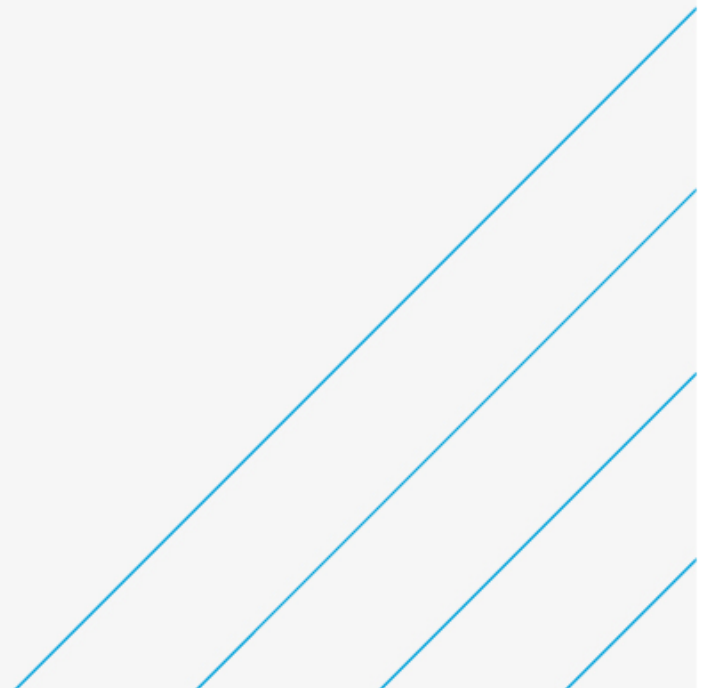


# A6 to Manchester Airport Relief Road

Post-Completion Noise Survey Report (Year 1)

Stockport Council

16 October 2020



# Notice

This document and its contents have been prepared and are intended solely as information for Stockport Council and use in relation to reporting noise levels

Atkins Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 35 pages including the cover.

## Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Issue	DG	SH	SM	SM	07/02/2020
Rev 2.0	Revised following survey at Old Mill Lane	DG	AM	SM	SM	12/10/2020
Rev 3.0	Minor corrections and addition of analysis	DG	AM	SM	SM	16/10/2020

## Client signoff

Client	Stockport Council
Project	A6 to Manchester Airport Relief Road
Job number	5192596
Client signature / date	

# Contents

Chapter	Page
<b>1. Introduction</b>	<b>5</b>
<b>2. Methodology</b>	<b>6</b>
2.1. Introduction to Road Traffic Noise	6
2.2. Monitoring Method	6
2.3. Survey Equipment	7
2.4. Survey Dates	7
2.5. Weather Conditions	7
2.6. Sound Level Indicators	7
2.7. Monitoring Locations	7
<b>3. Monitoring Results</b>	<b>9</b>
3.1. Monitoring Location: ID 1 (Glastonbury Drive, Poynton)	9
3.2. Monitoring Location: ID 2, 3 and 4 (Macclesfield Road Residential Areas)	10
3.3. Monitoring Location: ID 5 (High Lane)	11
3.4. Monitoring Location: ID 6 (Disley)	12
3.5. Monitoring Location: ID 7 (Queensgate Primary School)	13
3.6. Monitoring Location: ID 8 (Macclesfield Road A6 Junction – Kyle Road)	14
3.7. Monitoring Location: MP01 (Cranleigh Drive)	15
3.8. Monitoring Location: MP02 (Old Mill Lane)	16
3.9. Monitoring Location: MP03 (Sheldon Road)	17
3.10. Monitoring Location: MP04 (Mill Hill Hollow)	18
3.11. Monitoring Location: MP05 (Woodford Road)	19
3.12. Monitoring Location: MP06 (Chester Road)	20
3.13. Monitoring Location: MP07 (Albany Road)	21
3.14. Monitoring Location: MP08 (Dairy House Lane)	22
3.15. Monitoring Location: MP09 (Swettenham Road)	23
3.16. Monitoring Location: MP10 (Clay Lane)	24
3.17. Monitoring Location: MP11 (Bolshaw Farm Lane)	25
3.18. Monitoring Location: MP12 (Styal Road)	26
3.19. Monitoring Location: MP13 (Tedder Drive)	27
3.20. Monitoring Location: MP14 (Carsdale Road)	28
3.21. Monitoring Location: MP15 (Felskirk Road/Thaxted Walk)	29
<b>4. Summary of Survey Results</b>	<b>30</b>
<b>5. Analysis</b>	<b>31</b>
<b>6. Conclusions</b>	<b>34</b>

## Tables

Table 1 - ID 1 Noise Monitoring Results (Glastonbury Drive, Poynton)	9
Table 2 - ID 2, 3, 4 Noise Monitoring Results (Macclesfield Road Residential Areas)	10
Table 3 - ID 5 Noise Monitoring Results (High Lane)	11
Table 4 - ID 6 Noise Monitoring Results (Disley)	12
Table 5 - ID 7 Noise Monitoring Results (Queensgate Primary School)	13
Table 6 - ID 8 Noise Monitoring Results (Macclesfield Road A6 Junction – Kyle Road)	14

Table 7 – MP01 Noise Monitoring Results (Cranleigh Drive)	15
Table 8 - MP02 Monitoring Location (Old Mill Lane)	16
Table 9 – MP03 Noise Monitoring Results (Sheldon Road)	17
Table 10 – MP04 Noise Monitoring Results (Mill Hill Hollow)	18
Table 11 – MP05 Noise Monitoring Results (Woodford Road)	19
Table 12 – MP06 Noise Monitoring Results (Chester Road)	20
Table 13 – MP07 Noise Monitoring Results (Albany Road)	21
Table 14 – MP08 Noise Monitoring Results (Dairy House Lane)	22
Table 15 – MP09 Noise Monitoring Results (Swettenham Road)	23
Table 16 – MP10 Noise Monitoring Results (Clay Lane)	24
Table 17 – MP11 Noise Monitoring Results (Bolshaw Farm Lane)	25
Table 18 – MP12 Noise Monitoring Results (Styal Road)	26
Table 19 – MP13 Noise Monitoring Results (Tedder Drive)	27
Table 20 – MP14 Noise Monitoring Results (Carsdale Road)	28
Table 21 – MP15 Noise Monitoring Results (Felskirk Road/Thaxted Walk)	29
Table 22 – Summary of Measured Noise Levels	30
Table 23 – Comparison of measures and modelled noise levels	32

## Figures

Figure 1 – Noise Monitoring Locations	8
Figure 2 - ID 1 Monitoring Location (Glastonbury Drive, Poynton)	9
Figure 3 - ID 2, 3, 4 Monitoring Location (Macclesfield Road Residential Areas)	10
Figure 4 - ID 5 Monitoring Location (High Lane)	11
Figure 5 - ID 6 Monitoring Location (Disley)	12
Figure 6 - ID 7 Monitoring Location (Queensgate Primary School)	13
Figure 7 - ID 8 Monitoring Location (Macclesfield Road A6 Junction – Kyle Road)	14
Figure 8 – MP01 Monitoring Location (Cranleigh Drive)	15
Figure 9 – MP02 Monitoring Location (Old Mill Lane)	16
Figure 10 – MP03 Monitoring Location (Sheldon Road)	17
Figure 11 – MP04 Monitoring Location (Mill Hill Hollow)	18
Figure 12 – MP05 Monitoring Location (Woodford Road)	19
Figure 13 – MP06 Monitoring Location (Chester Road)	20
Figure 14 – MP07 Monitoring Location (Albany Road)	21
Figure 15 – MP08 Monitoring Location (Dairy House Lane)	22
Figure 16 – MP09 Monitoring Location (Swettenham Road)	23
Figure 17 – MP10 Monitoring Location (Clay Lane)	24
Figure 18 – MP11 Monitoring Location (Bolshaw Farm Lane)	25
Figure 19 – MP12 Monitoring Location (Styal Road)	26
Figure 20 – MP13 Monitoring Location (Tedder Drive)	27
Figure 21 – MP14 Monitoring Location (Carsdale Road)	28
Figure 22 – MP15 Monitoring Location (Felskirk Road/Thaxted Walk)	29

# 1. Introduction

- 1.1.1. This report has been prepared to present the results of post-development noise monitoring for the A6 Manchester Airport Relief Road (A6MARR) development at year 1 after opening.
- 1.1.2. The assessment is based on the requirements stated in Atkins' report titled '*A6 to Manchester Airport Relief Road Monitoring and Evaluation Plan*' dated April 2014. The results are compared against pre-development noise monitoring results detailed in Aecom's report titled '*A6 Manchester Airport Relief Road Pre-Development Noise Monitoring – October 2014*' dated March 2015
- 1.1.3. The post-development noise monitoring results presented in the report are from surveys conducted by Atkins between October 2019 and January 2020, as well as a survey during October 2020 at Old Mill Lane which was delayed due to utilities works in the area and subsequently the Covid-19 pandemic.
- 1.1.4. An analysis of the results, in terms of comparison of measured and modelled noise levels is also provided.

## 2. Methodology

### 2.1. Introduction to Road Traffic Noise

- 2.1.1. Road traffic noise can be separated into two components. The first is generated by the engine, exhaust system and transmission and is the dominant noise source when traffic is not freely flowing. This is particularly apparent from heavy vehicles, when accelerating, braking or changing gears, and this contributes a significant proportion of low frequency noise. The second noise source component is generated from the interaction of tyres with the road surface. This is the dominant noise source under free flow traffic conditions at moderate to high road speeds and contributes a significant proportion of higher frequency noise.
- 2.1.2. The sound from a stream of traffic at a reception point is an aggregation of noise from each of a number of vehicles at various distances. The factors that influence the noise level experienced by any listener include the volume of traffic, vehicle speed, the composition of the traffic (i.e. the percentage of heavy goods vehicles (HGVs)), the gradient and the surface characteristics of the carriageway. In addition to the aforementioned variables there is the actual propagation of the sound from the source to the receiver to consider. The propagation is affected by characteristics, such as the distance of the receptor from the source; the topography and characteristics of the ground between the source and receptor; the presence of any screening or barrier effects; reflection effects from buildings and walls in addition to meteorological factors including wind strength and direction.
- 2.1.3. Noise from traffic on a road will change as traffic flows alter during the day and will also fluctuate within shorter time periods as vehicles pass the reception point. In order to compare situations with different traffic noise levels it is necessary to use an index to produce single figure estimates of overall noise levels. The index used for road traffic noise is  $L_{A10,18h}$ , which is the arithmetic mean value of the 'A' weighted noise levels, which are exceeded for 10% of the time in each of the 18 one- hour periods between 06:00 hours and 00:00 hours (midnight). A reasonably good correlation has been shown to exist between traffic noise levels expressed in  $L_{A10,18h}$  and residents' dissatisfaction with the noise experienced in their homes over a wide range of exposure levels.
- 2.1.4. The Calculation of Road Traffic Noise (CRTN)<sup>1</sup> advises that, within certain limits, a shortened measurement procedure can be used to calculate  $L_{10}$  (18-hour). Paragraph 43 of CRTN outlines this method:
- "Measurements of  $L_{10}$  are made over any three consecutive hours between 1000 and 1700 hours. Using  $L_{10}$  (3 hour) as the arithmetic mean of the three consecutive values of hourly  $L_{10}$ , the current value of  $L_{10}$  (18 hour) can be calculated from the relation:*
- $$L_{10}(18 - \text{hour}) = L_{10}(3 \text{ hour}) - 1\text{dB}(A)$$
- where  $L_{10}(3 \text{ hour}) = \frac{1}{3} \sum_{10 \leq t \leq 14}^{t+2} L_{10}(\text{hourly})$*
- and  $t$  signifies the start time of the individual hourly  $L_{10}$  dB(A) values."*

### 2.2. Monitoring Method

- 2.2.1. Noise monitoring has followed the shortened measurement procedure described in CRTN.
- 2.2.2. Section III of CRTN provides guidance on the measurement methodology, including guidance on weather conditions, equipment requirements, and measurement procedure. Any noise contribution from sources other than road traffic (e.g. aircraft noise) has been excluded from the measurements.
- 2.2.3. The results of the measurements have been used to calculate the  $L_{10}$  (18-hour) dB(A) level at that location. The results of the monitoring will be compared against the measurements conducted during the pre-development

<sup>1</sup> Calculation of Road Traffic Noise - Department of Transport, Welsh Office, (1988)

## 2.3. Survey Equipment

2.3.1. All noise surveys were undertaken using a Class 1 (as defined in the British Standard (BS) EN 61672-1:2013<sup>2</sup>)

2.3.2. Sound Level Meter. The specific equipment used for the surveys was:

- Kit 1:
  - Rion type NL-52 Sound Level Meter, Serial Number 620802;
  - Rion type NC-74 Acoustical Calibrator, Serial Number 34851846;
- Kit 2:
  - Rion type NL-52 Sound Level Meter, Serial Number 610205;
  - Rion type NC-74 Acoustical Calibrator, Serial Number 34235943;
- Kit 3
  - Norsonic type 140 Sound Level Meter, Serial Number 1403790; and
  - Norsonic type 1251 Acoustical Calibrator, Serial Number 32543.
- Kit 3
  - Rion type NL-52 Sound Level Meter, Serial Number 610855;
  - Rion type NC-74 Acoustical Calibrator, Serial Number 35125803;

2.3.3. The calibration of the equipment was checked before and after each set of measurements and there was no significant drift in calibration levels noted. Calibration certificates for the equipment are available on request. The noise monitoring was undertaken following the principles of BS 7445-1:20034.

## 2.4. Survey Dates

2.4.1. Daytime measurements were carried out between 10:00 and 17:00 hours during October and November 2019, January 2020 and October 2020. Details of monitoring at each location can found in Section 3 of this report.

2.4.2. Monitoring has been carried out during normal working weekdays (e.g. outside of school holidays), during calm weather conditions (wind speeds less than 5 metres per second (m/s), no precipitation).

2.4.3. It should be noted that the survey at Old Mill Lane was delayed due to local utilities works and subsequently the Covid-19 pandemic. The survey at this location was conducted during October 2020 and, although national 'lockdown' had ended, restrictions were still in place, together with a general change in working habits (such as working from home) which may have influenced traffic flows.

## 2.5. Weather Conditions

2.5.1. All surveys were conducted during suitable weather conditions and the conditions were monitored during the surveys using a handheld anemometer. Weather conditions are detailed for each location in Section 3 of this report.

## 2.6. Sound Level Indicators

2.6.1. The measurements consisted of ambient ( $L_{Aeq,T}$ ), maximum ( $L_{Amax}$ ), and statistical ( $L_{A10,T}$ ,  $L_{A90,T}$ ) sound level indicators over three consecutive 1 hour periods. The sample period was 15-minutes.

## 2.7. Monitoring Locations

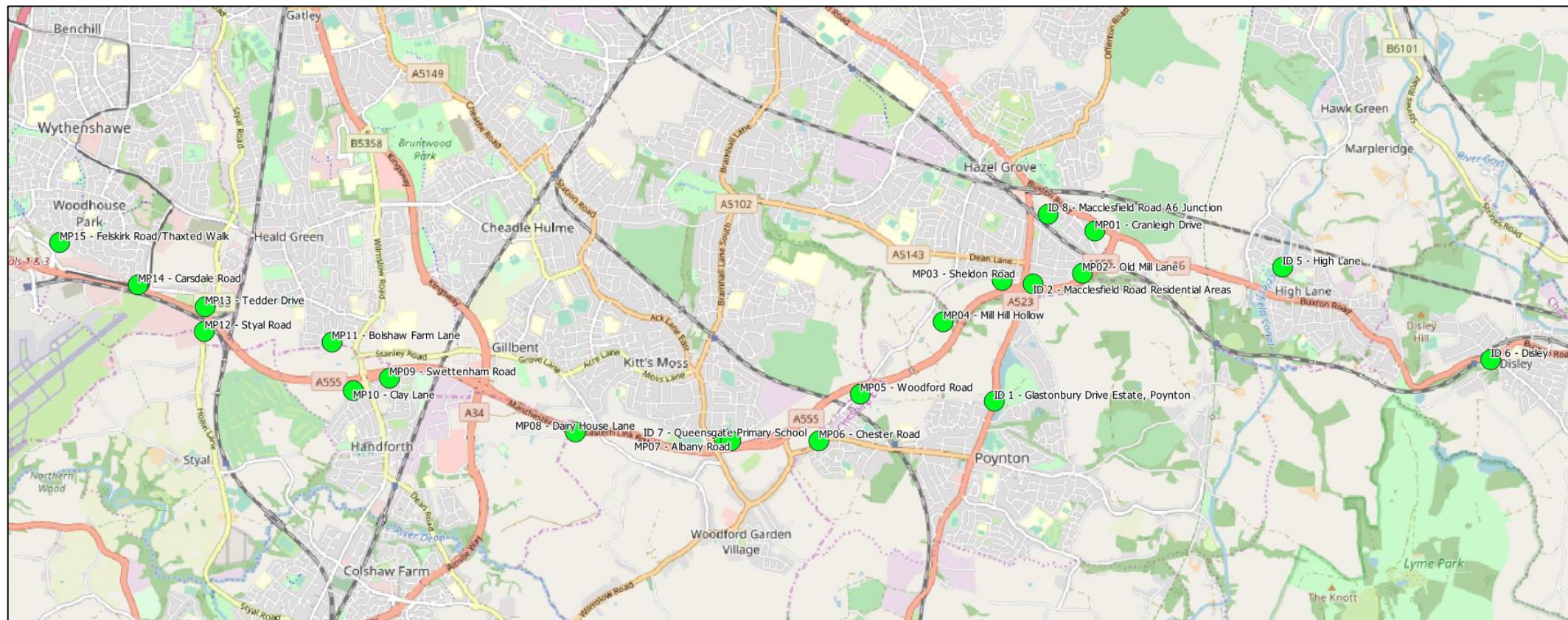
2.7.1. The noise monitoring locations replicate those used during the pre-development noise monitoring in October 2019 detailed in Aecom's report titled '*A6 Manchester Airport Relief Road Pre-Development Noise Monitoring – October 2014*'. The monitoring locations are shown graphically in Figure 1.

---

<sup>2</sup> British Standards Institute, (2013); BS EN 61672-1 Electroacoustics. Sound level meters Specifications, BSI, London.



**Figure 1 – Noise Monitoring Locations**





## 3. Monitoring Results

### 3.1. Monitoring Location: ID 1 (Glastonbury Drive, Poynton)

- Date: 30<sup>th</sup> January 2020
- Easting/Northing: 392196/384191
- Monitoring equipment: Kit 2
- Weather conditions: Wind:3m/s south-westerly, 10°C, dry, four oktas cloud cover, 90% humidity, 990 millibars atmospheric pressure.

**Figure 2 - ID 1 Monitoring Location (Glastonbury Drive, Poynton)**



3.1.1. The results of the monitoring at this location are provided below.

**Table 1 - ID 1 Noise Monitoring Results (Glastonbury Drive, Poynton)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
30/01/2020 11:30	74.6	87.4	78.7	61.8
30/01/2020 12:35	74.7	94.1	78.7	62.7
30/01/2020 13:05	74.8	91.1	79.2	62.1
Average L <sub>A10</sub>			78.9	
L <sub>A10,18h</sub>			77.9	

3.1.2. The dominant source of noise at this location was road traffic on the A523.



### 3.2. Monitoring Location: ID 2, 3 and 4 (Macclesfield Road Residential Areas)

- Date: 20<sup>th</sup> November 2019
- Easting/Northing: 392609/385434
- Monitoring equipment: Kit 1
- Weather conditions: Wind:3m/s south-easterly, 7°C, dry, two oktas cloud cover, 75% humidity, 1,000 millibars atmospheric pressure.

**Figure 3 - ID 2, 3, 4 Monitoring Location (Macclesfield Road Residential Areas)**



3.2.1. The results of the monitoring at this location are provided below.

**Table 2 - ID 2, 3, 4 Noise Monitoring Results (Macclesfield Road Residential Areas)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
20/11/2019 12:05	50.1	63.7	52.7	46.0
20/11/2019 13:05	55.6	79.7	54.1	47.3
20/11/2019 14:05	54.6	72.4	55.0	47.9
Average L <sub>A10</sub>			53.9	
L <sub>A10,18h</sub>			52.9	

3.2.2. The dominant noise source at this location was road traffic on the A555 to the south and Macclesfield Road to the west. This location is sheltered from these roads by an embankment and road side barriers.

### 3.3. Monitoring Location: ID 5 (High Lane)

- Date: 18<sup>th</sup> October 2019
- Easting/Northing: 395243/385609
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-westerly, 10°C, dry, five oktas cloud cover, 90% humidity, 985 millibars atmospheric pressure.

**Figure 4 - ID 5 Monitoring Location (High Lane)**



3.3.1. The results of the monitoring at this location are provided below.

**Table 3 - ID 5 Noise Monitoring Results (High Lane)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
18/10/2019 10:23	52.4	77.0	56.2	45.1
18/10/2019 11:23	48.6	72.1	49.4	43.5
18/10/2019 12:23	48.2	76.9	49.2	44.1
Average L <sub>A10</sub>			51.6	
L <sub>A10,18h</sub>			50.6	

3.3.2. The dominant noise source at this location was distant traffic noise, predominately the A6 to the south, with occasional traffic movements on local roads.



### 3.4. Monitoring Location: ID 6 (Disley)

- Date: 18<sup>th</sup> October 2019
- Easting/Northing: 397445/384635
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-westerly, 10°C, dry, five oktas cloud cover, 90% humidity, 985 millibars atmospheric pressure.

**Figure 5 - ID 6 Monitoring Location (Disley)**



3.4.1. The results of the monitoring at this location are provided below.

**Table 4 - ID 6 Noise Monitoring Results (Disley)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
18/10/2019 10:00	68.8	84.2	71.8	61.2
18/10/2019 11:45	68.1	86.5	70.7	61.9
18/10/2019 12:00	67.5	87.3	69.3	62.4
Average L <sub>A10</sub>			70.6	
L <sub>A10,18h</sub>			69.6	

3.4.2. The dominant noise source at this location was traffic road on the A6 to the north of the measurement location

### 3.5. Monitoring Location: ID 7 (Queensgate Primary School)

- Date: 21<sup>st</sup> November 2019
- Easting/Northing: 389352/383794
- Monitoring equipment: Kit 1
- Weather conditions: Wind:3m/s south-easterly, 5°C, dry, six oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 6 - ID 7 Monitoring Location (Queensgate Primary School)**



3.5.1. The results of the monitoring at this location are provided below.

**Table 5 - ID 7 Noise Monitoring Results (Queensgate Primary School)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
21/11/2019 10:30	56.7	71.9	60.2	49.5
21/11/2019 11:15	57.5	74.6	60.2	50.6
21/11/2019 12:00	55.5	78.2	58.0	49.5
Average L <sub>A10</sub>			59.5	
L <sub>A10,18h</sub>			58.5	

3.5.2. The main noise at this location was distant road traffic noise from the A555 to the south. The sound level meter was left unattended between approximately 9:30 and 13:20. 15-minute samples were selected for each hour between 10:00 and 13:00 which contained the least contamination from noise during children (e.g. during break-times).



### 3.6. Monitoring Location: ID 8 (Macclesfield Road A6 Junction – Kyle Road)

- Date: 20<sup>th</sup> November 2019
- Easting/Northing: 392767/386172
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s south-easterly, 7°C, dry, two oktas cloud cover, 75% humidity, 1,000 millibars atmospheric pressure.

**Figure 7 - ID 8 Monitoring Location (Macclesfield Road A6 Junction – Kyle Road)**



3.6.1. The results of the monitoring at this location are provided below.

**Table 6 - ID 8 Noise Monitoring Results (Macclesfield Road A6 Junction – Kyle Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
20/11/2019 10:20	57.8	73.0	61.6	50.4
20/11/2019 11:45	56.3	71.3	59.0	51.6
20/11/2019 12:00	61.8	81.0	63.9	54.7
Average L <sub>A10</sub>			61.5	
L <sub>A10,18h</sub>			60.5	

3.6.2. The dominant noise source at this location was due to construction activity on the site to the north of the measurement location. There was also distant traffic noise from all directions. Consideration may be given to reassessing this location once construction activity to the north has ceased.

### 3.7. Monitoring Location: MP01 (Cranleigh Drive)

- Date: 18<sup>th</sup> October 2019
- Easting/Northing: 393261/385990
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-westerly, 10°C, dry, five oktas cloud cover, 90% humidity, 985 millibars atmospheric pressure.

**Figure 8 – MP01 Monitoring Location (Cranleigh Drive)**



3.7.1. The results of the monitoring at this location are provided below.

**Table 7 – MP01 Noise Monitoring Results (Cranleigh Drive)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
18/10/2019 10:45	49.0	82.2	49.6	44.3
18/10/2019 11:00	50.9	83.3	50.7	44.7
18/10/2019 12:45	49.1	68.9	51.6	43.9
Average L <sub>A10</sub>			50.6	
L <sub>A10,18h</sub>			49.6	

3.7.2. The dominant noise source at this location was road traffic on the realigned A6 to the northeast of the monitoring location. There was also some road traffic noise audible to the southwest from Buxton Road (the old A6) and occasional local traffic movements on Cranleigh Drive. The realigned A6 to the north is screened at this location by an earth bund.

### 3.8. Monitoring Location: MP02 (Old Mill Lane)

- Date: 2<sup>nd</sup> October 2020
- Easting/Northing: 393128/385539
- Monitoring equipment: Kit 4
- Weather conditions: Wind:3-5m/s north-easterly, 9°C, dry, four oktas cloud cover, 80% humidity, 985 millibars atmospheric pressure.

**Figure 9 – MP02 Monitoring Location (Old Mill Lane)**



3.8.1. The results of the monitoring at this location are provided below.

**Table 8 - MP02 Monitoring Location (Old Mill Lane)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
02/10/2020 10:45	59.0	74.6	62.2	51.4
02/10/2020 11:00	58.6	69.6	61.9	51.1
02/10/2020 12:00	58.4	67.4	61.9	49.0
Average L <sub>A10</sub>			62.0	
L <sub>A10,18h</sub>			61.0	

3.8.2. The dominant source of noise at this location was road traffic on the A555 to the south. There were also occasional railway movements to the east. It should be noted that the survey at this location was delayed due to local utilities works and subsequently the Covid-19 pandemic. The survey at this location was conducted during October 2020 and, although lockdown had ended, restrictions were still in place, together with a general change in working habits (such as working from home) which may have influenced traffic flows. Traffic counts during the survey were typically of the order of 13 to 15 cars per minute on the A555 (approximately 800 – 900 cars per hour).



### 3.9. Monitoring Location: MP03 (Sheldon Road)

- Date: 20<sup>th</sup> November 2019
- Easting/Northing: 392286/385472
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s south-easterly, 7°C, dry, two oktas cloud cover, 75% humidity, 1,000 millibars atmospheric pressure.

**Figure 10 – MP03 Monitoring Location (Sheldon Road)**



3.9.1. The results of the monitoring at this location are provided below.

**Table 9 – MP03 Noise Monitoring Results (Sheldon Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
20/11/2019 10:45	52.5	62.1	54.5	49.8
20/11/2019 11:00	52.9	72.5	54.7	50.4
20/11/2019 12:25	52.7	68.1	54.3	48.8
Average L <sub>A10</sub>			54.5	
L <sub>A10,18h</sub>			53.5	

3.9.2. The dominant noise source at this location was road traffic noise from the A555 to the south. There were also contributions from traffic.

### 3.10. Monitoring Location: MP04 (Mill Hill Hollow)

- Date: 20<sup>th</sup> November 2019
- Easting/Northing: 391662/385035
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s south-easterly, 7°C, dry, two oktas cloud cover, 75% humidity, 1,000 millibars atmospheric pressure.

**Figure 11 – MP04 Monitoring Location (Mill Hill Hollow)**



3.10.1. The results of the monitoring at this location are provided below.

**Table 10 – MP04 Noise Monitoring Results (Mill Hill Hollow)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
20/11/2019 11:25	51.3	64.8	52.9	48.8
20/11/2019 12:45	51.8	69.1	52.6	48.2
20/11/2019 13:00	53.6	80.3	53.1	47.8
Average L <sub>A10</sub>			52.9	
L <sub>A10,18h</sub>			51.9	

3.10.2. The dominant noise source at this location was distant road traffic from the A555 to the east. There were also occasional local traffic movements on Mill Hill Hollow.



### 3.11. Monitoring Location: MP05 (Woodford Road)

- Date: 19<sup>th</sup> November 2019
- Easting/Northing: 390781/384271
- Monitoring equipment: Kit 1
- Weather conditions: Wind: 1m/s south-easterly, 5°C, dry, four oktas cloud cover, 85% humidity, 1,005 millibars atmospheric pressure.

**Figure 12 – MP05 Monitoring Location (Woodford Road)**



- 3.11.1. The results of the monitoring at this location are provided below.

**Table 11 – MP05 Noise Monitoring Results (Woodford Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
19/11/2019 10:00	66.1	80.3	70.8	48.2
19/11/2019 11:45	66.4	80.8	70.6	47.3
19/11/2019 12:00	67.8	82.1	72.6	48.8
Average L <sub>A10</sub>			71.3	
L <sub>A10,18h</sub>			70.3	

- 3.11.2. The main source of noise at this location was road traffic on Woodford Road. However, between traffic movements on Woodford Road, road traffic on the A555 was the main source of noise. This location was affected by a slight realignment of the road due to the scheme. As such, the nearest practicable location to that pre-development was used.



### 3.12. Monitoring Location: MP06 (Chester Road)

- Date: 19<sup>th</sup> November 2019
- Easting/Northing: 390346/383777
- Monitoring equipment: Kit 1
- Weather conditions: Wind: 1m/s south-easterly, 5°C, dry, four oktas cloud cover, 85% humidity, 1,005 millibars atmospheric pressure.

**Figure 13 – MP06 Monitoring Location (Chester Road)**



3.12.1. The results of the monitoring at this location are provided below.

**Table 12 – MP06 Noise Monitoring Results (Chester Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
19/11/2019 10:20	72.9	84.6	76.7	56.9
19/11/2019 11:25	73.1	85.8	77.0	58.8
19/11/2019 12:20	72.7	85.6	76.8	58.2
Average L <sub>A10</sub>			76.8	
L <sub>A10,18h</sub>			75.8	

3.12.2. The main source of noise at this location was road traffic on Chester Road.

### 3.13. Monitoring Location: MP07 (Albany Road)

- Date: 21<sup>st</sup> November 2019
- Easting/Northing: 389410/383776
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s south-easterly, 5°C, dry, six oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 14 – MP07 Monitoring Location (Albany Road)**



3.13.1. The results of the monitoring at this location are provided below.

**Table 13 – MP07 Noise Monitoring Results (Albany Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
21/11/2019 10:35	52.2	73.4	54.5	48.0
21/11/2019 11:00	52.0	65.8	54.2	47.7
21/11/2019 12:45	53.9	63.6	56.2	50.3
Average L <sub>A10</sub>			55.0	
L <sub>A10,18h</sub>			54.0	

3.13.2. The dominant source of noise at the location was road traffic on the A555. There were also occasional local traffic movements.



### 3.14. Monitoring Location: MP08 (Dairy House Lane)

- Date: 19<sup>th</sup> November 2019
- Easting/Northing: 387772/383865
- Monitoring equipment: Kit 1
- Weather conditions: Wind: 1m/s south-easterly, 5°C, dry, four oktas cloud cover, 85% humidity, 1,005 millibars atmospheric pressure.

**Figure 15 – MP08 Monitoring Location (Dairy House Lane)**



3.14.1. The results of the monitoring at this location are provided below.

**Table 14 – MP08 Noise Monitoring Results (Dairy House Lane)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
19/11/2019 10:45	66.6	82.6	68.2	59.8
19/11/2019 11:00	65.2	82.0	66.8	58.5
19/11/2019 12:45	66.1	80.8	68.0	60.2
Average L <sub>A10</sub>			67.7	
L <sub>A10,18h</sub>			66.7	

3.14.2. The main source of noise at this location was road traffic on the A555 to the south. There were also occasional traffic movements on Dairy House Lane.

### 3.15. Monitoring Location: MP09 (Swettenham Road)

- Date: 17<sup>th</sup> October 2019
- Easting/Northing: 385806/384439
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s southerly, 7°C, dry, four oktas cloud cover, 70% humidity, 990 millibars atmospheric pressure.

**Figure 16 – MP09 Monitoring Location (Swettenham Road)**



- 3.15.1. The results of the monitoring at this location are provided below.

**Table 15 – MP09 Noise Monitoring Results (Swettenham Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
17/10/2019 11:20	51.2	59.8	53.4	47.4
17/10/2019 12:45	51.4	64.1	53.3	48.3
17/10/2019 13:00	51.5	61.9	53.5	48.6
Average L <sub>A10</sub>			53.4	
L <sub>A10,18h</sub>			52.4	

- 3.15.2. The main source of noise at this location was road traffic noise on the A555 to the north.



### 3.16. Monitoring Location: MP10 (Clay Lane)

- Date: 17<sup>th</sup> October 2019
- Easting/Northing: 385423/384308
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s southerly, 7°C, dry, four oktas cloud cover, 70% humidity, 990 millibars atmospheric pressure.

**Figure 17 – MP10 Monitoring Location (Clay Lane)**



3.16.1. The results of the monitoring at this location are provided below.

**Table 16 – MP10 Noise Monitoring Results (Clay Lane)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
17/10/2019 10:45	52.1	70.4	54.9	46.9
17/10/2019 11:00	51.8	66.3	54.8	47.4
17/10/2019 12:25	52.2	68.4	54.5	46.9
Average L <sub>A10</sub>			54.7	
L <sub>A10,18h</sub>			53.7	

3.16.2. The main source of noise at this location was road traffic noise on the A555 to the north. There were also occasional local traffic movements.

### 3.17. Monitoring Location: MP11 (Bolshaw Farm Lane)

- Date: 14<sup>th</sup> October 2019
- Easting/Northing: 385198/384821
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-easterly, 11°C, dry, four oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 18 – MP11 Monitoring Location (Bolshaw Farm Lane)**



- 3.17.1. The results of the monitoring at this location are provided below.

**Table 17 – MP11 Noise Monitoring Results (Bolshaw Farm Lane)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
14/10/2019 13:45	50.3	68.1	51.7	48.2
14/10/2019 14:00	51.1	61.3	52.7	49.1
14/10/2019 15:00	50.2	56.4	51.6	48.5
Average L <sub>A10</sub>			52.0	
L <sub>A10,18h</sub>			51.0	

- 3.17.2. The main source of noise at this location was distant road traffic on the A555 to the south. Occasional traffic movements were observed on local roads. Aircraft were also occasionally audible, mainly those landing at Manchester Airport to the west.



### 3.18. Monitoring Location: MP12 (Styal Road)

- Date: 14<sup>th</sup> October 2019
- Easting/Northing: 383854/384932
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-easterly, 11°C, dry, four oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 19 – MP12 Monitoring Location (Styal Road)**



- 3.18.1. The results of the monitoring at this location are provided below.

**Table 18 – MP12 Noise Monitoring Results (Styal Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
14/10/2019 11:45	64.8	77.5	68.6	55.5
14/10/2019 12:00	64.1	78.4	68.1	54.2
14/10/2019 13:10	64.6	76.6	68.8	54.5
Average L <sub>A10</sub>			68.5	
L <sub>A10,18h</sub>			67.5	

- 3.18.2. The main source of noise at this location was road traffic on Styal Road and distant road traffic on the A555 to the north. Aircraft were also occasionally audible, mainly those landing at Manchester Airport to the west.

### 3.19. Monitoring Location: MP13 (Tedder Drive)

- Date: 17<sup>th</sup> October 2019
- Easting/Northing: 383858/385191
- Monitoring equipment: Kit 3
- Weather conditions: Wind:3m/s southerly, 7°C, dry, four oktas cloud cover, 70% humidity, 990 millibars atmospheric pressure.

**Figure 20 – MP13 Monitoring Location (Tedder Drive)**



3.19.1. The results of the monitoring at this location are provided below.

**Table 19 – MP13 Noise Monitoring Results (Tedder Drive)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
17/10/2019 10:20	55.2	70.1	56.9	51.7
17/10/2019 11:45	53.6	61.9	55.9	50.2
17/10/2019 12:00	53.5	62.9	55.5	50.4
Average L <sub>A10</sub>			56.1	
L <sub>A10,18h</sub>			55.1	

3.19.2. The main source of noise at this location was road traffic noise on the A555 to the south and the B5166 to the east. Aircraft landing into Manchester Airport were also dominant but these have been removed from the data. Train movements were also occasionally audible to the south.



### 3.20. Monitoring Location: MP14 (Carsdale Road)

- Date: 14<sup>th</sup> October 2019
- Easting/Northing: 383150/385424
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-easterly, 11°C, dry, four oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 21 – MP14 Monitoring Location (Carsdale Road)**



3.20.1. The results of the monitoring at this location are provided below.

**Table 20 – MP14 Noise Monitoring Results (Carsdale Road)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
14/10/2019 10:20	57.3	64.5	60.6	53.9
14/10/2019 11:20	57.2	69.7	60.3	53.9
14/10/2019 12:25	57.8	66.8	61.3	54.0
Average L <sub>A10</sub>			60.7	
L <sub>A10,18h</sub>			59.7	

3.20.2. The main noise source at this location was road traffic on the A555 and aircraft landing into Manchester Airport. The aircraft movements have been excluded from the data. Other sources included occasional local road traffic, Metrolink trams to the south, and train movements to the south. The periods contaminated by of these sources have been removed from the data where deemed significant (notably the trams).



### 3.21. Monitoring Location: MP15 (Felskirk Road/Thaxted Walk)

- Date: 14<sup>th</sup> October 2019
- Easting/Northing: 382322/385869
- Monitoring equipment: Kit 3
- Weather conditions: Wind: 1m/s south-easterly, 11°C, dry, four oktas cloud cover, 80% humidity, 995 millibars atmospheric pressure.

**Figure 22 – MP15 Monitoring Location (Felskirk Road/Thaxted Walk)**



3.21.1. The results of the monitoring at this location are provided below.

**Table 21 – MP15 Noise Monitoring Results (Felskirk Road/Thaxted Walk)**

Date and Time	Noise Indices			
	L <sub>Aeq,15min</sub> , dB	L <sub>Aamx,15min</sub> , dB	L <sub>A10,15min</sub> , dB	L <sub>A90,15min</sub> , dB
14/10/2019 10:00	49.2	57.9	50.9	47.1
14/10/2019 11:00	52.6	65.5	55.9	48.1
14/10/2019 12:45	49.4	65.6	50.8	45.4
Average L <sub>A10</sub>			52.5	
L <sub>A10,18h</sub>			51.5	

3.21.2. The main noise source at this location was road traffic on the A555. Aircraft movements were occasionally audible and have been excluded from the data. Other sources included occasional local road traffic.

## 4. Summary of Survey Results

4.1.1. The finding of the 1-year post-opening noise survey are provided in Table 22. The results are compared against the 2014 pre-development noise levels.

**Table 22 – Summary of Measured Noise Levels**

Location ID	Location Description	Pre-Development Noise Level, dB L <sub>A10,18h</sub>	Post-Development Noise Level, dB L <sub>A10,18h</sub>	Change, dB
ID 1	Glastonbury Drive	77.2	77.9	+0.7
ID 2, 3, 4	Residential Areas backing onto A555 near Macclesfield Road	58.8	52.9	-5.9
ID 5	High Lane	51.6	50.6	-1.0
ID 6	Disley	69.9	69.6	-0.3
ID 7	Queensgate Primary School	59.5	58.5	-1.0
ID 8	Kyle Road	56.1	60.5	+4.4*
MP01	Cranleigh Drive	53.7	49.6	-4.1
MP02	Old Mill Lane	53.4	61.0	+7.6
MP03	Sheldon Road	51.3	53.5	+2.2
MP04	Mill Hill Hollow	46.0	51.9	+5.9
MP05	Woodford Road	74.3	70.3	-4.0
MP06	Chester Road	76.8	75.8	-1.0
MP07	Albany Road	53.5	54.0	+0.5
MP08	Dairy House Lane	66.7	66.7	0.0
MP09	Swettenham Road	54.9	52.4	-2.5
MP10	Clay Lane	56.5	53.7	-2.8
MP11	Bolshaw Farm Lane	53.7	51.0	-2.7
MP12	Styal Road	73.1	67.5	-5.6
MP13	Tedder Drive	59.5	55.1	-4.4
MP14	Carsdale Road	64.3	59.7	-4.6
MP15	Felskirk Road/Thaxted Walk	56.4	51.5	-4.9

\*Affected by construction activities to the north of the monitoring location

## 5. Analysis

- 5.1.1. This section provides an analysis of the results of the noise surveys as a comparison with modelled data. Where possible, comparative data is taken from the most appropriate representative receptor from the modelling conducted for the noise insulation regulations assessment. Alternatively, reference is made the predicted change in noise level from the modelling conducted as part of the Environmental Statement (ES) for the scheme.
- 5.1.2. The results of the comparative assessment are shown in Table 23.
- 5.1.3. In summary, the results of the noise broadly correlate with the results of the noise modelling exercises. Where there is divergence, the modelling is shown to have been generally conservative, as would be expected. It is also noted that the measured noise levels, particularly during the pre-development surveys away from the A6MARR route corridor or other pre-existing major roads, would include contributions from extraneous noise sources (such as traffic on minor roads, etc) which would not be present in the model. The model would therefore under-predict the noise levels in these areas compared to the measured levels.



**Table 23 – Comparison of measures and modelled noise levels**

Location ID	Location Description	Measured noise levels, dB LA10,18h			Modelled noise levels, dB LA10,18h			Analysis
		Pre-Development	Post-Development	Change, dB	Pre-Development	Post-Development	Change, dB	
ID 1	Glastonbury Drive	77.2	77.9	+0.7	-	-	0 <sup>(3)</sup>	Comparable to change predicted in ES.
ID 2, 3, 4	Residential Areas backing onto A555 near Macclesfield Road	58.8	52.9	-5.9	50.6	54.6	+4.0	Broadly comparable post-development noise levels. Pre-development noise levels under-predicted. Monitoring location had greater line of sight of Macclesfield Road and was closer to the A555.
ID 5	High Lane	51.6	50.6	-1.0	-	-	0 <sup>(3)</sup>	Comparable to change predicted in ES.
ID 6	Disley	69.9	69.6	-0.3	-	-	0 <sup>(3)</sup>	Comparable to change predicted in ES.
ID 7	Queensgate Primary School	59.5	58.5	-1.0	-	-	-1 <sup>(3)</sup>	Comparable to change predicted in ES.
ID 8	Kyle Road	56.1	60.5	+4.4	-	-	0 <sup>(3)</sup>	Construction noise notwithstanding during the post-development survey, comparable to change predicted in the ES.
MP01	Cranleigh Drive	53.7	49.6	-4.1	49.6	46.6	-3.0	Broadly comparable.
MP02	Old Mill Lane	53.4	61.0	+7.6	54.1	61.6	+7.5	Broadly comparable.
MP03	Sheldon Road	51.3	53.5	+2.2	46.9	54.3	+7.4	Broadly comparable post-development noise levels. Pre-development measured noise level likely to be higher due to extraneous sources such as local traffic.
MP04	Mill Hill Hollow	46.0	51.9	+5.9	41.8	52.5	+10.7	Broadly comparable post-development noise levels. Pre-development measured noise level likely to be higher due to extraneous sources such as local traffic.
MP05	Woodford Road	74.3	70.3	-4.0	62.3	63.5	+1.2	Model over-predicted noise change. Higher measured noise levels are due to

<sup>3</sup> Indicative predicted change from the ES modelling

Location ID	Location Description	Measured noise levels, dB L <sub>A10,18h</sub>			Modelled noise levels, dB L <sub>A10,18h</sub>			Analysis
		Pre-Development	Post-Development	Change, dB	Pre-Development	Post-Development	Change, dB	
								measurement location being closer to the road than the modelled receptor location.
MP06	Chester Road	76.8	75.8	-1.0	-	-	0 <sup>(3)</sup>	Comparable to change predicted in ES.
MP07	Albany Road	53.5	54.0	+0.5	45.1	53.7	+8.6	Broadly comparable post-development noise levels. Pre-development measured noise level likely to be higher due to extraneous sources such as local traffic.
MP08	Dairy House Lane	66.7	66.7	0.0	62	65.4	+3.4	Broadly comparable. Model over-predicted increase.
MP09	Swettenham Road	54.9	52.4	-2.5	53.6	57.4	+3.8	Model over-predicted increase.
MP10	Clay Lane	56.5	53.7	-2.8	47.9	53.4	+5.5	Model over-predicted increase.
MP11	Bolshaw Farm Lane	53.7	51.0	-2.7	-	-	0 <sup>(3)</sup>	Larger reduction than predicted in ES.
MP12	Styal Road	73.1	67.5	-5.6	-	-	0 <sup>(3)</sup>	Larger reduction than predicted in ES.
MP13	Tedder Drive	59.5	55.1	-4.4	-	-	>+5	Larger reduction than predicted in ES.
MP14	Carsdale Road	64.3	59.7	-4.6	60.4	61.3	+0.9	Broadly comparable post-development noise levels. Pre-development measured noise level likely to be higher due to extraneous sources such as local traffic, aircraft, trains, and tram movements at this location.
MP15	Felskirk Road/Thaxted Walk	56.4	51.5	-4.9	-	-	+2 <sup>(3)</sup>	Larger reduction than predicted in ES. Pre-development measured noise level likely to be higher due to extraneous sources such as local traffic and aircraft movements at this location.

## 6. Conclusions

- 6.1.1. Atkins has been instructed to conduct post-development noise monitoring for the A6 to Manchester Airport Relief Road (A6MARR) development at year 1 after opening. This report details the survey methodology and the findings, together with an analysis of the results of the surveys compared to the results of the noise modelling conducted for the scheme. The results indicate that the noise modelling is broadly comparable to the measured noise levels. Where there is divergence, the modelling is shown to have been generally conservative, as would be expected.



