



11 March 2020
Our ref: ISG300 UCL IoN
FAO Alan Daly

Noise, Vibration and Dust Monitoring Systems at UCL IoN DRI Project – Revision 6

Background Environmental Monitoring

Campbell Associates will install four noise, vibration and dust monitors (one fitted with NO₂ and another with an anemometer) for a twelve-week period to establish background levels for the site. This is at a date to be arranged. The location of these background monitors would be at a representative location to those chosen for the permanent monitors for the duration of the project. The monitors have been installed and operational as of 17th December 2019

Monitoring Locations



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Monitoring Points

MP1

Located on the boundary with the Calthorpe Community Gardens next to the advertising sign on Grays Inn Road. It is located at the future location of Gate 4.



Dust, Noise and NO2 monitor



Vibration Monitor

MP2

Located on the boundary with New Calthorpe Estate and the Calthorpe Community Gardens.



Dust, Noise and Weather station



Vibration Monitor



MP3

Located on the boundary wall from the development to New Calthorpe Estate. It is next to Frances Gardner House, student accommodation. This area is where the initial demolition construction vehicles will enter, via Gate 1, load on site, and exit.



Dust and Noise Monitor



Vibration Monitor

MP4

Located on the parapet of the Levy Wing over looking St Andrews Garden and Trinity Court Residential. The levy Wing will be demolished with vehicles entering near by via Gate 1, loading and exiting site near this location



Dust, Vibration and Noise Monitor



View from St Andrews Garden



Monitor Power Options

Noise Monitor – 110v or 230v power recommended

Dust monitor – 110v or 230v power. Specify with order.

Vibration monitor – Up to 8 months battery life on 6* D cell batteries. Battery changes responsibility of user.

Alert Limits

NOISE

With the Sonitus systems specified we can set as many different alerts as necessary. The user will receive a SMS or email alert when limits have been exceeded. The units have full remote access to view & download data, set alerts, print reports and amend settings.

For Camden noise from construction is limited to:

- 8am - 6pm, Monday to Friday
- 8am - 1pm on Saturday

No noisy work should take place on Sundays or bank holidays. Exceptional work may be allowed outside of these times, when there is:

- an emergency
- a risk to public safety

Contractors must have permission for this.

The noise limits/alerts can be set in relation to background noise data.

- 75 dB(A) LAeq (10 h) Monday to Friday working day (08:00-18:00);
- 75 dB(A) LAeq (5 h) Saturday working day (09:00 – 13:00);

Audio Recording – The quotation does not include audio recording feature; this can be added at a later date at additional cost if required. The audio recording option which enables you to listen to noise events directly from the web interface. The project location will have many other sources contributing to the noise level. This will help identify them.



VIBRATION

Vibration affecting occupied buildings shall not exceed levels that are likely to give rise to damage to the building or discomfort to the occupants of the building. Vibration affecting unoccupied buildings shall not exceed levels that are likely to give rise to damage to the building. It will normally be appropriate to set limits in terms of Peak Particle Velocity (PPV).

Vibration monitoring will be recommended during demolition, piling, excavation or any other ground/sub-structure works.

The vibration equipment will measure continuous PPV levels and has full remote access to view, download data and print reports. Alerts can be set as mentioned in BS 5228-2 as below;

- 1mm/s PPV at occupied residential and educational buildings
- 3mm/s PPV at occupied commercial premises where work is not of an especially vibration sensitive nature or for potentially vulnerable unoccupied buildings
- 5mm/s PPV at other unoccupied buildings

DUST

The growing awareness PM10 is largely associated with the potential damaging effects they can have on the human body. The World Health Organisation (WHO) believes particles are affecting more people worldwide than any other pollutant. Primary health effects include damage to the respiratory and cardiovascular systems. Due to the small size of PM10 particles, they can penetrate the deepest parts of the lungs as well as access the gas exchange regions of the lung via diffusion.

As a result of the damaging health effects from PM10 the WHO recommend the following exposure limits:

- 20 $\mu\text{g}/\text{m}^3$ Annual mean
- 50 $\mu\text{g}/\text{m}^3$ 24 hour mean








To control PM10 due to the works on site RED alerts of 200 $\mu\text{g}/\text{m}^3$ 15 min and 190 $\mu\text{g}/\text{m}^3$ 1 hour periods are be sent.

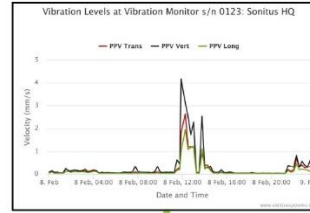
Monitoring Web Interface

SONITUS CLOUD – ALL ENVIRONMENTAL MONITORING EQUIPMENT

Sonitus Cloud enables you to access all your environmental monitoring data in one location from any internet enabled device. Check real time data, generate reports and configure your systems to manage your projects efficiently. The simple interface means anyone can run the projects with simple calendar overviews, detailed daily data and user definable alerts. Sonitus Cloud also allows you to set user and access rights for projects to ensure everyone can see exactly what they need. Alerts and access has set for AirQuality@camden.gov.uk and that monthly dust reports will be sent to Camden AQ team and Tom Parkes.



-  Connect from any internet enabled device
-  User permission rights
-  Safe and secure
-  SMS and email alerts
-  Simple reports
-  Calendar view
-  Plot data or see in real time



DATE	TIME	PPV	PSD	PSD	PSD	PSD	PSD
08 Feb	04:00	0.00	0.34	0.14			
08 Feb	08:00	0.10	0.42	0.40	0.57	4.18	0.37
08 Feb	12:00	1.76	0.28	0.25	0.46	132.86	0.54
08 Feb	16:00	0.18	0.26	0.78	0.33	0.30	0.39
08 Feb	20:00	0.33	0.07	0.37	200.98		

NAME	COMPANY	EMAIL	CALCULATED ACCESS	CHARTS ACCESS	DATA ACCESS	RECORDS ACCESS	EMAIL NOTIFICATIONS	SMS NOTIFICATIONS
David User	Sonitus Systems		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
John Dow	Artec Inc		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Toby (Sonitus)	Sonitus		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

From top to bottom : data plotted over a day, calendar overview, user right permissions

Monitoring Hardware

NOISE MONITOR – SONITUS SYSTEMS

- IEC 61672 Class 1 measurement system;
- Automatic upload of data to the cloud;
- SMS and email alerts;
- Very compact requires 110v or 240v mains power;
- Battery or solar panel option Not included in proposal;
- Download data directly from the website for reporting – Sonitus Cloud.



VIBRATION MONITOR – AVA VIBRATION MONITOR

- PPV measurements to BS 7385 and BS 5228-2;
- Sensor mounted to floor plate (as pictured) or wall mounted.
- Up to 5-8 months battery life. Battery changes not included in our proposal





- Full remote access and Email and SMS alerts;
- Download data directly from the website for reporting – Sonitus Cloud.

DUST MONITOR

- MCERTS certified PM10 dust monitor
- SMS and email alerts – can be triggered on 15 minute periods as required.
- 110v power
- Automatic upload of data to the cloud for reporting
- Optional ultrasonic weather station (picture next to Aeroqual cabinet)
- Download data directly from the cloud for reporting



AQS1 – DUST MONITOR WITH NO₂ MEASUREMENTS

- Weatherproof lockable IP65 enclosure with integrated aluminium solar shields
- Gas Inlet: Teflon, glass-coated stainless steel tubing, stainless steel fittings
- Gas Sampling System (brushless DC pump, sampling system)
- Ozone (0-0.5 ppm O₃) GSS gas module with integrated zero cycle
- Nitrogen dioxide GSE gas module with integrated zero cycle
- TSP inlet and heated sampling tube

