HS2

July 2021

Air Quality and Dust Monitoring Monthly Report – July 2021

Buckinghamshire Council

gov.uk/hs2

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.

High Speed Two (HS2) Limited,
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.gov.uk/hs2

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

High Speed Two (HS2) Limited has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the HS2 website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact High Speed Two (HS2) Limited.

recycle

Printed in Great Britain on paper containing at least 75% recycled fibre.

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 the Buckinghamshire Council (BC) area during July 2021.

1.1.2 Figures 1 to 9 in Appendix A present the current worksites together with the dust monitoring locations for July 2021.

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 works commenced within BC during January 2020 and is expected to be completed by 2025. The current worksites at Colne Valley Viaduct (CVV) LTP1, Chalfont St Peter Vent Shaft, Chalfont St Giles Vent Shaft, Little Missenden Vent Shaft, Lower Bottom House Farm Lane, DC2J Haul Road and Compound site and Calvert are presented in Appendix A, Figures 1 to 9. Activities for each worksite during July 2021 included:

Colne Valley Viaduct (CVV) LTP1:

- Jetty piling: piling plant form, platforms, support plant and compound;
- Cofferdam sheet piling: piling plant and support plant;
- 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;
- Haul road 28,220 - 29,200: civil 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;
- 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;

- Basement secant piling works: guide walls, shallow box retaining wall contiguous & secant piles, excavate & cut contiguous & secant piles;
- Stockpile management at ventilation shaft site and management of temporary stockpile;
- Shaft Dewatering;
- Shaft excavation after 25m depth;
- All auxiliary plant 01-07; and
- Post Treatment Injection works including dewatering.

Amersham Vent Shaft:

- General site Activity: general plant;
- Earthworks: stockpile management;
- Water Treatment; and
- D-wall Works: construct guide walls, excavation, concreting, desanding and mud treatment.

Chalfont St Giles Vent Shaft:

- General Site Activity: general plant;
- Earthworks: stockpile management;
- Ground Post Treatment: drilling and grouting;
- D-wall works: concreting;
- Water Treatment; and
- Temporary Capping Beam: breakout and formation.

Little Missenden Vent Shaft:

- General Site Activity: general plant;
- Earthworks: stockpile management;
- Pre and Post treatment: drilling and grouting;
- D-Wall Works: civil works; and
- Water Treatment.

Lower Bottom House Farm Lane:

- Earthworks including excavation, stockpiling and material movement;
- Construction works, including the reconstruction and widening of the existing Bottom House Farm Lane, topsoil stripping, utility diversions, installations of ducting and drainage, lay and compact CBGM, lay asphalt and compact, road lining, signage and landscaping; and
- Track out activities.

Calvert Worksites

- West Street Compound works include Installation of street lighting and wheel wash, expansion of the carpark and setting up the logistic area;

- School Hill Batching Plant works include pouring of the foul rising main protection slab, protection of highway plaza verge, underground utilities and ducting, hardstanding concrete pours, carpark expansion, and batching plant erection and fit out;
- Decommissioned SGN pipeline removal between Charndon Lodge and East West Rail, and Gawcott Road and Queens Catherine Road;
- Addison Road Overbridge enabling works;
- East West Rail Overbridge works which include dig and replace works, and pile cropping;
- Charndon Lodge underbridge excavation and concrete abutment mass blinding works;
- Perry Hill overbridge excavation and building up of piling platform with aggregate;
- Gawcott Road includes the construction of embankments and walls;
- OXD line earthworks including removal of OXD west ballast, stockpile preparation and creation of temporary ponds; and
- Work at Twyford to Greatworth area included topsoil stripping, excavations of subsoil, lime stabilisation, construction of temporary drainage ponds and culvert crossing construction.

1.1.5 Eighteen (18) dust monitors are installed around the worksites, where demolition, earthworks, construction and trackout activities are underway. Dust Risk Assessments for each worksite classified a medium dust risk for works currently active on site, where applicable.

1.1.6 Dust monitoring locations and results for July 2021 are presented in Appendix B, Table 1, together with a line chart of monthly data from each dust monitor presented in Figures 10 to 26. 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 PM_{10} concentrations of 190 µg/m^3, 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.

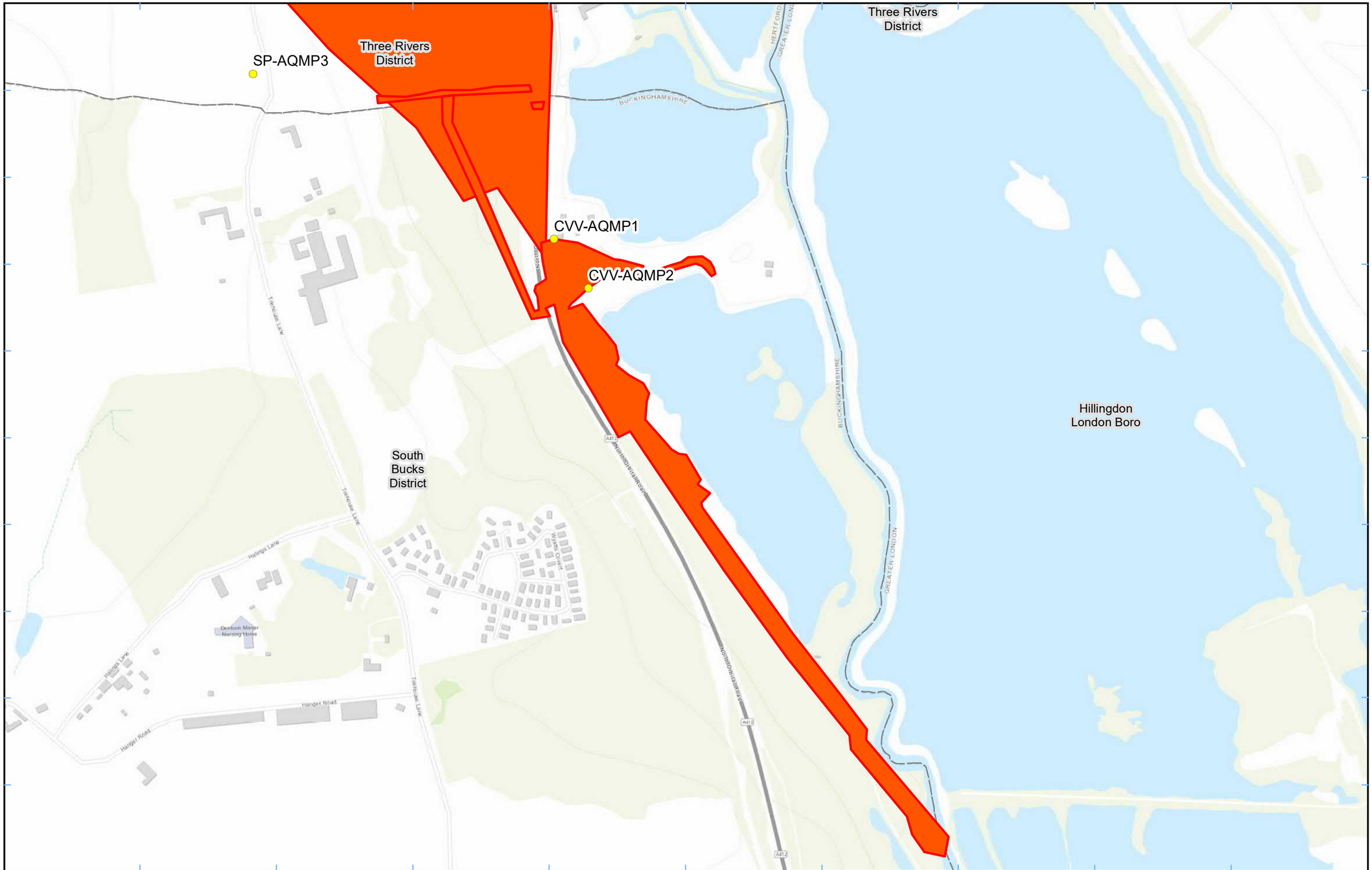
1.1.8 There were multiple dust trigger alerts recorded during the monitoring period (July 2021). Trigger alerts are presented in Appendix B, Table 2, while dust suppression was deployed a number of alerts were linked to train offloading activities, however majority of alerts were not linked to HS2 activities. All other results were in line with the expected ranges.

1.1.9 Data capture for four (4) of the monitors was below 90% for the month of July 2021, attributed to technical issues and/or loss of power due to insufficient sunlight/wind for monitors using solar/wind power, which is in the process of being resolved.

1.1.10 There were no (0) complaints received for dust or air quality during the reporting period (July 2021).

Appendix A – Worksite and Dust Monitoring Locations

Figure 1 to Figure 6: Current monitoring locations within Buckingham Council during July 2021



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Map Number

Map Name

Worksite and Monitoring Locations at Colne Valley Viaduct, BC (Sheet 1)

Buckinghamshire Council

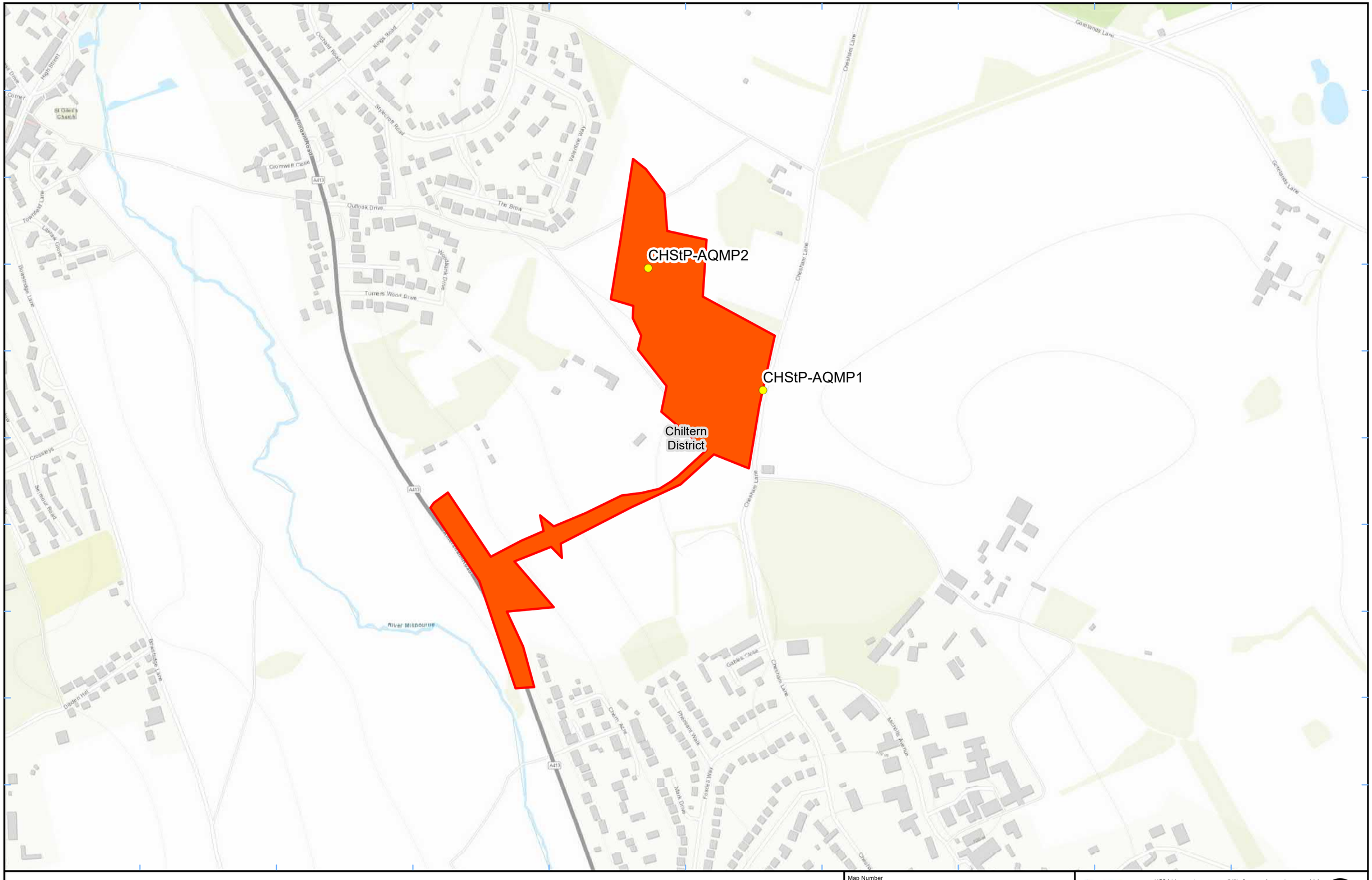
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:5,000

0 50 100 150 200
Metres

Doc Number:

Date: 06/05/21



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Map Number

Map Name

Worksite and Monitoring Locations at Chalfont St Peter, BC (Sheet 2)

Buckinghamshire Council

Scale at A3: 1:5,000

0 50 100 150 200
Metres

Doc Number:

Date: 06/05/21

Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksite and Monitoring Locations at Amersham, BC (Sheet 3)

Buckinghamshire Council

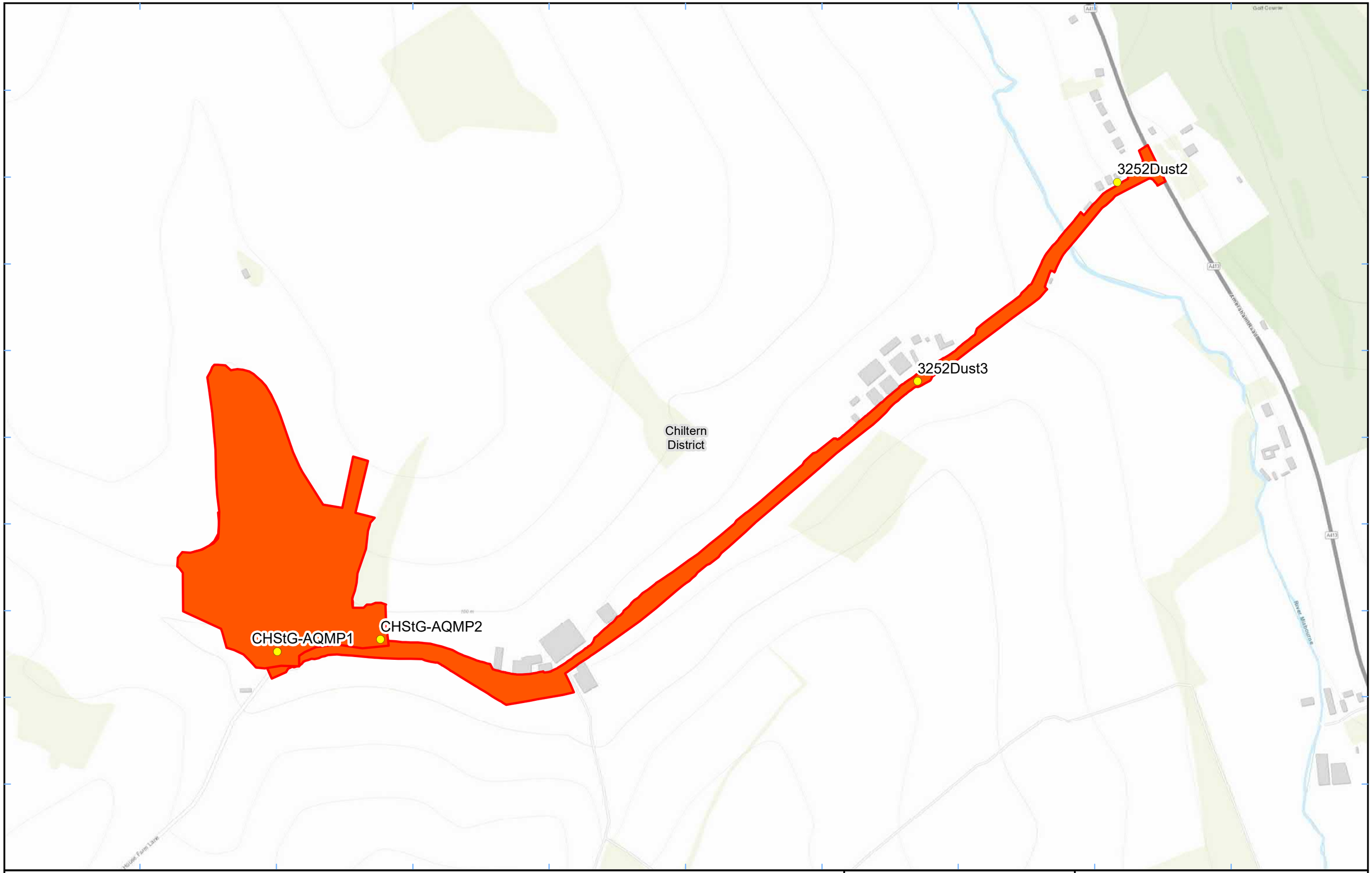
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,000

0 20 40 60 80
Metres

Doc Number:

Date: 06/05/21



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksites and Monitoring Locations at Chalfont St Giles and Lower Bottom House Farm Lane, BC (Sheet 4)

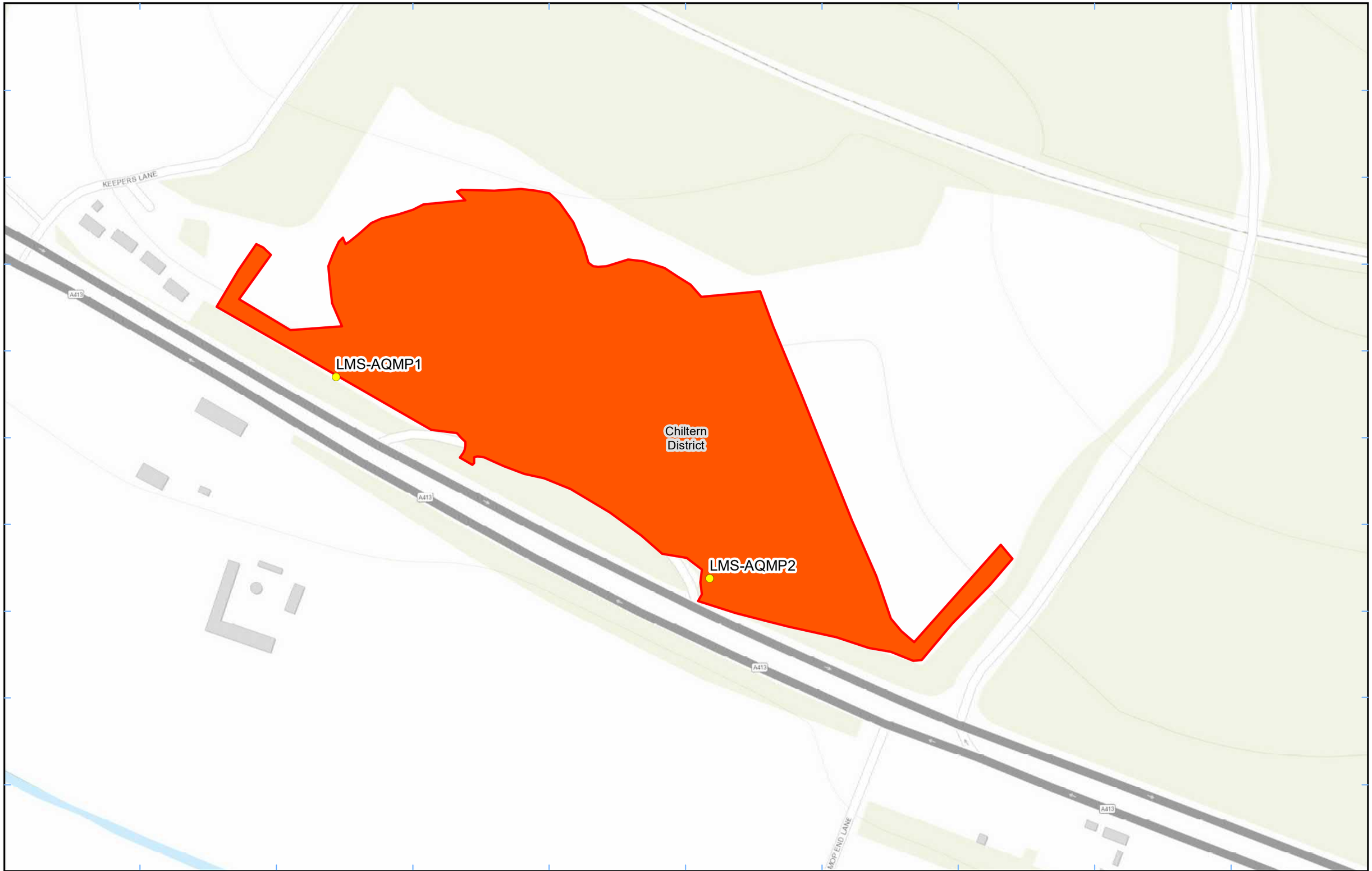
Buckinghamshire Council

Scale at A3: 1:5,000

0 50 100 150 200
Metres

Doc Number:

Date: 06/05/21



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksite and Monitoring Locations at Little Missenden, BC (Sheet 5)

Buckinghamshire Council

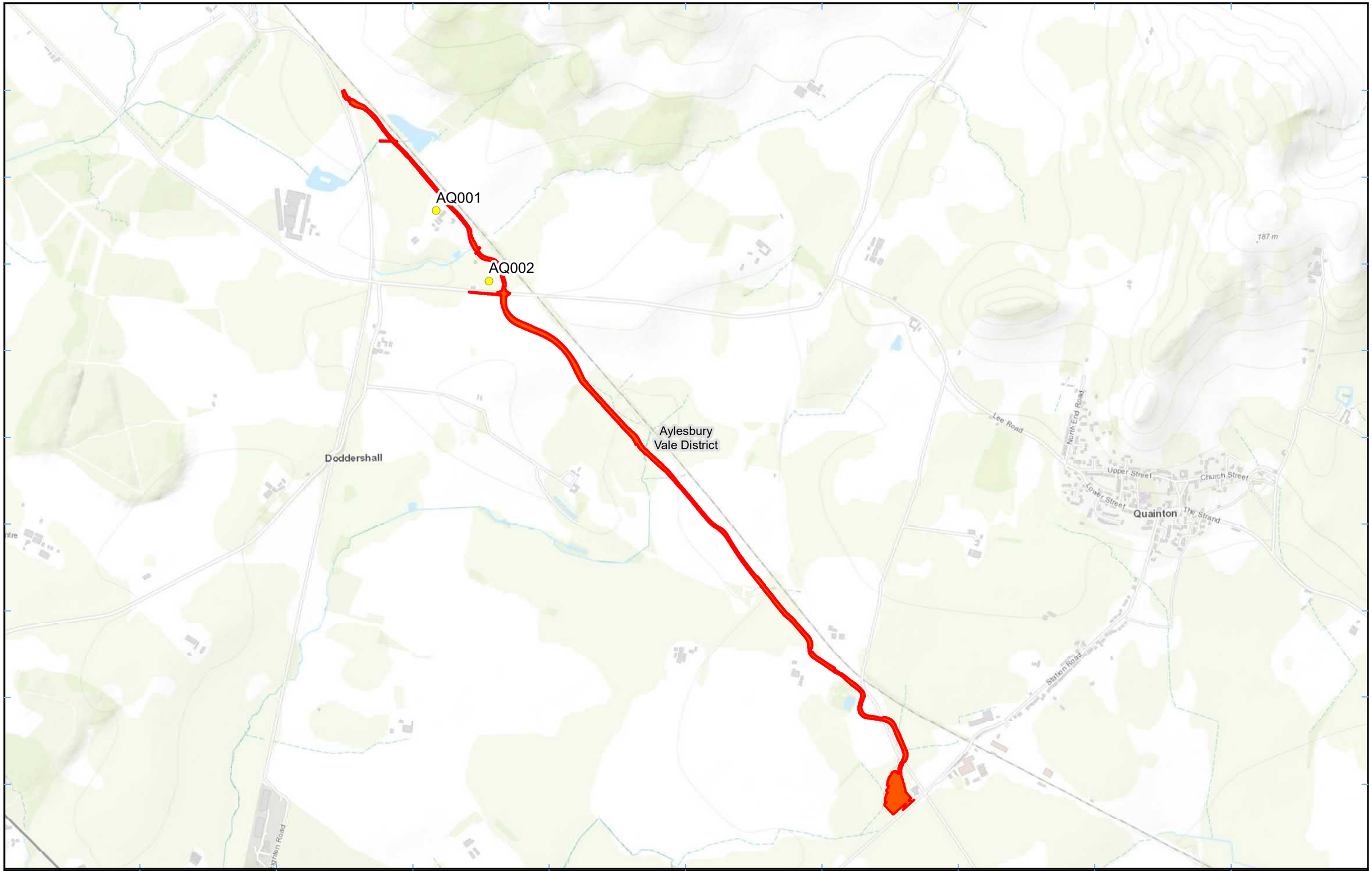
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,000

0 20 40 60 80
Metres

Doc Number:

Date: 06/05/21



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksite and Monitoring Locations In DC2J, BC (Sheet 6)

Buckinghamshire Council

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:15,000

0 150 300 450 600
Metres

Doc Number:

Date: 18/06/21

Figure 7: Worksites and Monitoring locations during July 2021

Figure 8: Monitoring locations during July 2021 (Calvert) – CAL-AQMP1, CAL-AQMP2, CAL-AQMP3

Figure 9: Monitoring locations during July 2021 (Twyford to Greatworth, (T2G)) – School End - Dust

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and July 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 ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1-hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
CVV-AQMP1	503612, 189846	On the north boundary of LTP1	M	Yes	Yes	8.7	1.0	106.0	0	99.0
CVV-AQMP2	503662, 189775	On the south boundary of LTP1	M	Yes	Yes	8.6	1.0	115.0	0	100.0
CHStP-AQMP1	500118, 193105	On the eastern boundary of the site with Chesham Lane	M	Yes	Yes	8.1	1.0	62.0	0	100.0
CHStP-AQMP2	499951, 193282	On the western boundary of the site	M	Yes	Yes	8.1	1.0	77.0	0	100.0
AMER-AQMP1	495367, 196722	On the north-eastern boundary of Amersham	M	Yes	Yes	8.0	1.0	66.0	0	98.0
AMER-AQMP2	495263, 196590	On the south-western boundary of Amersham	M	Yes	Yes	8.4	1.0	72.0	0	99.0
CHStG-AQMP1	497170, 194752	On the southern boundary close to Hobbs Hole Cottage	M	Yes	Yes	8.8	1.0	70.0	0	100.0
CHStG-AQMP2	497320, 194770	On southern boundary next to carpark	M	Yes	Yes	8.2	1.0	68.0	0	100.0

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 ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1-hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
LMS-AQMP1	493190, 198848	On the south-west of the site	M	Yes	Yes	8.0	1.0	55.0	0	100.0
LMS-AQMP2	493407, 198731	On the south-east of the site	M	Yes	Yes	4.2	1.0	51.0	0	53.0
CAL-AQMP1	469040, 224261	Adjacent Red Kite View, Calvert	M	Yes	Yes	32.8	1.8	744.5	18	99.5
CAL-AQMP2	469003, 224740	School Hill Compound	M	Yes	Yes	15.7	2.4	95.7	0	53.0
CAL-AQMP3	468478, 225351	Shepherds Furze Farm	M	Yes	Yes	44.2	1.7	1180.1	8	57.4
School End - Dust	463666, 230049	School End, Chetwode	M	Yes	Yes	7.8	1.0	47.0	0	100.0
AQ001	51.886029, -0.963654	Woodlands Farm	M	Yes	No	8.26	1	68	0	100.0
AQ002	51.883233, -0.960381	Woodlands Cottage	M	Yes	No	8.63	1	71	0	100.0
3252Dust2	498390, 195434	On the boundary with Elm Tree Cottage, Bottom House Farm Lane	M	Yes	No	-	-	-	-	0.0
3252Dust3	498100, 195145	On the site boundary opposite Lower Bottom House Farm	M	Yes	No	7.1	1.1	31.7	0	100.0

Figure 10: Continuous dust 1-hour mean indicative PM_{10} concentration for CVV-AQMP1 for July 2021

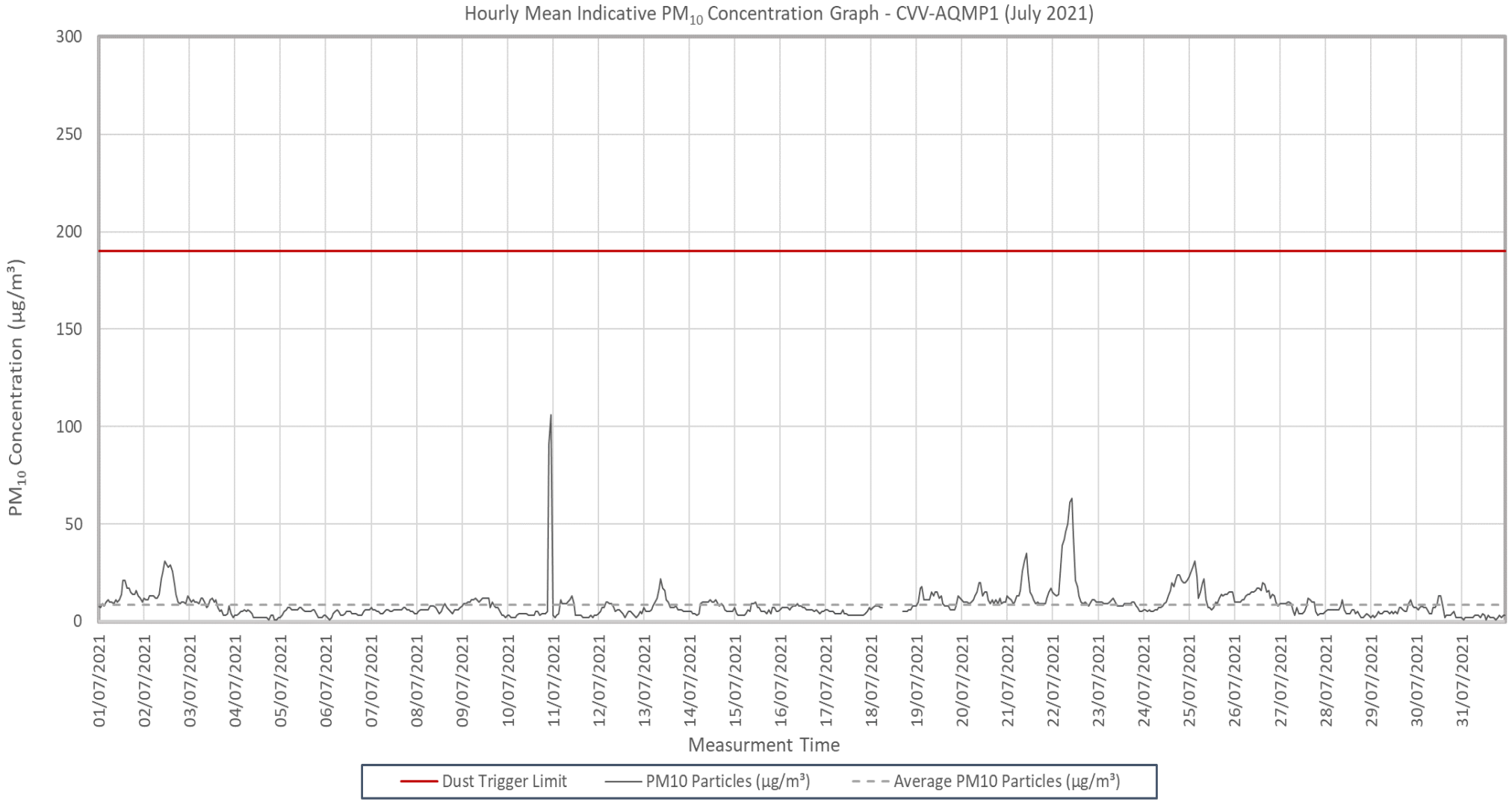


Figure 11: Continuous dust 1-hour mean indicative PM_{10} concentration for CVV-AQMP2 for July 2021

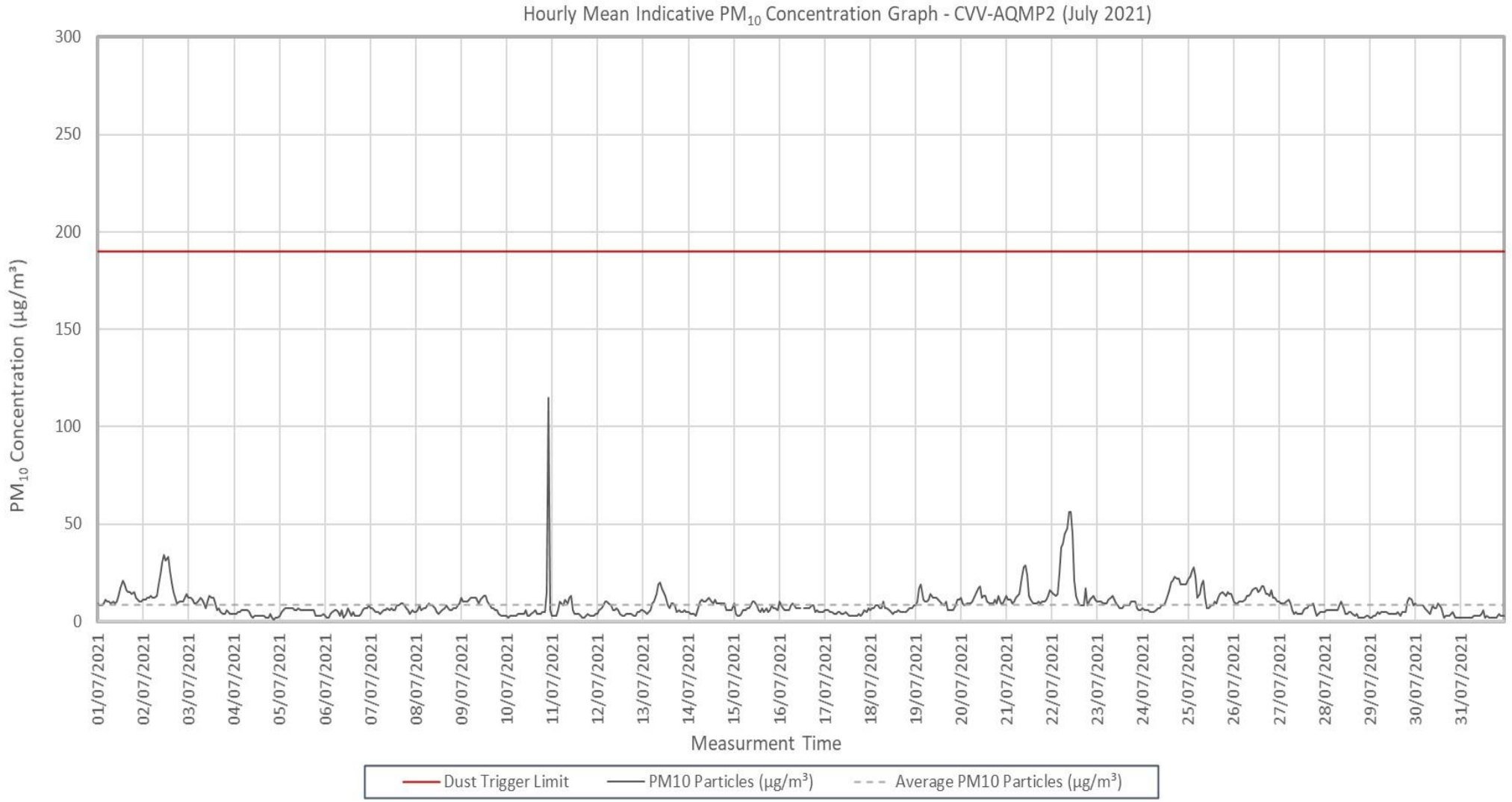


Figure 12: Continuous dust 1-hour mean indicative PM_{10} concentration for CHStP-AQMP1 for July 2021

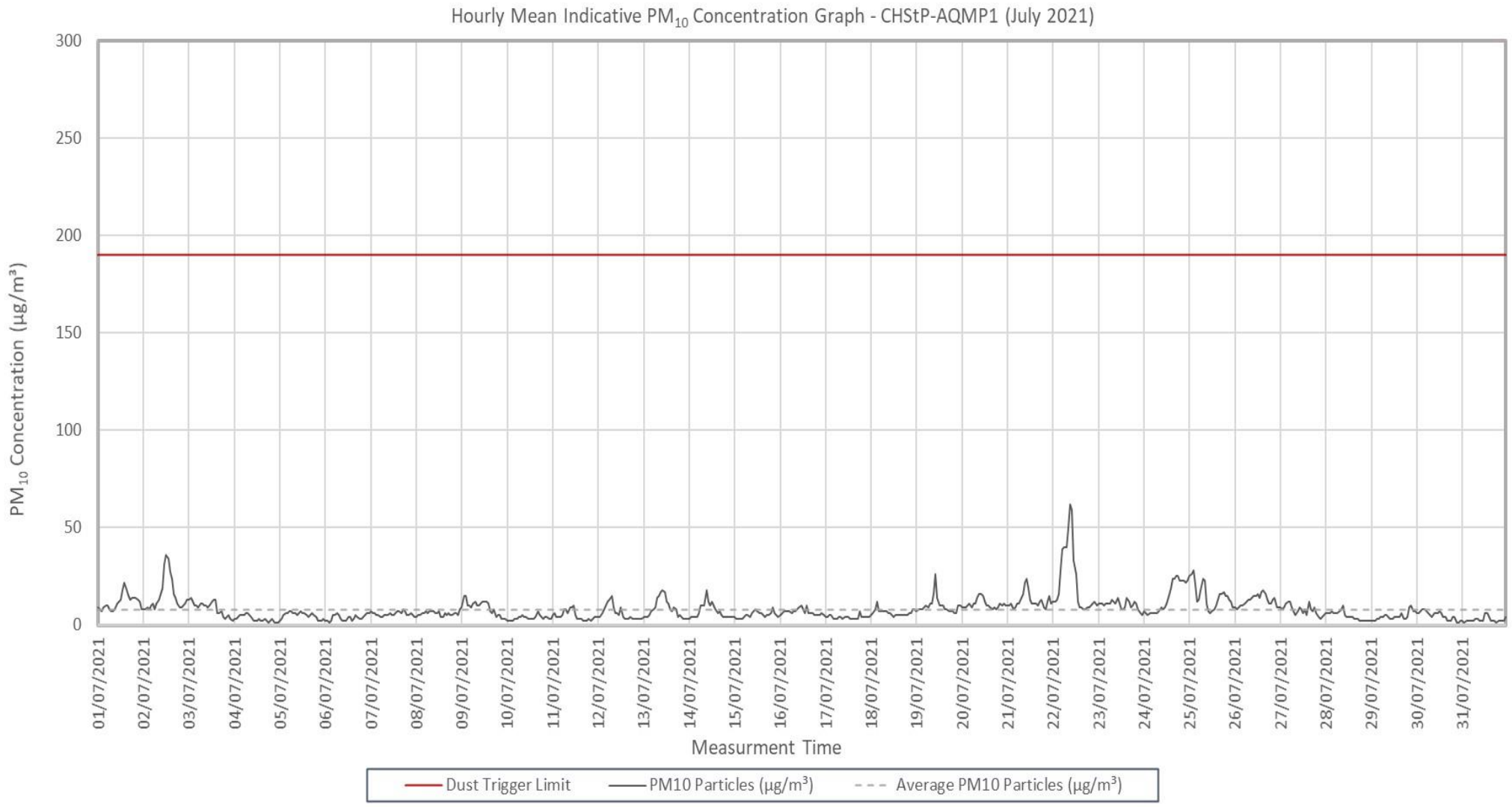


Figure 13: Continuous dust 1-hour mean indicative PM_{10} concentration for CHStP-AQMP2 for July 2021

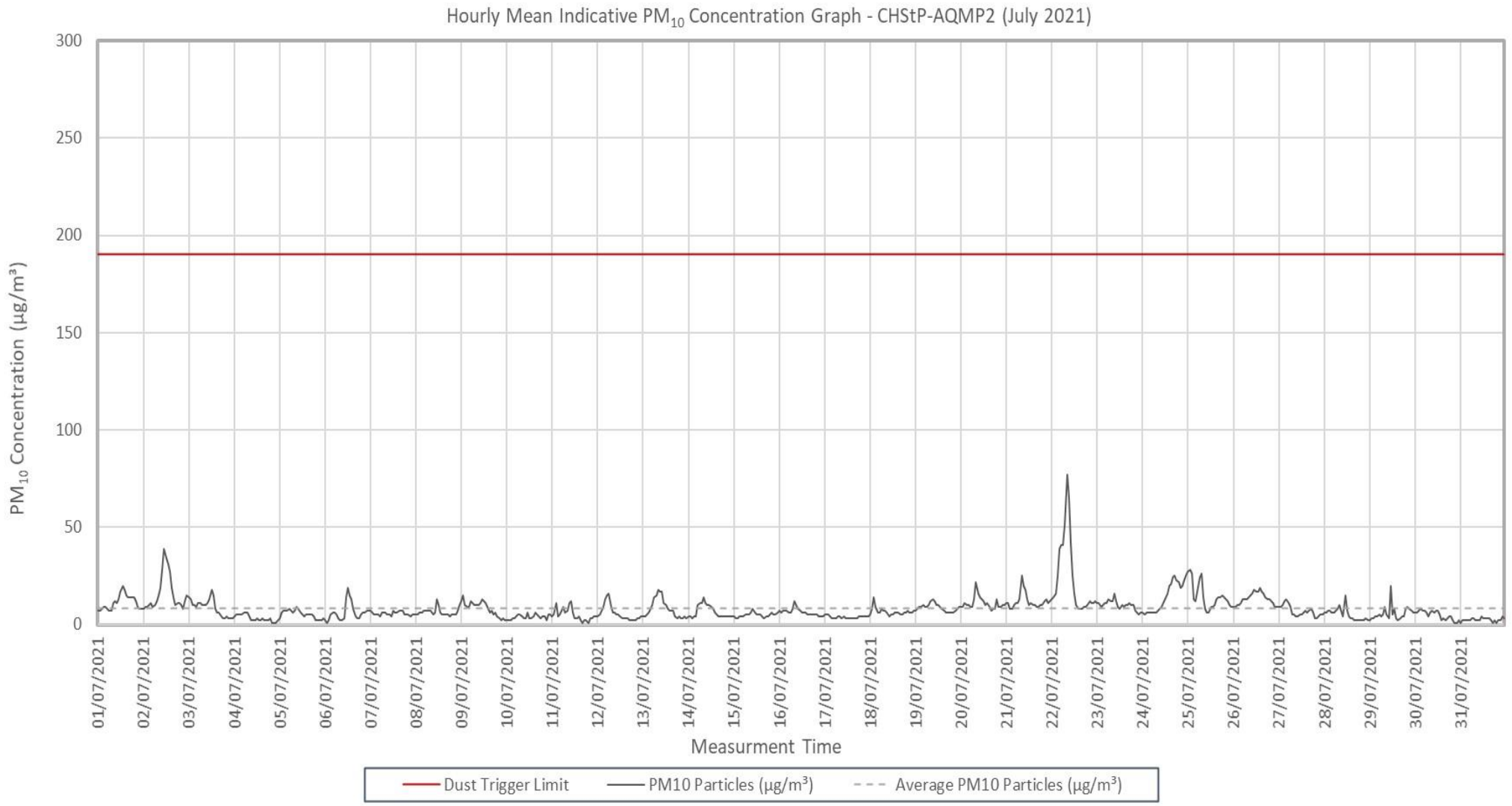


Figure 14: Continuous dust 1-hour mean indicative PM_{10} concentration for AMER-AQMP1 for July 2021

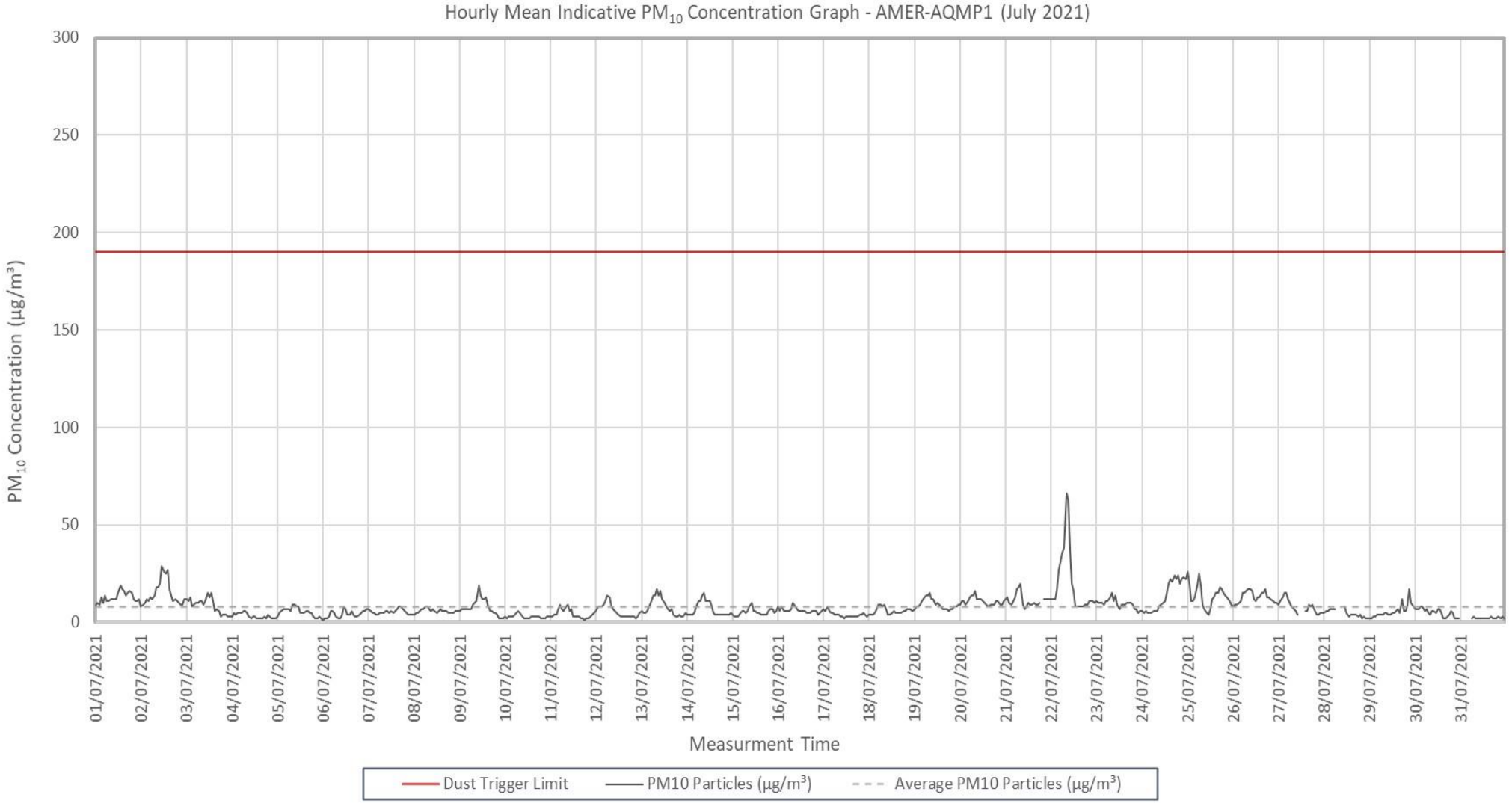


Figure 15: Continuous dust 1-hour mean indicative PM_{10} concentration for AMER-AQMP2 for July 2021

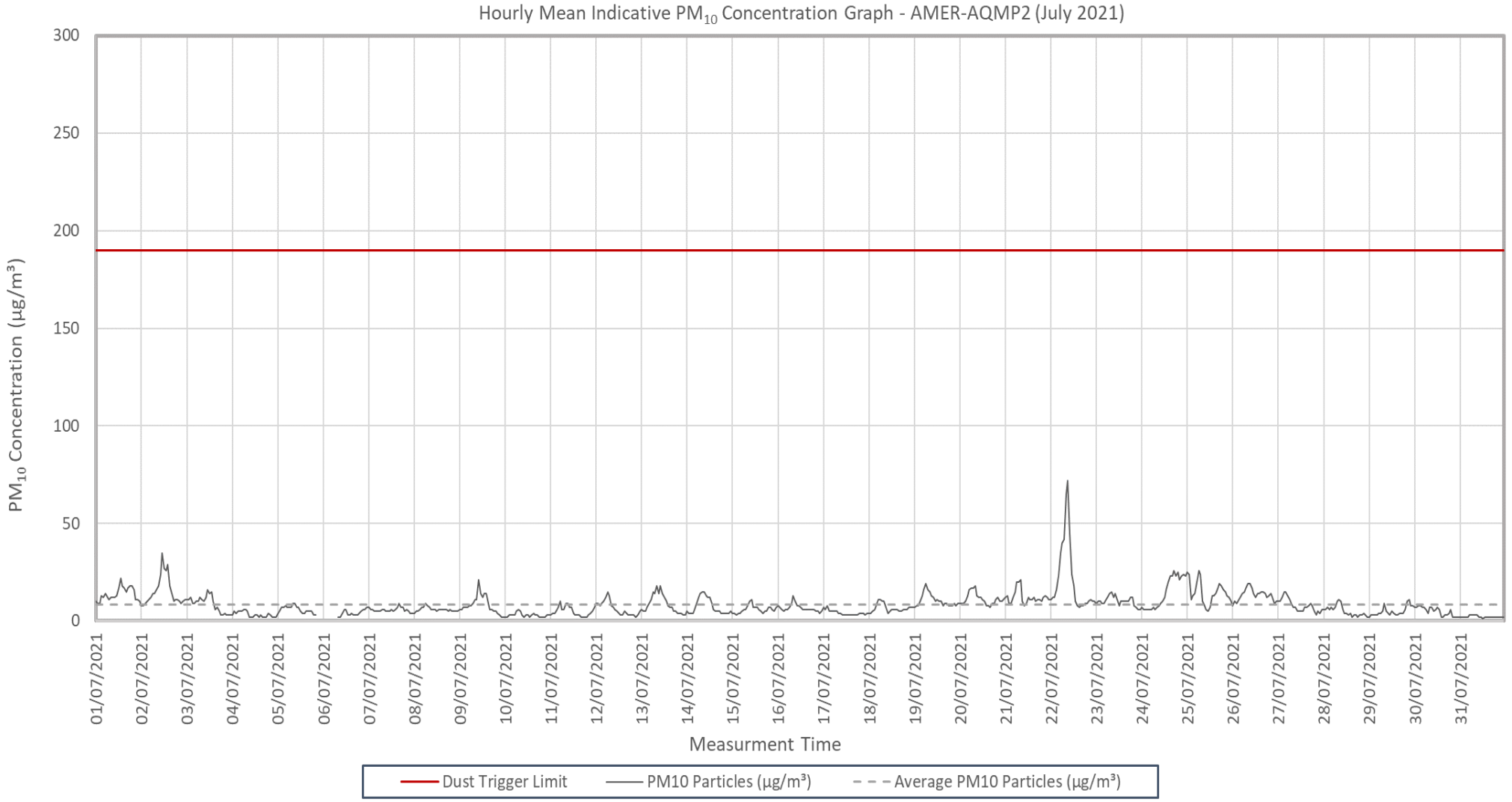


Figure 16: Continuous dust 1-hour mean indicative PM_{10} concentration for CHStG-AQMP1 for July 2021

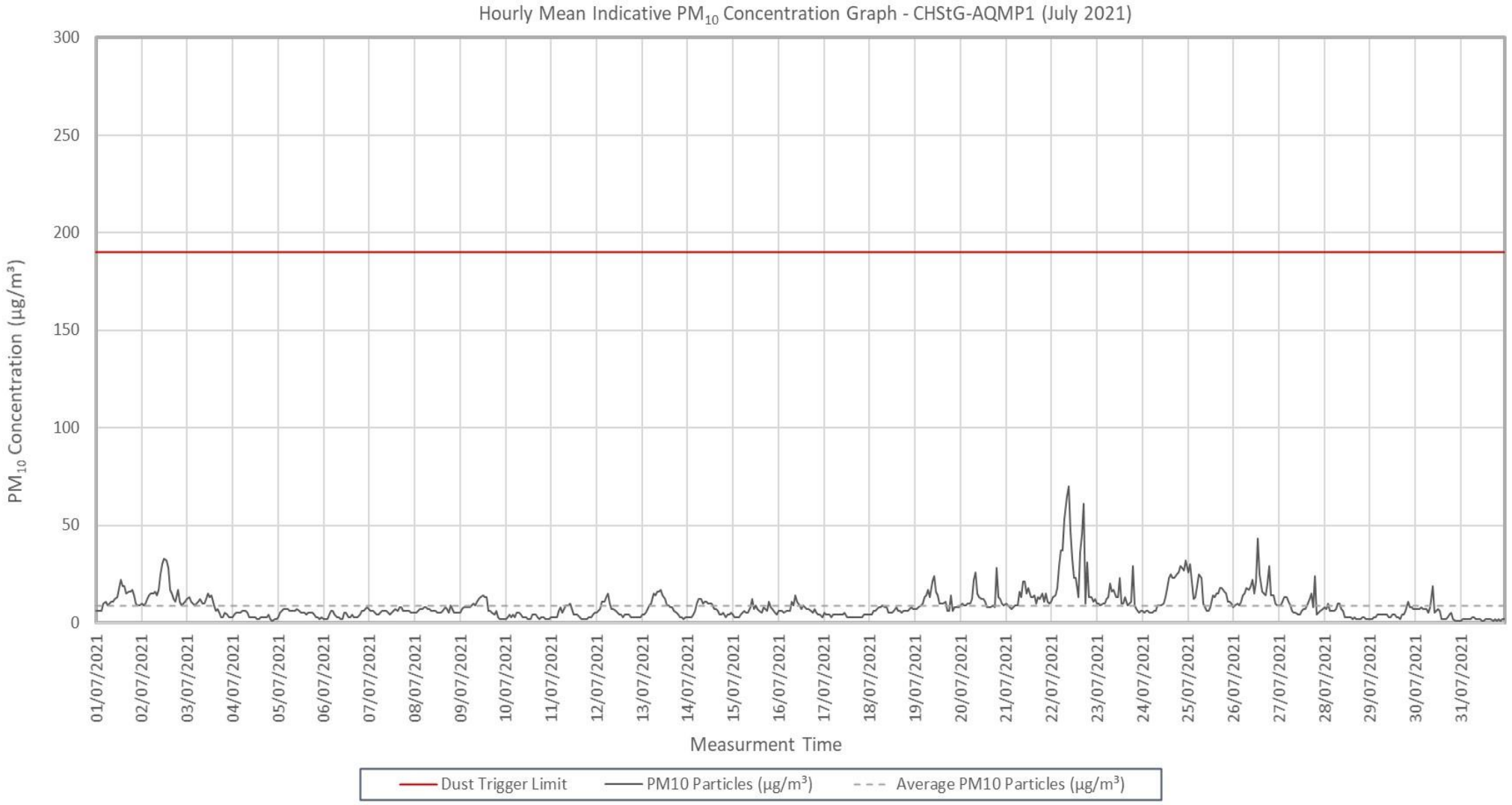


Figure 17: Continuous dust 1-hour mean indicative PM_{10} concentration for CHStG-AQMP2 for July 2021

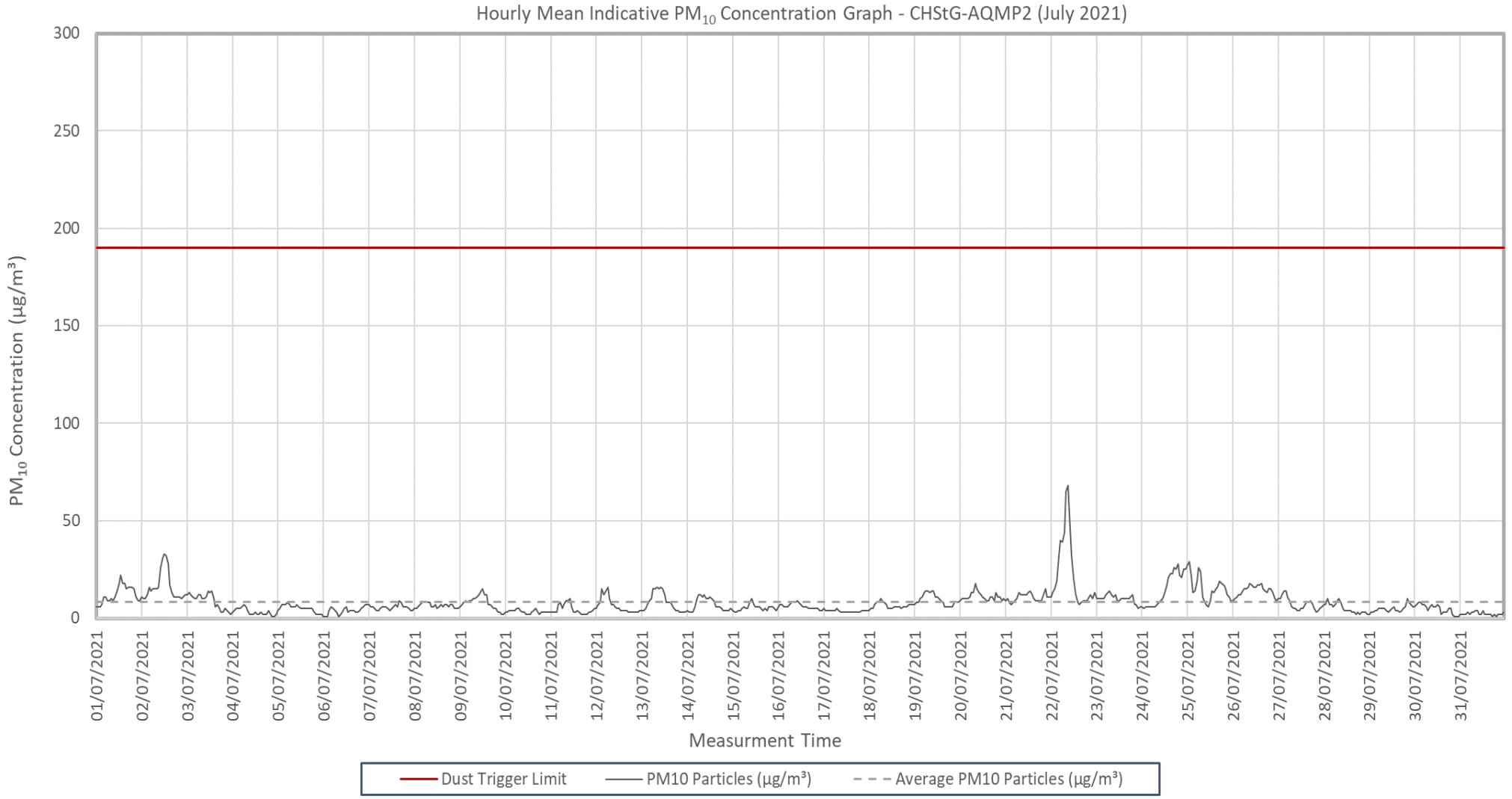


Figure 18: Continuous dust 1-hour mean indicative PM_{10} concentration for LMS-AQMP1 for July 2021

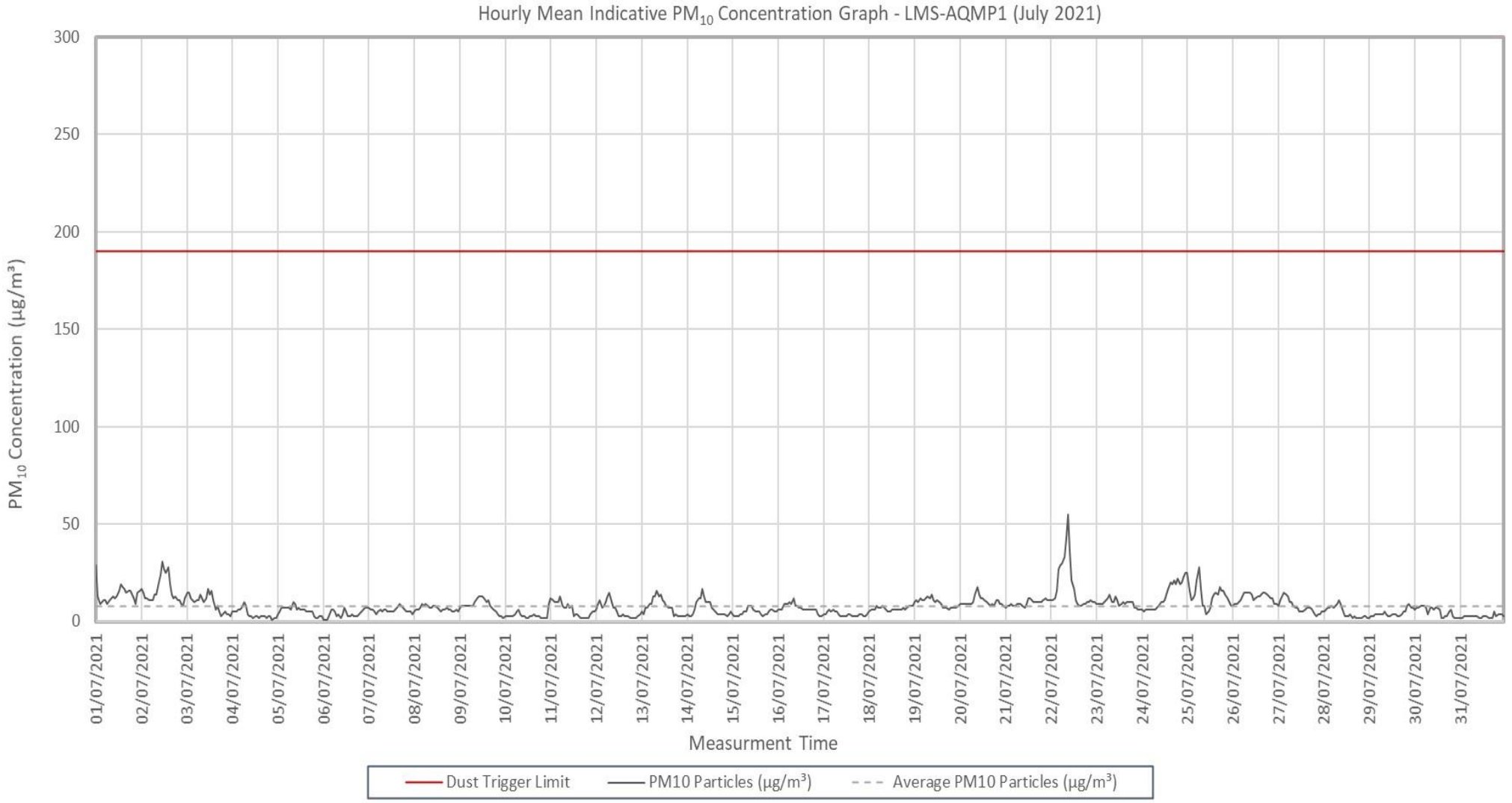


Figure 19: Continuous dust 1-hour mean indicative PM_{10} concentration for LMS-AQMP2 for July 2021

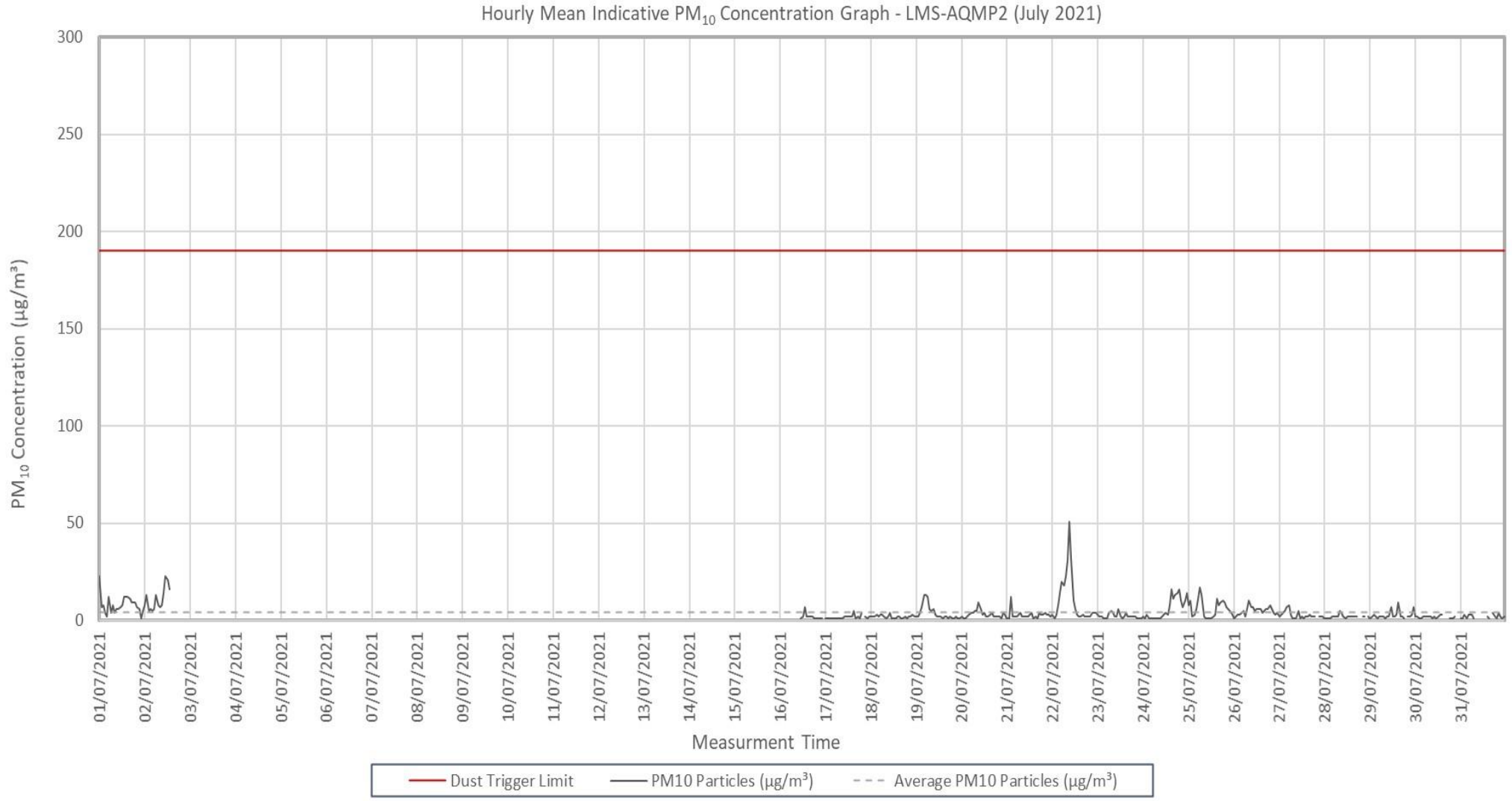


Figure 20: Continuous dust 1-hour mean indicative PM_{10} concentration for CAL-AQMP1 / FCC-SIDINGS for July 2021

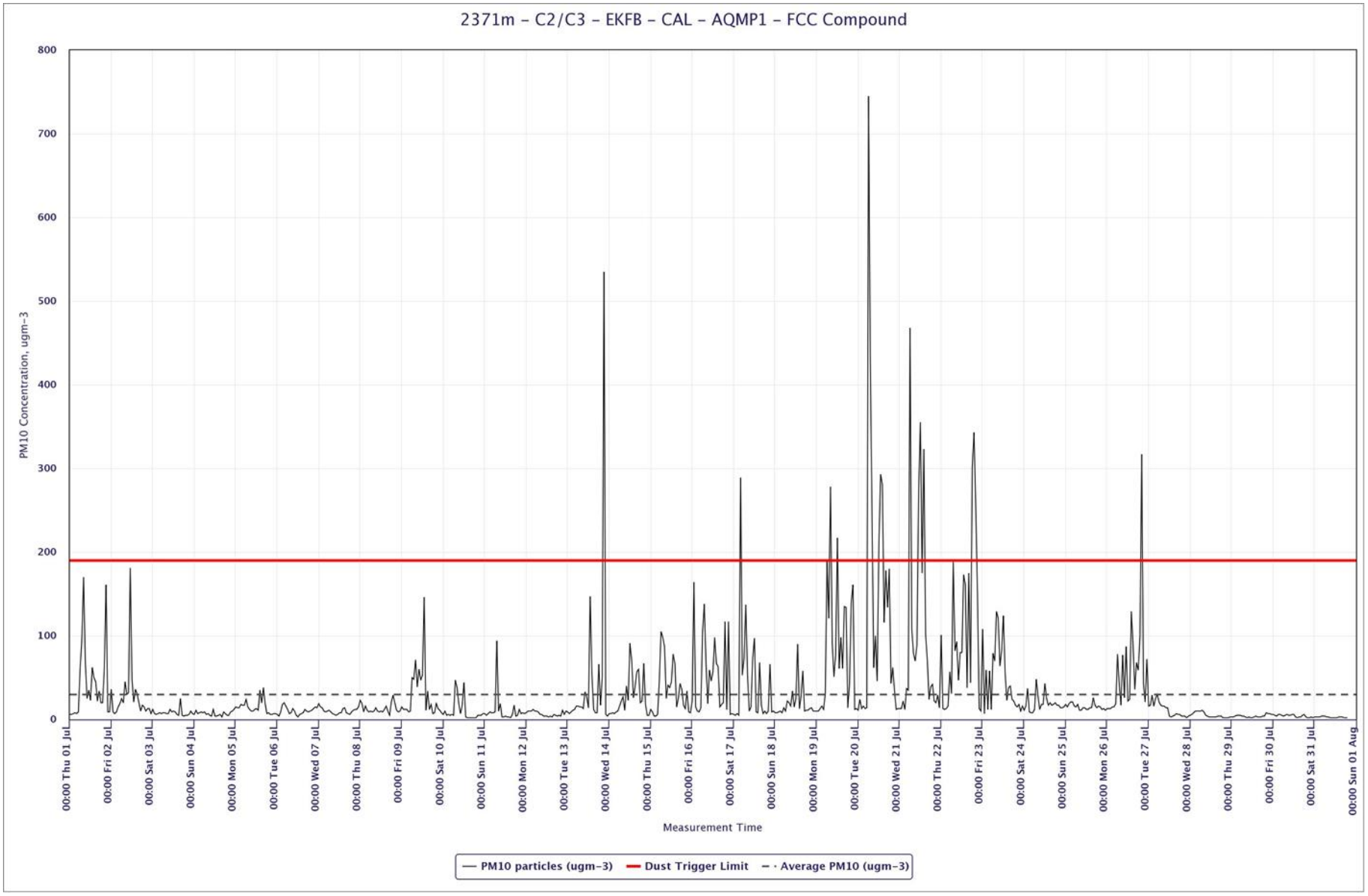


Figure 21: Continuous dust 1-hour mean indicative PM10 concentration for CAL-AQMP2 for July 2021

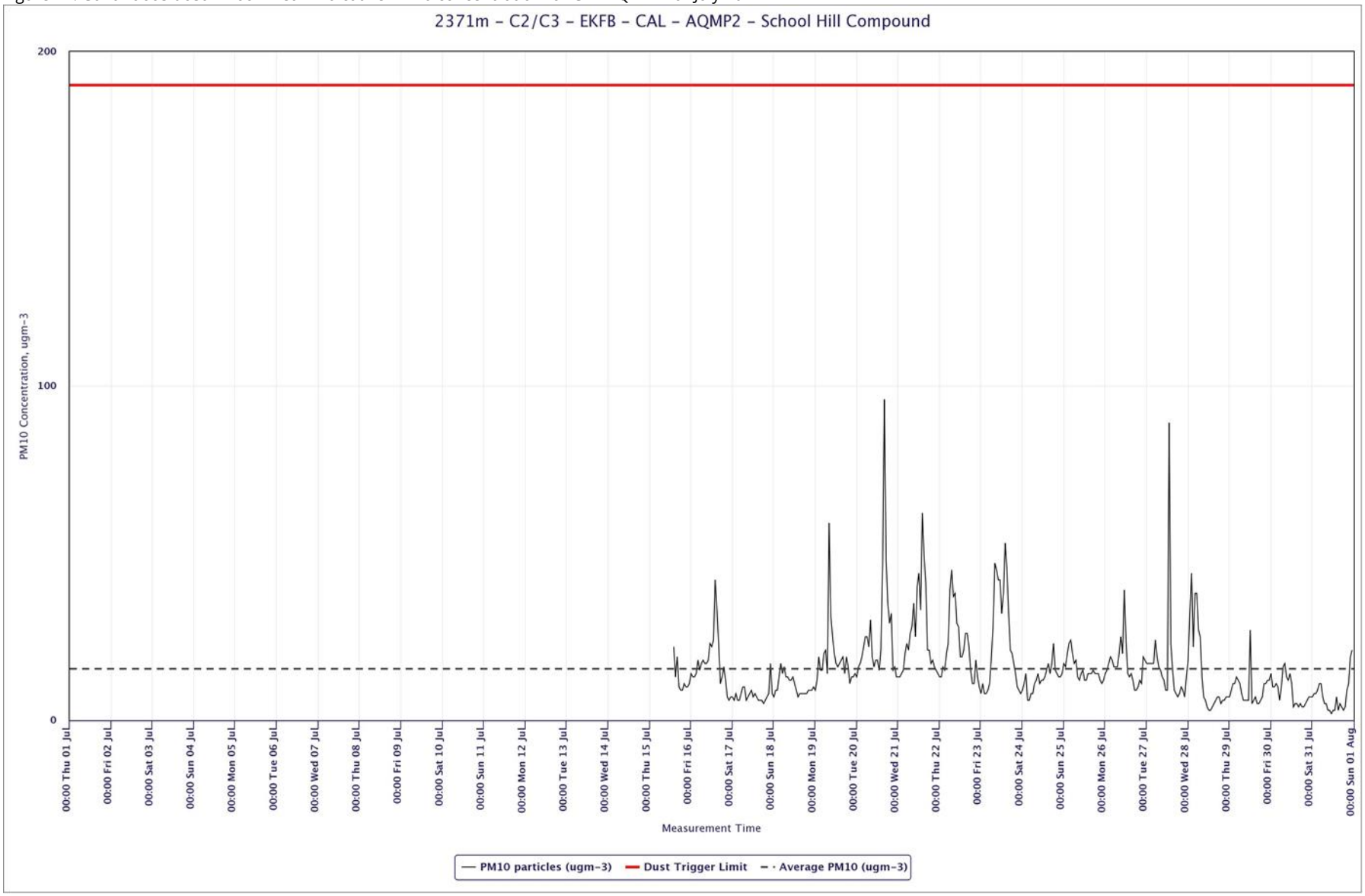


Figure 22: Continuous dust 1-hour mean indicative PM10 concentration for CAL-AQMP3 for July 2021

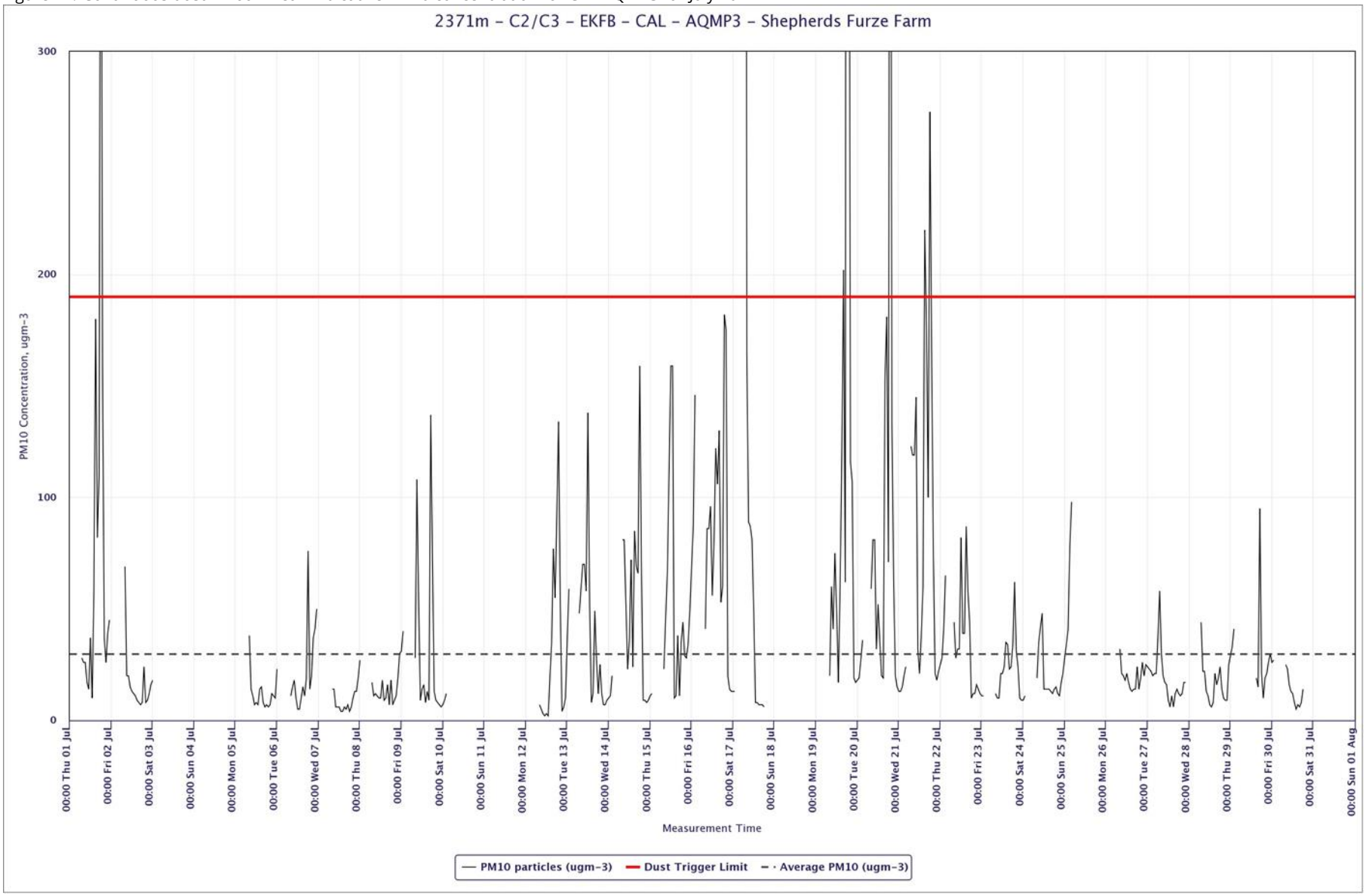


Figure 23: Continuous dust 1-hour mean indicative PM10 concentration for School End - Dust for July 2021

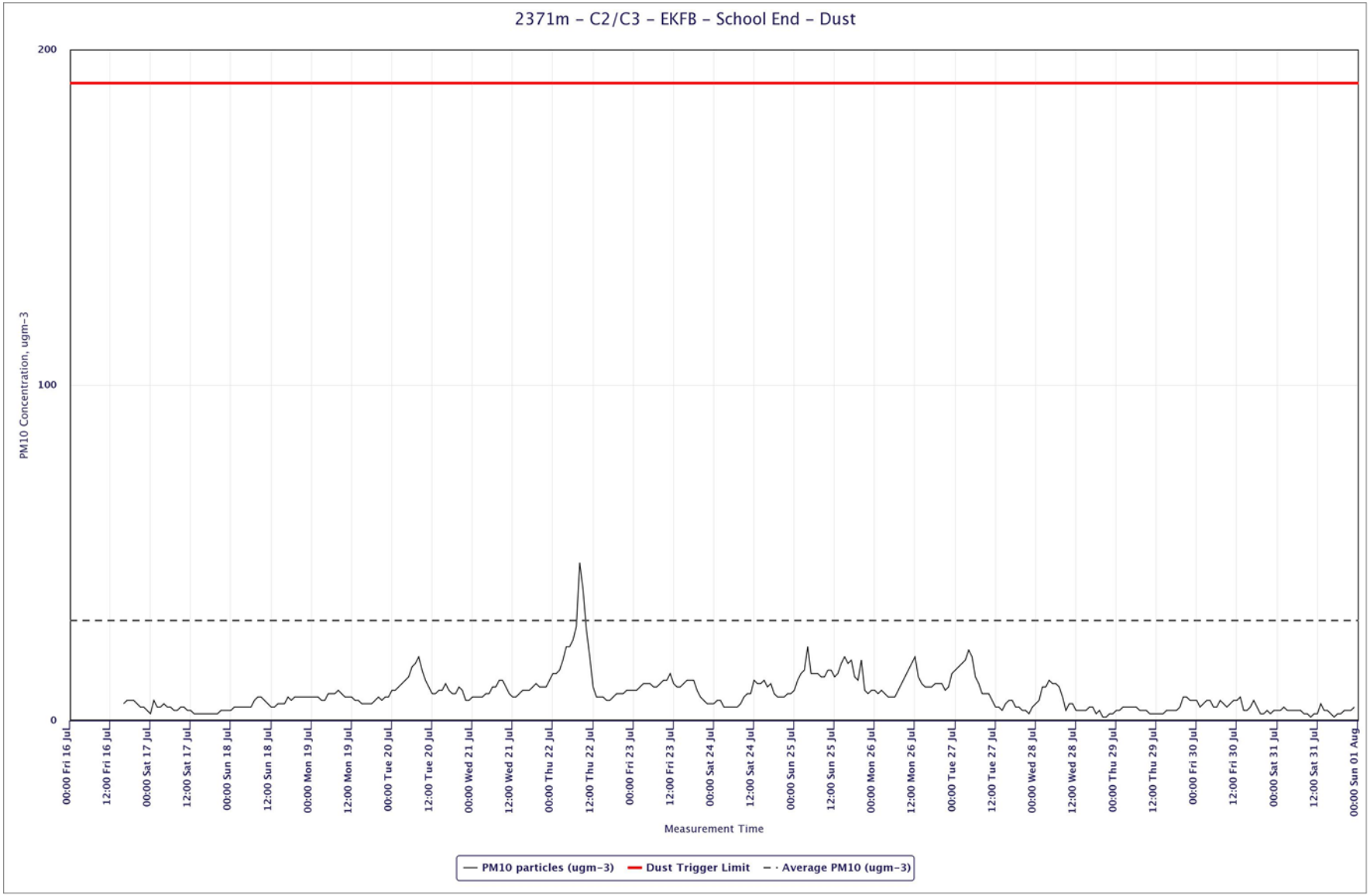


Figure 24: Construction 1 Hour mean indicative PM10 concentration for dust monitors –AQ001

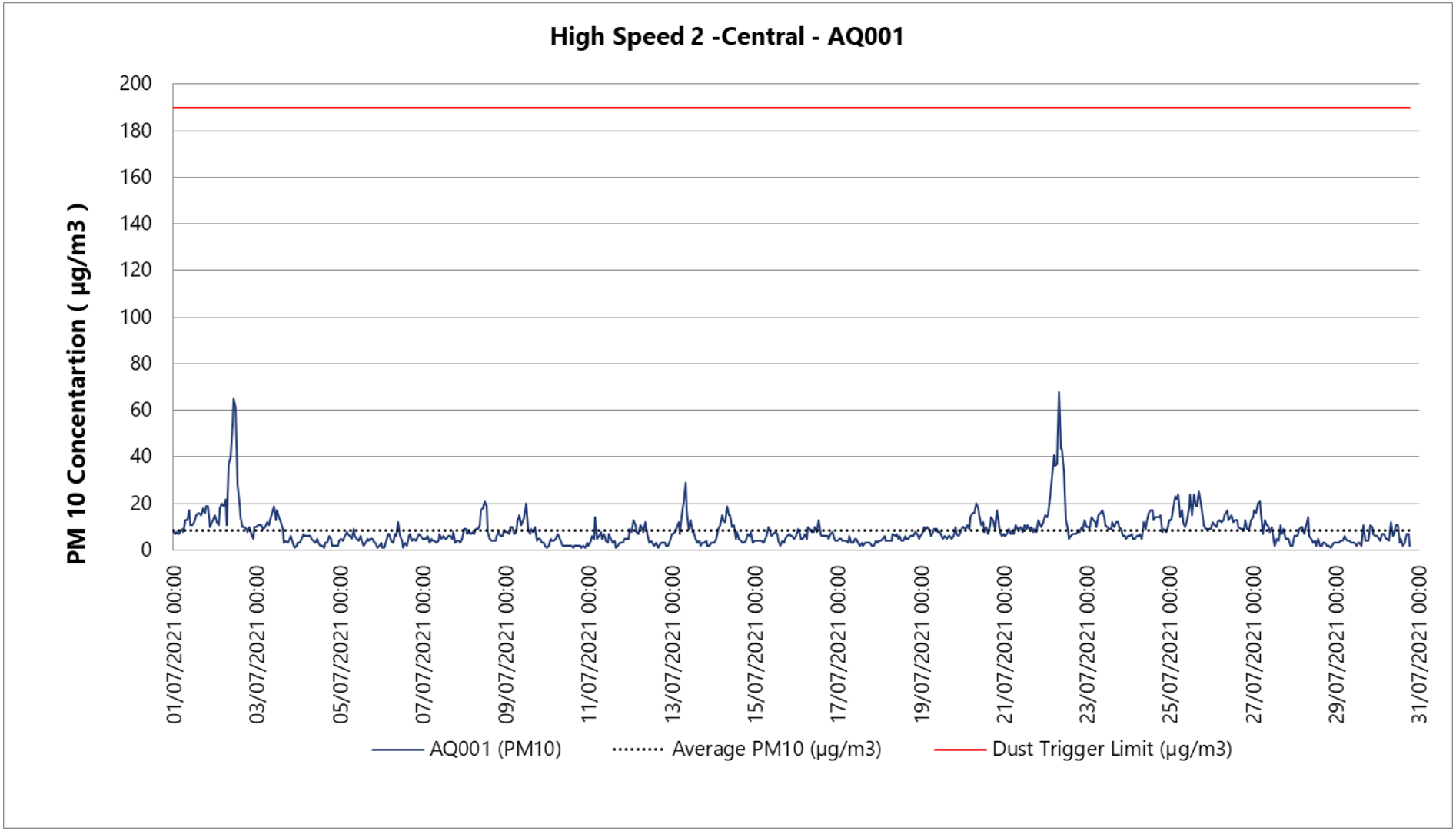


Figure 25: Construction 1 Hour mean indicative PM10 concentration for dust monitors –AQ002

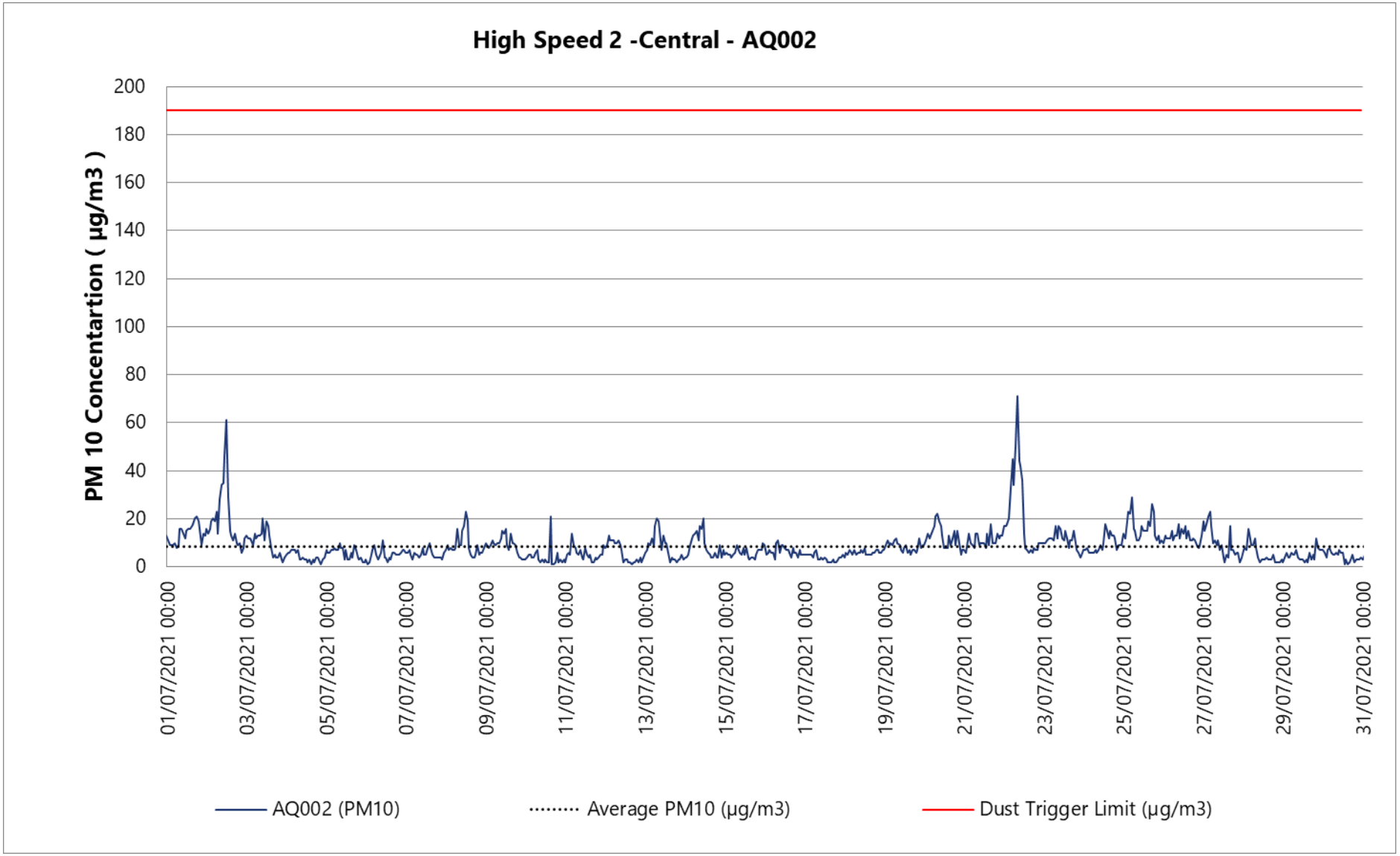


Figure 26: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitor: 3252Dust3 – Lower Bottom House Farm

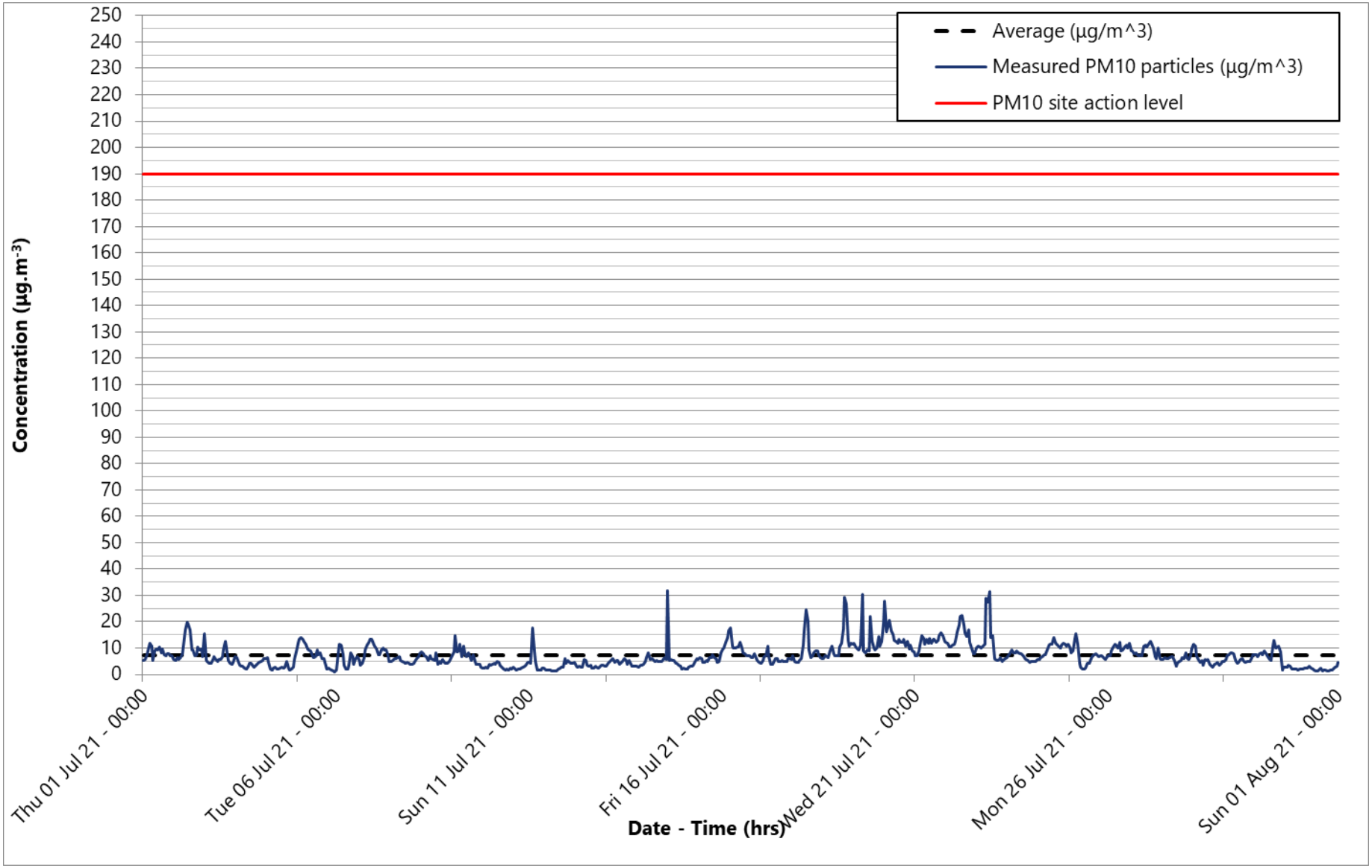


Table 2: Summary of exceedances during period (July 2021).

Monitoring Site ID	Period of trigger alert & Concentration recorded	Investigation	Outcomes / Resolution / Remedial measures implemented
CAL-AQMP3	01/07/21 18:00 - 488.1µg/m^3	At the time of the trigger, trains were undertaken material offloading at the offloading platform. Offloading of all material takes approx. 2.5 hours to complete. Dust suppression, including mist cannons were in place to dampen down aggregate before offloading and a tractor water bowser unit being used to damper down the haul road.	The monitor is located directly adjacent to the offloading operations. While dust suppression was being deployed it is suspected that due to the proximity of the monitor to the activities that trigger alert was received. No triggers were observed at either CAL-AQMP1 or CAL-AQMP2 were received during the period, which are closer to the nearest receptors.
CAL-AQMP1	13/07/21 21:00 - 534.7µg/m^3	No EKFB works were ongoing at the FCC offloading platform during July 2021. Dust triggers likely to be a result of FCC Environment waste operations.	N/A
	17/07/21 04:00 - 298.2µg/m^3		
CAL-AQMP3	17/07/21 07:00 908.1µg/m^3		
CAL-AQMP1	19/07/21 08:00 - 278.2 µg/m^3 12:00 - 216.7 µg/m^3		
CAL-AQMP3	19/07/21 16:00 - 201.8 µg/m^3 18:00 - 1180.1 µg/m^3 19:00 - 527.0 µg/m^3	At the time of the trigger, trains were undertaken material offloading at the offloading platform. Offloading of all material takes approx. 2.5 hours to complete. Dust suppression, including mist cannons were in place to dampen down aggregate before offloading and a tractor water bowser unit being used to damper down the haul road.	The monitor is located directly adjacent to the offloading operations. While dust suppression was being deployed it is suspected that due to the proximity of the monitor to the activities that trigger alert was received. No triggers were observed at either CAL-AQMP1 or CAL-AQMP2 were received during the period, which are closer to the nearest receptors.
CAL-AQMP1	20/07/21 06:00 - 744.5 µg/m^3 07:00 - 432.8 µg/m^3 08:00 - 248.9 µg/m^3 12:00 - 209.7 µg/m^3 13:00 - 292.8 µg/m^3 14:00 - 280.9 µg/m^3	No EKFB works ongoing at the FCC offloading platform during July 2021. Dust triggers likely to be a result of FCC Environment waste operations.	N/A

Monitoring Site ID	Period of trigger alert & Concentration recorded	Investigation	Outcomes / Resolution / Remedial measures implemented
CAL-AQMP3	20/07/21 19:00 - 643.6 µg/m^3	At the time of the trigger, trains were undertaken material offloading at the offloading platform. Offloading of all material takes approx. 2.5 hours to complete. Dust suppression, including mist cannons were in place to dampen down aggregate before offloading and a tractor water bowser unit being used to damper down the haul road.	The monitor is located directly adjacent to the offloading operations. While dust suppression was being deployed it is suspected that due to the proximity of the monitor to the activities that trigger alert was received. No triggers were observed at either CAL-AQMP1 or CAL-AQMP2 were received during the period, which are closer to the nearest receptors.
CAL-AQMP1	21/07/21 06:00 - 468.3 µg/m^3 11:00 - 275.3 µg/m^3 12:00 - 354.8 µg/m^3 14:00 - 323.2 µg/m^3	No EKFB works ongoing at the FCC offloading platform during July 2021. Dust triggers likely to be a result of FCC Environment waste operations.	N/A
CAL-AQMP3	21/07/21 15:00 - 219.8 µg/m^3 18:00 - 272.6 µg/m^3	At the time of the trigger, trains were undertaken material offloading at the offloading platform. Offloading of all material takes approx. 2.5 hours to complete. Dust suppression, including mist cannons were in place to dampen down aggregate before offloading and a tractor water bowser unit being used to damper down the haul road.	The monitor is located directly adjacent to the offloading operations. While dust suppression was being deployed it is suspected that due to the proximity of the monitor to the activities that trigger alert was received. No triggers were observed at either CAL-AQMP1 or CAL-AQMP2 were received during the period, which are closer to the nearest receptors.
CAL-AQMP1	22/07/2021 18:00 - 300.7 µg/m^3 19:00 - 343.3 µg/m^3 20:00 - 255.9 µg/m^3	No EKFB works ongoing at the FCC offloading platform during July 2021. Dust triggers likely to be a result of FCC Environment waste operations.	N/A
CAL-AQMP1	26/07/21 20:00 - 316.7 µg/m^3		