

**Report Noise Vibration and Dust  
For John Paul Construction**

**12 Aug 2019**

<b>Revision</b>	<b>Prepared By</b>	<b>Date</b>	<b>Approved</b>	<b>Date</b>
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## 1. Introduction

At the request of John Paul Construction our company Environmental Measurements has carried out noise, vibration and dust monitoring at the site of the Interim Energy Centre (IEC) enabling works project, Grangegorman.

The purpose of the monitoring was to determine the levels of Noise, Vibration and Dust impacting on the monitoring points while John Paul Construction carried out works at the site.

One Vibration Monitor, one Noise Monitor and one Dust Monitor were installed at the following positions:

One Vibration Monitor (V1) on the site boundary wall with Prussia Street.

One Noise monitor (N1) at the site boundary wall with Prussia Street.

One Dust monitor (D1) at the site boundary wall with Prussia Street.



*Figure 1 Image of Noise, Vibration and Dust Monitors at site boundary wall.*

## **2. Methodology**

### **2.1 Vibration**

Vibration measurements were carried out in accordance with BS ISO 4866 : 2010 Mechanical Vibration and Shock, Vibration of Fixed Structures, Guidelines for the Measurement of Vibrations and Evaluation of their effects on structures.

At the vibration monitoring point an Instantel model MiniMate Plus Vibration monitor was installed. This monitor is a triaxial velocity meter which measures peak particle velocity (ppv) in mm/sec together with the frequency at peak. This allows for the calculation of acceleration and displacement at peak.

### **2.2 Noise**

Noise measurements were carried out in accordance with ISO 1996 – 2007 Part 2, Description measurement and assessment of environmental noise - Part 2 Determination of Environmental Noise Levels.

At the noise monitoring point a Larson Davis Model Lxt noise monitor was installed. This is an integrating sound level meter which measures the standard sound level parameters of Leq, Max, Min, Pk, UnwPk and Lns.

### **2.3 Dust**

Dust measurements were carried out in accordance with VDI 4320 – 2010 Part 1, Measurement of Atmospheric Depositions - Sampling with bulk and wet only collectors – General Principles.

At the dust monitoring point a Bergerhoff Dust Deposit Gauge was installed. These are Dust collection devices which are put in place for 28 to 30 days after which the samples are brought to a laboratory for analysis and the results tell you the concentration in mg/sqm/day.

## **3. Results**

### **3.1 Vibration**

#### **3.1.1 (V1) On the site boundary wall with Prussia Street.**

Monitoring covers the period from 2 Aug to 12 Aug 2019.

A Peak Particle Velocity (PPV) of 1.905 mm/sec was recorded during this period.

This level is below the level of vibration required to have potential for cosmetic damage.  
Ref: BS 7385 Part 2 1993 Evaluation and measurement for vibration in buildings.



**Event Report**

**Histogram Start Time** 11:08:43 August 2, 2019  
**Histogram Finish Time** 10:42:28 August 12, 2019  
**Number of Intervals** 2874.00 at 5 minutes  
**Range** Geo: 254.0 mm/s  
**Sample Rate** 1024sps  
**Job Number:** 1

**Serial Number** BE10940 V 10.72-8.17 MiniMate Plus  
**Battery Level** 6.8 Volts  
**Unit Calibration** August 21, 2018 by E.M.  
**File Name** L94011RL.MJ0

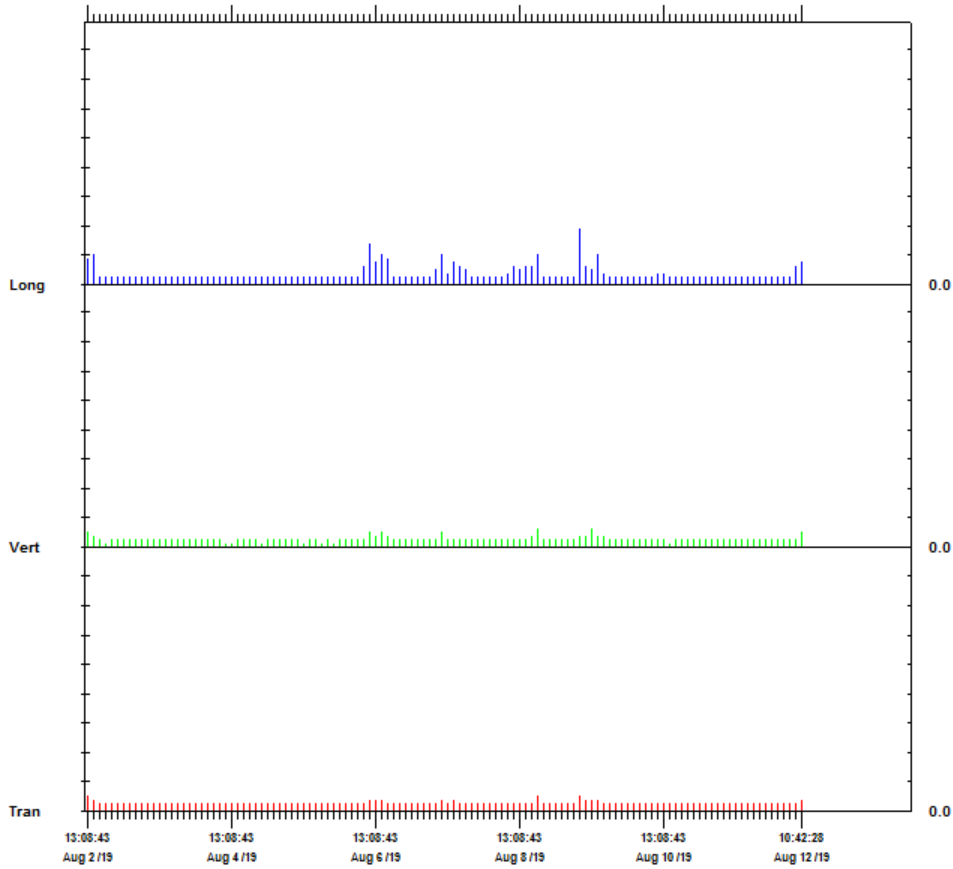
**Notes**

Location:  
 Client:  
 User Name:  
 General:

**Extended Notes**

	Tran	Vert	Long	
PPV	0.508	0.635	1.905	mm/s
ZC Freq	43	28	10	Hz
Date	Aug 2 /19	Aug 8 /19	Aug 9 /19	
Time	11:33:43	17:18:43	08:48:43	
Sensor Check	Passed	Passed	Passed	

**Peak Vector Sum** 1.959 mm/s on August 9, 2019 at 08:48:43



Time Scale: 2 hours /div Amplitude Scale: Geo: 1.000 mm/s/div

Printed: August 14, 2019 (V 10.74)

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### 3.2 Noise

#### 3.2.1 (N1) At the site boundary wall with Prussia Street.

Monitoring covers the period from 2 Aug to 12 Aug 2019.

Please note that the data for the period 8 Aug to 12 Aug is not available due to a faulty battery.

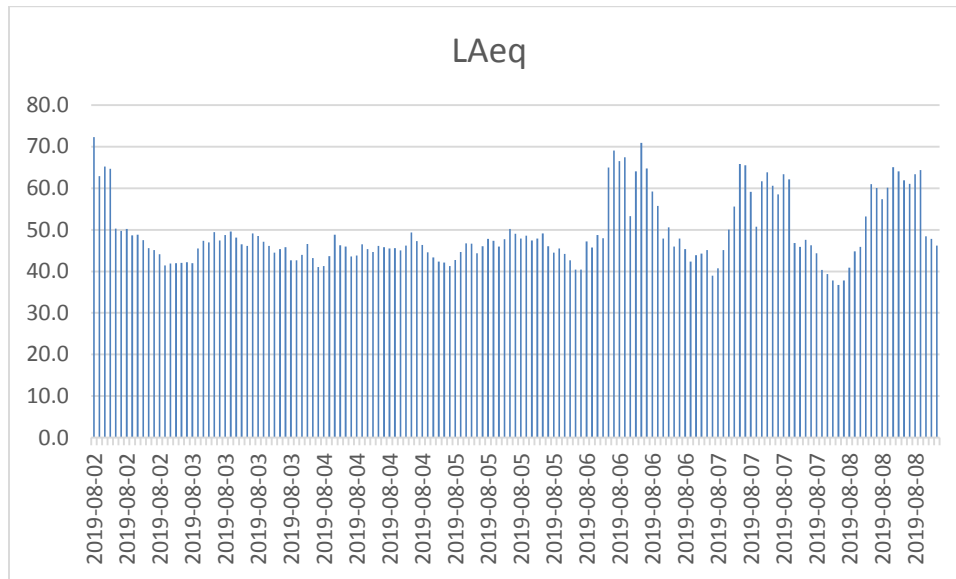


Figure 2 Graph of 1 Hour LAeqs

#### Noise presented in 1 Hour Leqs.

Date	Time	Run Duration	LAeq	LAFmin	LAFmax	LAF5.00	LAF10.00	LAF50.00	LAF90.00
2019-08-02	11:11:57	00:08:26.1	72.3	49.1	90.6	76.1	73.3	59.0	51.8
2019-08-02	11:21:57	00:38:02.2	62.9	46.7	90.2	68.2	65.0	52.7	48.6
2019-08-02	12:00:00	01:00:00.0	65.2	46.6	85.8	71.6	68.5	60.4	48.6
2019-08-02	13:00:00	01:00:00.0	64.7	41.5	89.6	69.3	65.4	47.9	44.0
2019-08-02	14:00:00	01:00:00.0	50.3	42.6	69.6	53.0	51.7	49.3	47.2
2019-08-02	15:00:00	01:00:00.0	49.7	45.7	64.5	52.3	51.2	49.1	47.8
2019-08-02	16:00:00	01:00:00.0	50.2	42.6	68.5	54.6	52.5	48.1	44.8
2019-08-02	17:00:00	01:00:00.0	48.6	41.5	68.6	53.0	50.6	46.1	44.1
2019-08-02	18:00:00	01:00:00.0	48.8	40.5	77.2	50.2	48.4	44.8	43.1
2019-08-02	19:00:00	01:00:00.0	47.5	41.3	67.5	51.2	50.6	45.1	43.2
2019-08-02	20:00:00	01:00:00.0	45.6	40.8	63.6	48.9	47.3	44.3	42.8
2019-08-02	21:00:00	01:00:00.0	45.1	40.2	63.4	49.3	46.9	43.4	41.9
2019-08-02	22:00:00	01:00:00.0	44.1	38.8	67.2	47.2	44.3	41.8	40.6
2019-08-02	23:00:00	01:00:00.0	41.4	37.9	57.9	43.1	42.5	41.1	40.0



Date	Time	Run Duration	LAeq	LAFmin	LAFmax	LAF5.00	LAF10.00	LAF50.00	LAF90.00
2019-08-03	00:00:00	01:00:00.0	41.9	38.7	56.8	43.6	43.0	41.5	40.4
2019-08-03	01:00:00	01:00:00.0	42.0	38.5	56.5	43.5	42.6	41.1	40.3
2019-08-03	02:00:00	01:00:00.0	42.0	39.2	49.6	43.7	43.1	41.7	40.8
2019-08-03	03:00:00	01:00:00.0	42.2	38.9	56.8	43.8	43.2	41.8	40.8
2019-08-03	04:00:00	01:00:00.0	41.9	38.6	56.5	43.8	43.2	41.6	40.4
2019-08-03	05:00:00	01:00:00.0	45.5	38.4	71.7	48.1	45.9	42.0	40.5
2019-08-03	06:00:00	01:00:00.0	47.4	38.6	64.4	53.9	50.4	43.0	41.1
2019-08-03	07:00:00	01:00:00.0	47.0	39.8	64.3	53.2	49.9	43.2	41.6
2019-08-03	08:00:00	01:00:00.0	49.4	40.8	71.6	54.1	50.9	46.8	43.0
2019-08-03	09:00:00	01:00:00.0	47.5	42.0	67.5	49.9	48.4	46.7	45.7
2019-08-03	10:00:00	01:00:00.0	48.7	36.6	74.4	52.0	49.4	45.8	43.0
2019-08-03	11:00:00	01:00:00.0	49.6	41.7	67.4	52.2	51.5	47.4	45.8
2019-08-03	12:00:00	01:00:00.0	48.1	41.7	65.7	50.0	48.6	47.0	46.3
2019-08-03	13:00:00	01:00:00.0	46.5	40.0	68.2	49.2	48.0	44.4	42.5
2019-08-03	14:00:00	01:00:00.0	46.1	40.1	65.8	49.8	47.9	44.3	42.5
2019-08-03	15:00:00	01:00:00.0	49.1	40.4	78.9	51.1	47.9	44.1	42.7
2019-08-03	16:00:00	01:00:00.0	48.5	39.7	71.0	53.4	49.9	44.5	42.6
2019-08-03	17:00:00	01:00:00.0	47.1	38.3	73.6	49.3	47.3	44.5	43.3
2019-08-03	18:00:00	01:00:00.0	46.1	40.6	74.5	48.3	47.0	44.4	42.9
2019-08-03	19:00:00	01:00:00.0	44.5	40.4	68.9	46.6	45.2	43.0	41.9
2019-08-03	20:00:00	01:00:00.0	45.3	40.5	63.5	48.1	47.1	44.5	43.0
2019-08-03	21:00:00	01:00:00.0	45.8	40.4	68.3	49.2	47.5	44.3	42.7
2019-08-03	22:00:00	01:00:00.0	42.7	39.1	57.9	44.8	43.9	42.1	40.9
2019-08-03	23:00:00	01:00:00.0	42.7	37.4	54.0	45.0	43.8	42.0	40.1
2019-08-04	00:00:00	01:00:00.0	44.0	37.6	55.6	47.9	46.4	42.8	41.1
2019-08-04	01:00:00	01:00:00.0	46.6	38.7	56.8	50.1	49.4	45.8	42.4
2019-08-04	02:00:00	01:00:00.0	43.2	36.9	55.6	47.3	46.3	41.4	39.4
2019-08-04	03:00:00	01:00:00.0	41.0	37.0	52.4	43.0	42.5	40.7	39.2
2019-08-04	04:00:00	01:00:00.0	41.2	35.7	60.7	44.0	42.6	39.8	38.0
2019-08-04	05:00:00	01:00:00.0	43.7	34.5	70.4	47.3	44.8	39.7	37.0
2019-08-04	06:00:00	01:00:00.0	48.8	34.7	72.8	54.6	51.5	41.2	37.7
2019-08-04	07:00:00	01:00:00.0	46.3	35.2	72.3	53.0	49.0	39.9	37.4
2019-08-04	08:00:00	01:00:00.0	46.0	34.7	72.1	51.9	47.9	39.1	37.0
2019-08-04	09:00:00	01:00:00.0	43.6	35.0	76.3	46.3	43.7	39.6	37.6
2019-08-04	10:00:00	01:00:00.0	43.8	36.0	63.3	48.1	46.0	41.4	39.1
2019-08-04	11:00:00	01:00:00.0	46.5	36.3	72.1	50.3	47.5	42.7	39.6
2019-08-04	12:00:00	01:00:00.0	45.4	36.4	67.1	48.7	47.3	44.2	42.3
2019-08-04	13:00:00	01:00:00.0	44.7	38.8	64.2	47.5	46.0	43.1	41.7
2019-08-04	14:00:00	01:00:00.0	46.2	39.8	65.7	50.4	47.3	43.5	41.7
2019-08-04	15:00:00	01:00:00.0	45.8	39.1	68.6	48.9	47.4	44.4	42.8
2019-08-04	16:00:00	01:00:00.0	45.5	40.7	62.7	48.1	47.3	44.9	42.9
2019-08-04	17:00:00	01:00:00.0	45.6	40.6	63.9	48.3	47.2	44.6	42.8
2019-08-04	18:00:00	01:00:00.0	45.0	39.4	69.2	47.7	46.6	44.1	42.1

Date	Time	Run Duration	LAeq	LAFmin	LAFmax	LAF5.00	LAF10.00	LAF50.00	LAF90.00
2019-08-04	19:00:00	01:00:00.0	46.2	40.1	67.4	49.6	48.5	44.9	42.9
2019-08-04	20:00:00	01:00:00.0	49.4	37.6	60.4	56.7	55.2	44.8	41.6
2019-08-04	21:00:00	01:00:00.0	47.3	38.4	70.2	51.5	48.9	44.2	42.4
2019-08-04	22:00:00	01:00:00.0	46.4	40.4	63.8	49.5	47.9	45.1	43.4
2019-08-04	23:00:00	01:00:00.0	44.6	37.0	59.3	47.7	46.5	43.8	41.4
2019-08-05	00:00:00	01:00:00.0	43.4	36.6	51.6	46.5	45.6	42.6	40.3
2019-08-05	01:00:00	01:00:00.0	42.3	33.5	52.8	45.6	44.6	41.4	39.4
2019-08-05	02:00:00	01:00:00.0	42.1	36.2	52.9	45.3	44.2	41.3	39.2
2019-08-05	03:00:00	01:00:00.0	41.3	36.0	52.0	44.6	43.5	40.4	38.6
2019-08-05	04:00:00	01:00:00.0	42.7	36.5	61.6	46.9	45.0	41.0	39.1
2019-08-05	05:00:00	01:00:00.0	44.6	37.2	68.8	48.6	46.5	42.1	39.9
2019-08-05	06:00:00	01:00:00.0	46.8	38.9	69.6	51.6	48.7	43.2	41.0
2019-08-05	07:00:00	01:00:00.0	46.7	39.6	65.9	50.1	48.3	44.4	42.0
2019-08-05	08:00:00	01:00:00.0	44.3	38.7	69.4	47.7	46.4	43.2	41.2
2019-08-05	09:00:00	01:00:00.0	46.0	36.9	68.4	50.2	47.9	43.4	40.9
2019-08-05	10:00:00	01:00:00.0	47.8	39.5	73.9	54.7	49.4	44.2	42.0
2019-08-05	11:00:00	01:00:00.0	47.3	39.8	71.1	49.6	47.8	44.5	42.5
2019-08-05	12:00:00	01:00:00.0	45.9	39.7	64.5	49.2	48.0	44.9	42.5
2019-08-05	13:00:00	01:00:00.0	47.7	39.3	73.6	49.5	47.5	43.9	41.9
2019-08-05	14:00:00	01:00:00.0	50.2	37.5	70.1	55.2	48.7	42.9	40.2
2019-08-05	15:00:00	01:00:00.0	49.1	39.5	72.7	51.9	49.4	45.4	42.7
2019-08-05	16:00:00	01:00:00.0	47.9	40.9	68.3	50.9	49.5	46.4	44.0
2019-08-05	17:00:00	01:00:00.0	48.6	40.8	67.8	52.7	50.7	46.7	44.0
2019-08-05	18:00:00	01:00:00.0	47.4	39.7	69.0	50.6	49.0	45.3	42.8
2019-08-05	19:00:00	01:00:00.0	47.9	40.4	70.6	51.6	49.6	45.4	43.0
2019-08-05	20:00:00	01:00:00.0	49.2	40.3	78.2	53.5	51.0	45.2	43.0
2019-08-05	21:00:00	01:00:00.0	46.0	39.9	66.5	50.2	47.4	43.7	41.9
2019-08-05	22:00:00	01:00:00.0	44.5	39.6	67.0	46.9	45.9	43.3	41.6
2019-08-05	23:00:00	01:00:00.0	45.5	39.1	61.7	49.1	47.6	44.3	42.2
2019-08-06	00:00:00	01:00:00.0	44.2	38.0	60.1	47.6	46.4	43.2	41.0
2019-08-06	01:00:00	01:00:00.0	42.6	32.8	58.3	46.3	44.9	41.3	38.8
2019-08-06	02:00:00	01:00:00.0	40.4	34.7	62.5	43.6	42.5	39.4	37.3
2019-08-06	03:00:00	01:00:00.0	40.4	34.6	55.9	43.7	42.6	39.4	37.1
2019-08-06	04:00:00	01:00:00.0	47.2	34.7	59.2	53.2	52.1	40.1	37.0
2019-08-06	05:00:00	01:00:00.0	45.7	38.8	70.7	49.5	47.8	43.6	41.2
2019-08-06	06:00:00	01:00:00.0	48.7	41.1	68.7	53.1	50.3	46.4	43.9
2019-08-06	07:00:00	01:00:00.0	47.9	42.3	70.8	50.6	49.0	46.7	44.9
2019-08-06	08:00:00	01:00:00.0	65.0	43.3	91.7	64.4	58.0	49.4	46.3
2019-08-06	09:00:00	01:00:00.0	69.0	45.3	94.9	74.4	67.2	52.7	49.4
2019-08-06	10:00:00	01:00:00.0	66.5	43.4	90.9	70.7	65.9	50.7	46.7
2019-08-06	11:00:00	01:00:00.0	67.4	47.2	90.2	72.8	68.3	58.6	50.5
2019-08-06	12:00:00	01:00:00.0	53.3	42.9	73.7	58.9	56.9	49.8	46.5
2019-08-06	13:00:00	01:00:00.0	64.0	42.8	89.7	67.0	59.3	51.0	47.0

Date	Time	Run Duration	LAeq	LAFmin	LAFmax	LAF5.00	LAF10.00	LAF50.00	LAF90.00
2019-08-06	14:00:00	01:00:00.0	70.9	48.0	92.8	74.0	71.9	64.5	55.8
2019-08-06	15:00:00	01:00:00.0	64.7	51.6	88.1	71.0	68.6	56.6	53.6
2019-08-06	16:00:00	01:00:00.0	59.2	51.1	81.4	64.4	62.4	56.7	53.1
2019-08-06	17:00:00	01:00:00.0	55.7	41.6	73.4	59.0	57.5	55.3	46.7
2019-08-06	18:00:00	01:00:00.0	47.9	40.1	78.7	49.9	47.7	44.7	42.6
2019-08-06	19:00:00	01:00:00.0	50.6	38.3	71.7	56.1	53.2	45.3	43.0
2019-08-06	20:00:00	01:00:00.0	46.0	39.7	63.7	49.9	47.3	44.1	42.3
2019-08-06	21:00:00	01:00:00.0	47.9	39.5	70.3	53.2	48.8	44.0	42.0
2019-08-06	22:00:00	01:00:00.0	45.3	38.7	65.1	47.2	45.9	42.9	41.0
2019-08-06	23:00:00	01:00:00.0	42.3	34.2	54.2	45.6	44.5	41.5	39.4
2019-08-07	00:00:00	01:00:00.0	43.9	35.8	70.4	44.4	43.1	39.8	38.0
2019-08-07	01:00:00	01:00:00.0	44.3	35.0	71.2	45.3	43.2	38.9	37.1
2019-08-07	02:00:00	01:00:00.0	45.1	31.8	72.4	43.0	41.4	38.2	36.2
2019-08-07	03:00:00	01:00:00.0	38.9	33.3	52.2	42.7	41.1	37.6	35.9
2019-08-07	04:00:00	01:00:00.0	40.8	33.6	58.7	45.0	43.1	39.0	37.1
2019-08-07	05:00:00	01:00:00.0	45.1	37.5	70.6	48.9	47.3	43.3	40.7
2019-08-07	06:00:00	01:00:00.0	50.1	40.8	73.7	53.0	50.5	46.2	43.7
2019-08-07	07:00:00	01:00:00.0	55.6	42.9	78.9	58.2	56.3	52.1	45.3
2019-08-07	08:00:00	01:00:00.0	65.9	46.4	92.0	71.9	69.3	56.8	52.5
2019-08-07	09:00:00	01:00:00.0	65.5	43.3	90.7	63.2	58.8	53.2	47.2
2019-08-07	10:00:00	01:00:00.0	59.1	42.9	79.4	64.4	61.8	56.5	47.2
2019-08-07	11:00:00	01:00:00.0	50.8	44.1	70.2	54.9	53.8	47.9	46.4
2019-08-07	12:00:00	01:00:00.0	61.7	44.1	83.0	68.9	66.3	55.2	46.7
2019-08-07	13:00:00	01:00:00.0	63.8	53.3	80.7	69.2	67.5	61.0	56.9
2019-08-07	14:00:00	01:00:00.0	60.6	52.7	82.0	66.5	64.6	57.9	54.9
2019-08-07	15:00:00	01:00:00.0	58.5	52.5	75.9	61.5	59.9	57.3	54.3
2019-08-07	16:00:00	01:00:00.0	63.4	52.9	86.9	68.3	66.9	59.7	56.3
2019-08-07	17:00:00	01:00:00.0	62.1	38.2	83.2	68.5	65.5	58.3	47.3
2019-08-07	18:00:00	01:00:00.0	46.8	39.2	74.5	49.6	48.2	45.9	41.7
2019-08-07	19:00:00	01:00:00.0	45.9	35.5	66.0	48.9	47.0	43.6	40.9
2019-08-07	20:00:00	01:00:00.0	47.6	38.2	64.3	52.9	49.7	44.3	41.3
2019-08-07	21:00:00	01:00:00.0	46.3	40.2	62.8	51.6	47.8	44.0	42.5
2019-08-07	22:00:00	01:00:00.0	44.4	37.6	60.4	46.1	45.1	43.0	41.6
2019-08-07	23:00:00	01:00:00.0	40.3	35.8	55.8	43.8	42.6	39.2	37.5
2019-08-08	00:00:00	01:00:00.0	39.4	34.3	53.2	43.0	41.5	38.0	36.3
2019-08-08	01:00:00	01:00:00.0	37.8	33.7	48.8	41.3	39.8	36.7	35.3
2019-08-08	02:00:00	01:00:00.0	36.7	33.1	51.2	39.8	38.2	35.8	34.7
2019-08-08	03:00:00	01:00:00.0	37.8	33.4	51.1	41.5	39.8	36.6	35.0
2019-08-08	04:00:00	01:00:00.0	40.9	32.6	59.2	44.5	42.1	37.5	35.5
2019-08-08	05:00:00	01:00:00.0	44.8	35.8	68.1	48.4	45.4	40.6	38.2
2019-08-08	06:00:00	01:00:00.0	45.9	38.4	69.7	50.4	47.2	43.0	40.8
2019-08-08	07:00:00	01:00:00.0	53.2	38.9	72.6	55.4	54.9	48.3	41.9
2019-08-08	08:00:00	01:00:00.0	61.0	41.3	83.2	68.1	66.4	53.9	46.9

<b>Date</b>	<b>Time</b>	<b>Run Duration</b>	<b>LAeq</b>	<b>LAFmin</b>	<b>LAFmax</b>	<b>LAF5.00</b>	<b>LAF10.00</b>	<b>LAF50.00</b>	<b>LAF90.00</b>
2019-08-08	09:00:00	01:00:00.0	60.0	45.2	77.4	66.2	61.7	57.0	54.4
2019-08-08	10:00:00	01:00:00.0	57.3	43.7	73.6	60.8	58.5	55.0	53.1
2019-08-08	11:00:00	01:00:00.0	60.1	49.3	82.7	65.1	62.7	57.8	54.0
2019-08-08	12:00:00	01:00:00.0	65.1	45.0	88.4	70.1	68.1	61.7	55.8
2019-08-08	13:00:00	01:00:00.0	64.1	42.4	84.8	70.9	68.9	55.7	49.6
2019-08-08	14:00:00	01:00:00.0	61.9	44.3	88.4	67.0	65.0	57.8	52.8
2019-08-08	15:00:00	01:00:00.0	61.0	50.1	88.5	66.4	63.9	57.6	52.3
2019-08-08	16:00:00	01:00:00.0	63.4	49.0	85.1	68.8	66.5	59.3	53.5
2019-08-08	17:00:00	01:00:00.0	64.4	45.8	91.0	65.2	61.8	53.3	49.1
2019-08-08	18:00:00	01:00:00.0	48.4	42.2	67.3	52.1	50.7	46.9	44.6
2019-08-08	19:00:00	01:00:00.0	47.8	42.3	66.4	51.7	49.9	46.2	44.4
2019-08-08	20:00:00	00:22:37.2	46.2	42.0	67.1	49.0	47.7	44.8	43.6

### **3.3 Dust**

#### **3.3.1 (D1) At the site boundary wall with Prussia Street.**

Results to follow.