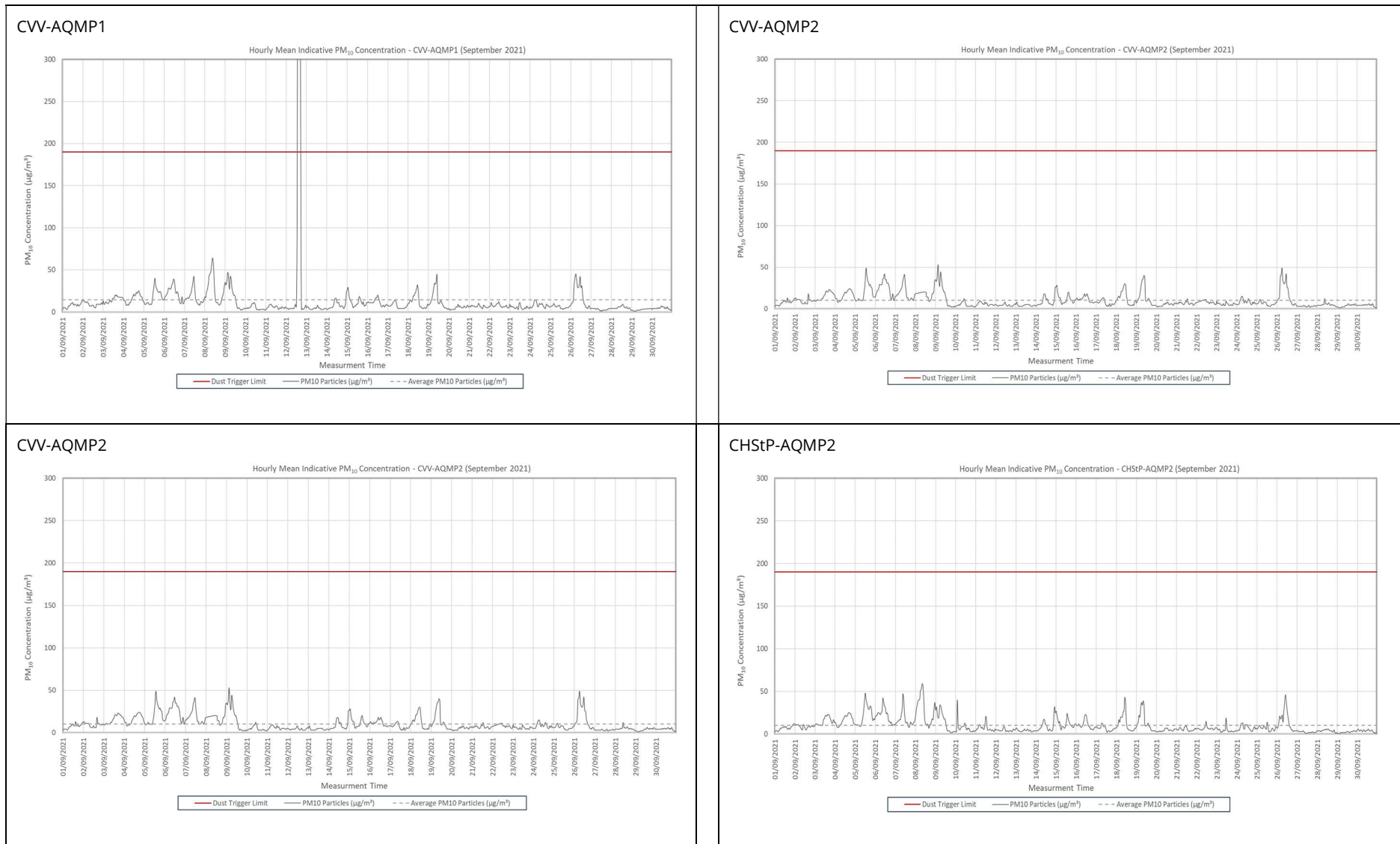
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM ₁₀ concentration (µg/m ³)	Minimum 1-hour PM ₁₀ concentration (µg/m ³)	Maximum 1-hour PM ₁₀ concentration (µg/m ³)	Number of 1-hour periods exceeding trigger level of 190 µg/m ³	Data capture (%)
LMS-AQMP1	493190, 198848	On the south-west of the site	M	Yes	Yes	10.8	1.0	52.0	0	82.6
LMS-AQMP2	493407, 198731	On the south-east of the site	M	Yes	Yes	9.6	1.0	53.0	0	98.6
FCC Sidings (CAL-AQMP1)	469040, 224261	Adjacent Red Kite View, Calvert	N/A	Yes	Yes	4.3	1.0	13.0	0	20.0
School Hill (CAL-AQMP2)	469003, 224740	School Hill Compound	N/A	Yes	Yes	11.9	1.3	130.4	0	100.0
School End	463666, 230049	School End, Chetwode	M	Yes	Yes	11.9	1.0	90.0	0	55.4
Chetwode/Hermitage	463936, 229521	Hermitage, Chetwode	M	Yes	Yes	10.6	2.0	73.0	0	69.7
Rosehill Farm	464368, 228939	Rosehill Farm, Chetwode	M	Yes	Yes	36.6	2.4	6527.9	7	99.9
South Heath	490534, 202014	Bury Farm, South Heath	M	Yes	Yes	10.9	1.0	90.0	0	99.7
Potters Row	490075, 202502	Potters Row, South Heath	M	Yes	Yes	14.5	2.0	80.0	0	66.4
Hunts Green	489135, 203468	Leather Lane, The Lee, South Heath	M	Yes	Yes	11.1	1.0	71.0	0	100.0
Grimms Ditch	489511, 203611	The Lee, South Heath	M	Yes	Yes	9.9	1.0	48.0	0	34.2
NCA Station 5 (Chesham Lane)	487974, 205794	Chesham Lane, The Lee, Wendover	M	Yes	Yes	11.0	1.0	59.0	0	86.7
NCA Station 6 (Wendover Bus 55)	487574, 205787	Chesham Lane, The Lee, Wendover	M	Yes	Yes	10.0	1.0	54.0	0	90.4
Meadoway	479803, 212178	Aylesbury, Buckinghamshire	M	Yes	Yes	4.0	1.0	25.0	0	21.3

Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM ₁₀ concentration (µg/m ³)	Minimum 1-hour PM ₁₀ concentration (µg/m ³)	Maximum 1-hour PM ₁₀ concentration (µg/m ³)	Number of 1-hour periods exceeding trigger level of 190 µg/m ³	Data capture (%)
3252Dust2	498390, 195434	On the boundary with Elm Tree Cottage, Bottom House Farm Lane	M	Yes	No	0.0	0.0	0.0	0	0.0
3252Dust3	498100, 195145	On the site boundary opposite Lower Bottom House Farm	M	Yes	No	9.6	1.1	70.0	0	100.0
AQ001	471424, 221337	Woodlands Farm	M	Yes	No	11.0	1.0	62	0	100.0

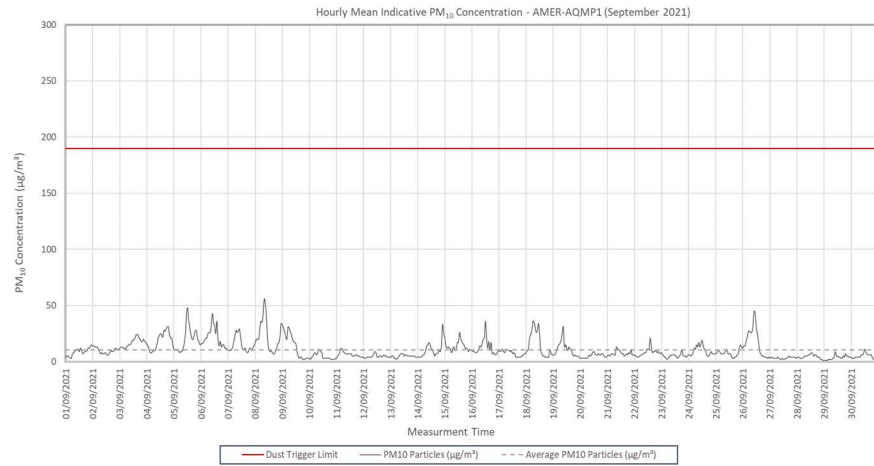
Table 3: Summary of exceedances during reporting period (September 2021)

Monitoring Site ID	Period of trigger alert & Concentration recorded	Investigation	Outcomes / Resolution / Remedial measures implemented
CVV-AQMP1	12/09/2021 14:01 – 15:00; 840 µg/m ³ 15:01 – 16:00; 973 µg/m ³ 16:01 – 17:00; 741 µg/m ³ 17:01 – 18:00; 257 µg/m ³	AQMP2 is located closer to site and is 85m south of AQMP1. At the time of the alerts no works were being undertaken, and Monitor 2 recorded a steady low concentration throughout times of monitor 1's alerts. These alerts are suspected to be linked to power supply issues which are being rectified.	Concentrations at this monitor will continue to be closely monitored.
Rosehill Farm – Dust	16/09/2021 01:01 – 02:00; 226.6 µg/m ³ 03:01 – 04:00; 915.9 µg/m ³ 04:01 – 05:00; 224.9 µg/m ³ 05:01 – 06:00; 377.9 µg/m ³ 06:01 – 07:00; 3715.0 µg/m ³ 07:01 – 08:00; 6527.9 µg/m ³ 08:01 – 09:00; 6453.5 µg/m ³	Upon investigation, the high levels occurred during the night into the morning, up to 9am. No works have been undertaken during this period. Furthermore, due to gas issues, monitor was down temporarily so that can affect the equipment. These alerts are suspected to be linked to power supply issues which are being rectified.	Hydrogen power supplier has been out the same today and changed the empty gas cylinders. The levels have returned to normal.

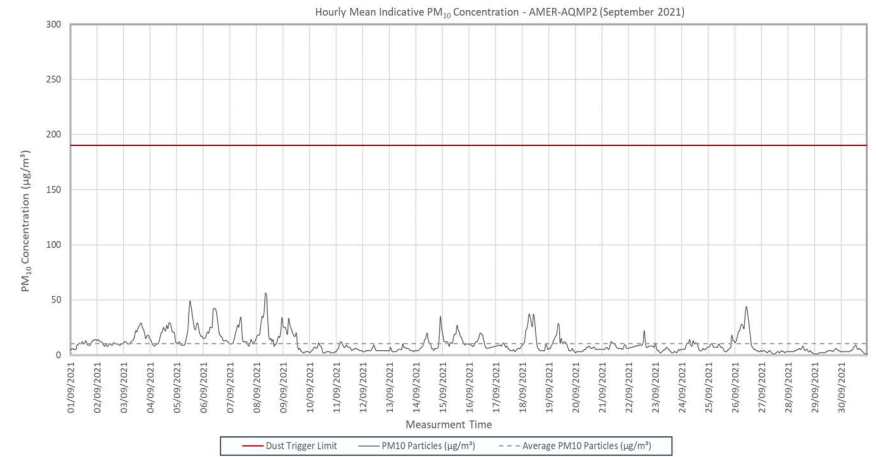
Figure 8 Construction dust 1-hour mean indicative PM₁₀ concentration for dust monitors



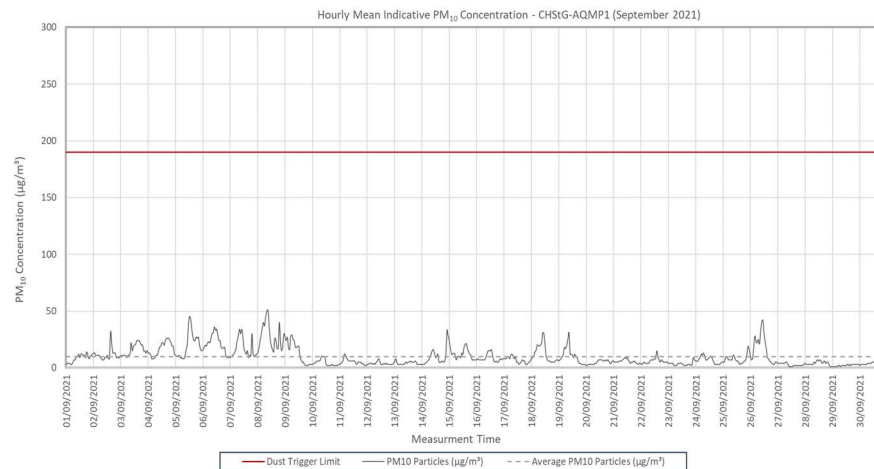
AMER-AQMP1



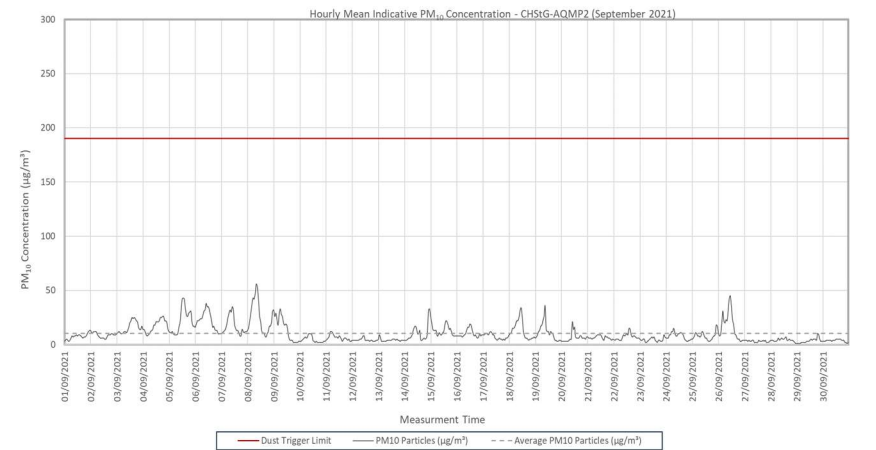
AMER-AQMP2



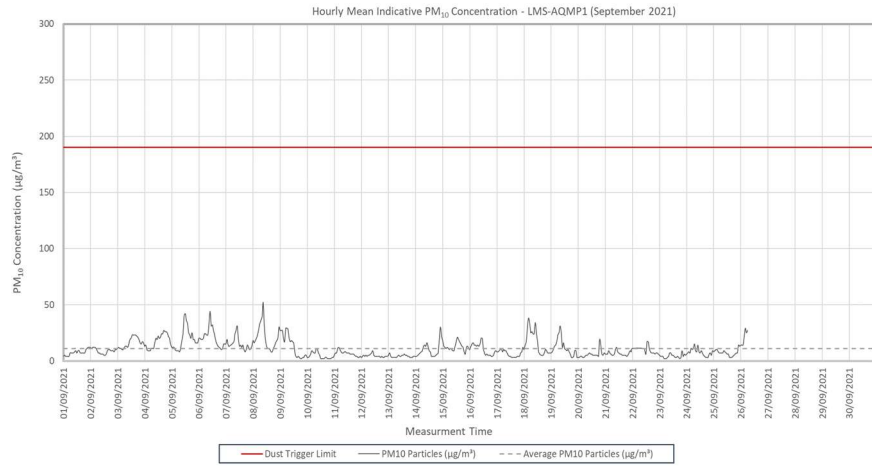
CHStG-AQMP1



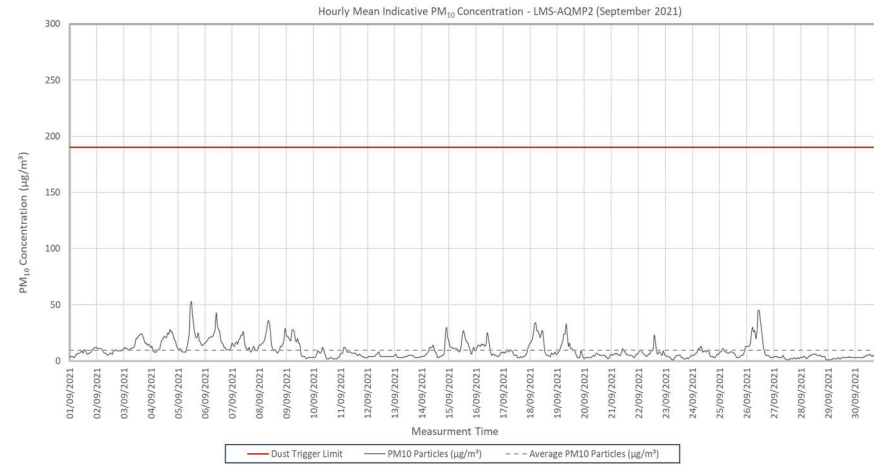
CHStG-AQMP2



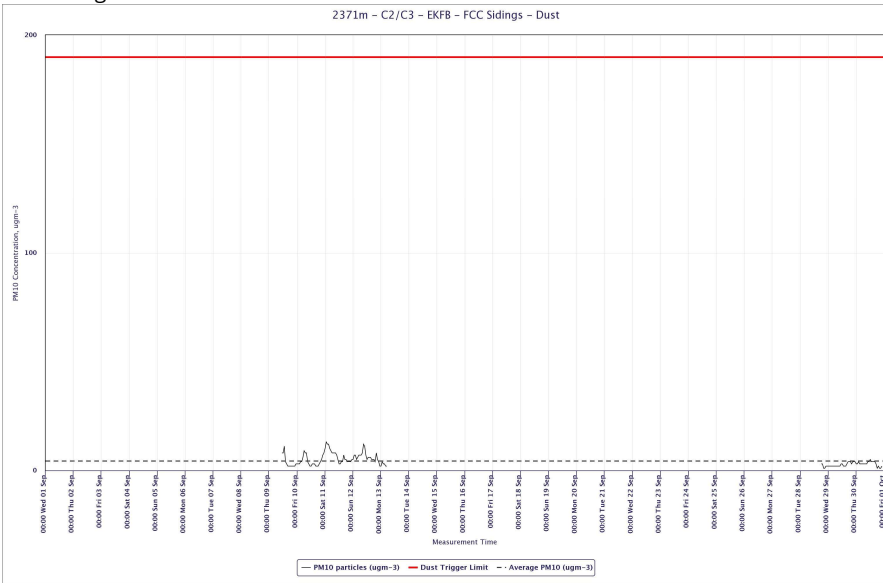
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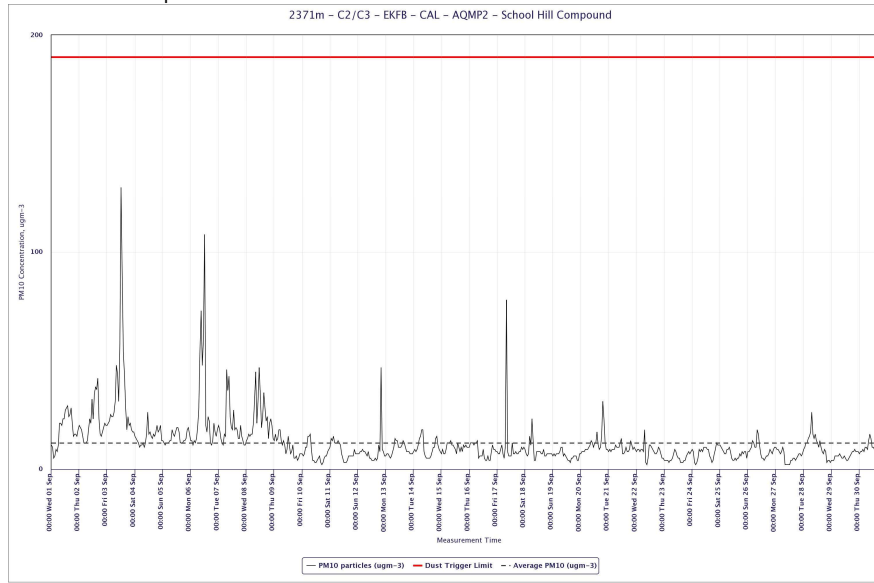
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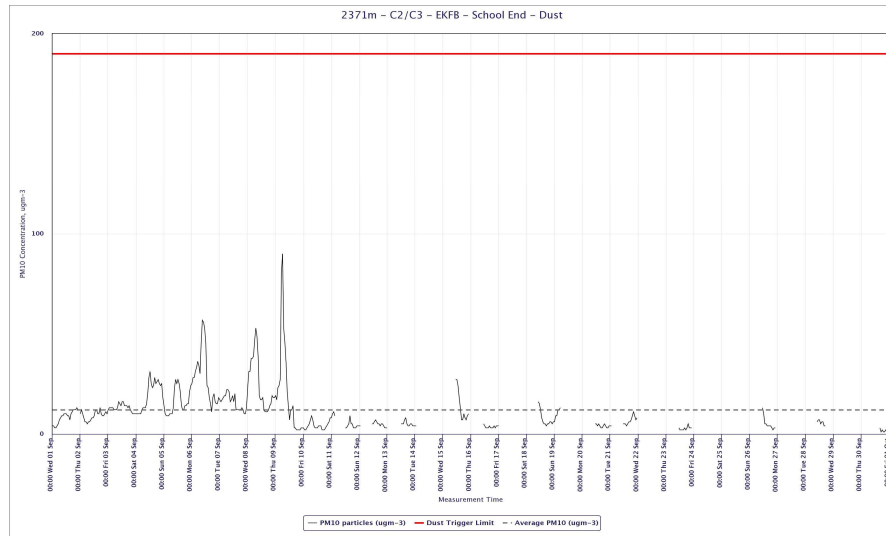
FCC Sidings



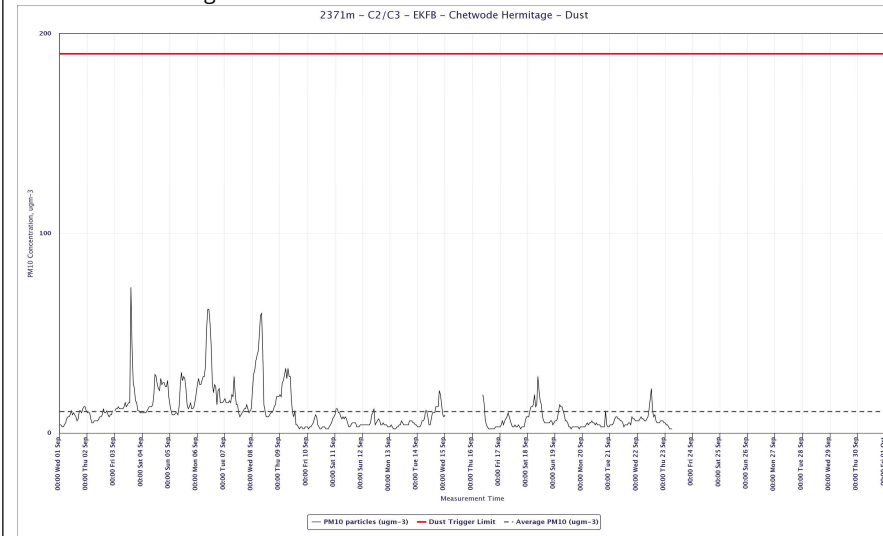
School Hill Compound



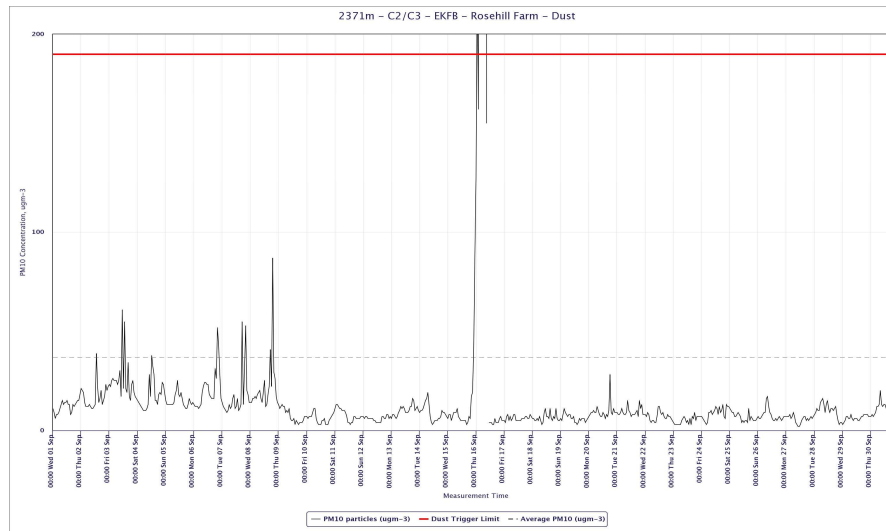
School End



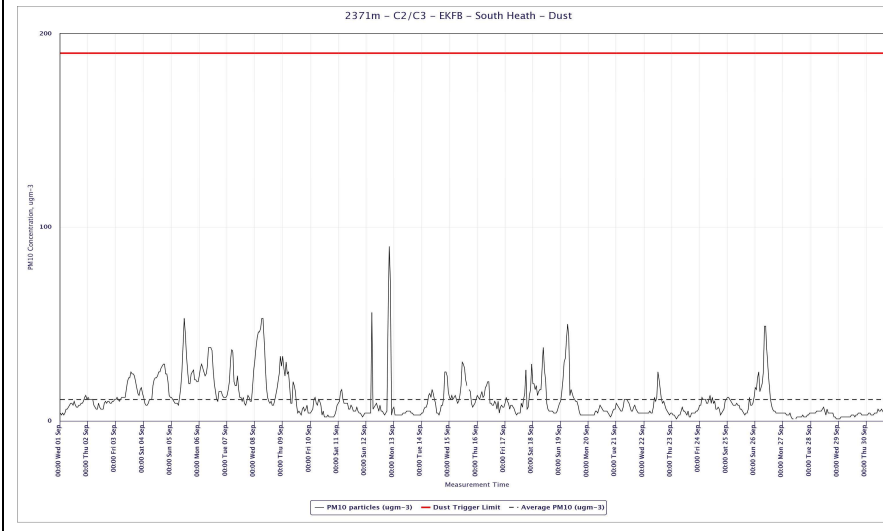
Chetwode Hermitage



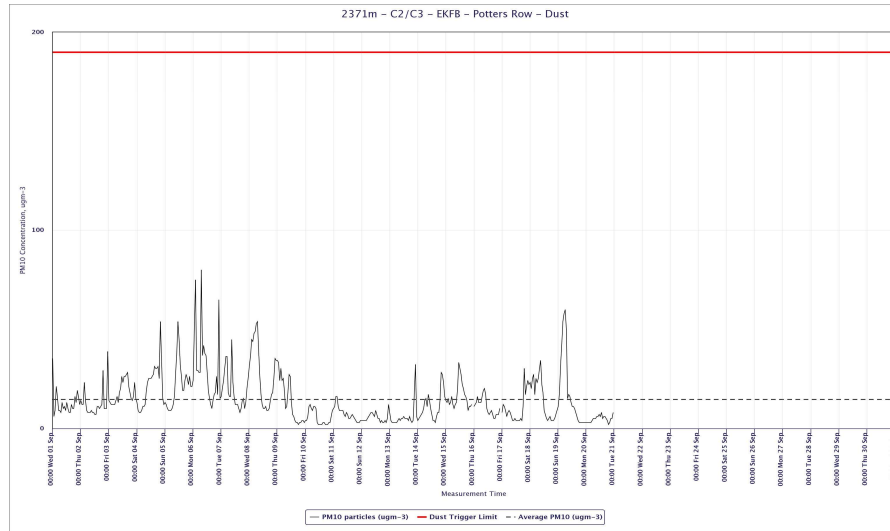
Rosehill Farm



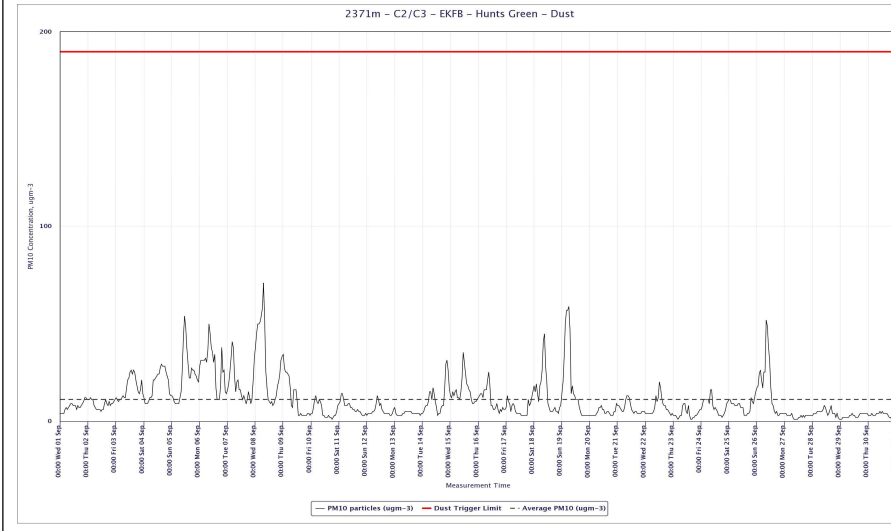
South Heath



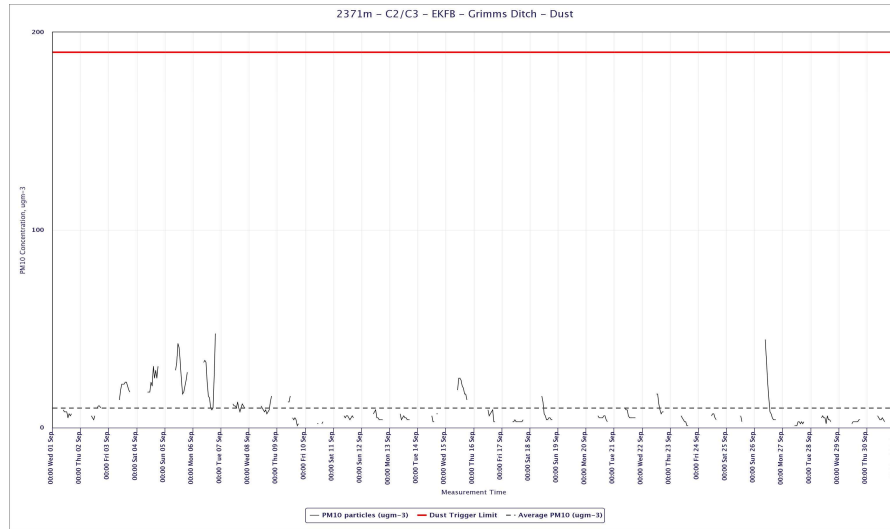
Potters Row



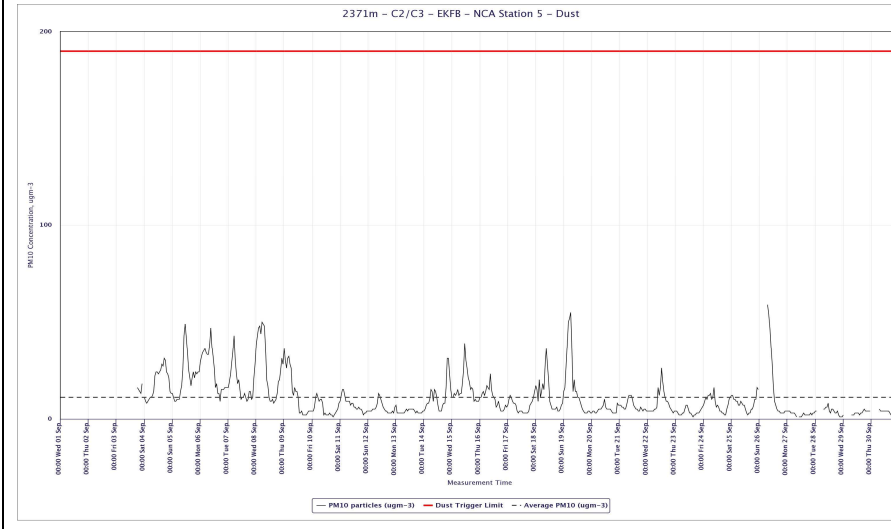
Hunts Green



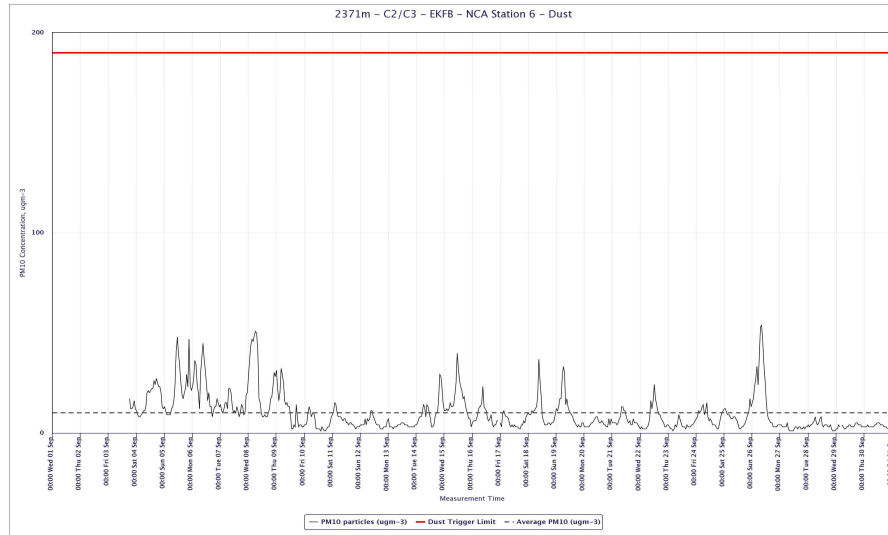
Grimms Ditch



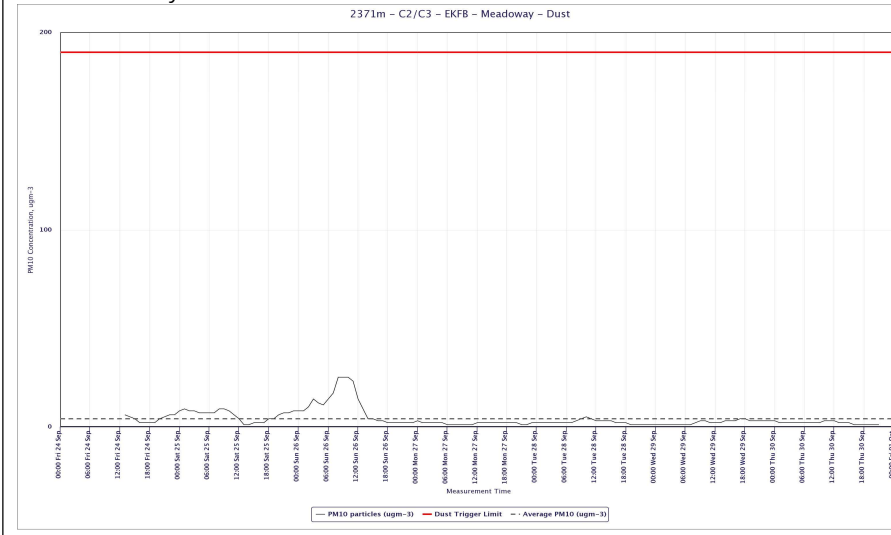
NCA Station 5



NCA Station 6



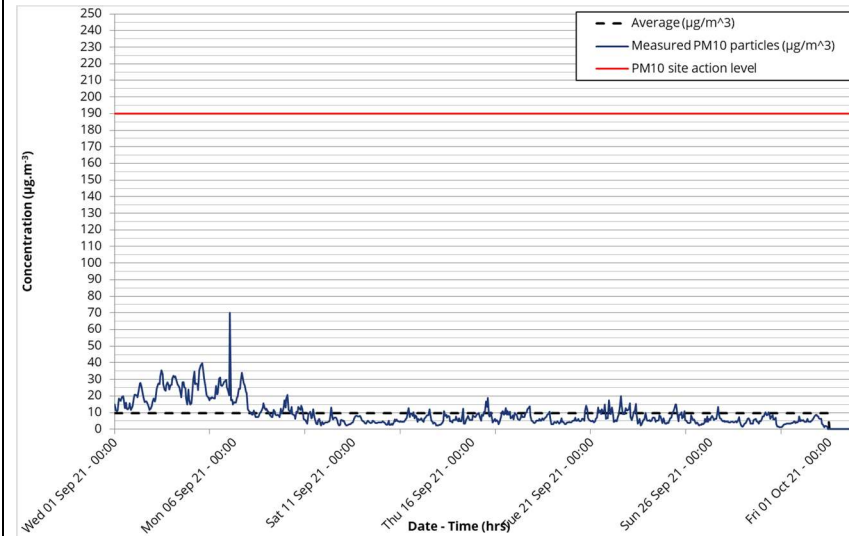
EXFB Meadoway



3252Dust2

No Data

3252Dust3



AQ001

