

P. P. O'CONNOR
Committed To Excellence

DUST, NOISE AND VIBRATION MANAGEMENT PLAN

University of Manchester, Owens Park, Fallowfield Campus,
Manchester. M14 6HX.



Issue No	Outline	Prepared By	Date	Reviewed by	Date
1	Initial draft	Richard Speake	18.01.24	Matt Dixon	18.01.24

Introduction

This document outlines P.P. O'Connor's proposed approach to the management of dust, noise and vibration resulting from the proposed works at Owens Park, Fallowfield Campus, Manchester. M14 6HX for the University of Manchester. This document describes the protection measures that will limit the environmental disturbances associated with the proposed works. This management plan has been prepared to identify mitigation measures to support the demolition process and planning.

Purpose and Scope

This management plan relates to the monitoring and management of dust, noise, and vibration emissions at Owens Park, Fallowfield Campus, Manchester. M14 6HX for the University of Manchester and identifies the control measures to be implemented throughout the duration of the project. The reporting process together with action levels and responses are also identified.

Benefits of an Environmentally Friendly Site

An environmentally friendly site will help to establish good relationships between P.P. O'Connor, the client, residents, adjacent establishments, and the local community, as well as the regulatory authorities and Manchester City Council, thereby helping the project to run smoothly. Benefits will be felt at both corporate and project level and include:

- Better local air quality
- Prevention of complaints from local residents due to nuisance (dust, noise, odour, light).
- Reduction in the number of environmental exceedances
- Potential for increased future business due to good reputation
- Materials efficiency and prevention of physical waste,
- Increased energy efficiency
- Improved resource productivity
- Enhanced competitiveness.

Action Plan – Incident Response

Dust

Dust alarm trigger level PM10 at 50 µg/m 3.5 m as per agreed monitoring station points when carrying out dust monitoring. Dust levels will also be visually inspected throughout the project

Vibration

Action level for **amber** trigger - 5mm/s PPV and **red** trigger - 10mm/s PPV at nearest receptor points when carrying out vibration monitoring.

Noise

Action level – +3dBA above baseline levels as per agreed monitoring station points when carrying out continuous noise monitoring.

Note. These are examples only and the trigger levels may vary and will be project specific and defined by the Section 61 agreement with Manchester City Council.

Dust, Noise, and Vibration Monitoring

PPOC will install a Proactive Monitoring System, comprising a number of fully automatic continuous environmental monitoring stations located, subject to agreements with Local Planning Authority (LPA) and Stakeholders:

- Around the main demolition boundary
- Adjacent to particular sensitive receptors

Monitex Noise and vibrations equipment (or similar) will be used throughout the project:



Example of noise monitoring equipment



Example of vibration monitoring equipment

The units will have the ability to automatically upload data to a cloud-based server. The system shall have the capability to send email alerts to the PPOC site manager, HSEQ team and clients representatives warning of any breaches of agreed levels. Warnings are issued on a traffic light system as laid out in the Incident response section below.

The objectives of this continuous proactive environmental monitoring for noise, dust and vibration are to:

- Enable and assist the client and project delivery team on evaluating the efficiency of mitigation measures by implementing BPM to control and improve environmental performance on site.
- Enable an understanding on how the measured levels are compared with agreed criteria values and how they are communicated.
- Document and continually report on monitoring requirements, both for demonstrating compliance on a regular basis, and in response to recorded exceedance or complaint.
- Allow the works to be stopped in a timely manner in the case of any exceedances to enable control measures to be revised / upgraded and minimise any off-site nuisance.

The P.P. O'Connor project team will have access to an online portal showing continuous monitoring results.

Implementation

Following agreement with Manchester City Council and consultation with the (UOM)University of Manchester (The Client) and (RLB) – Rider Levett Bucknall – (The Clients Management company the

monitoring equipment will be set up on the boundary of our demolition works. See Fig 1 showing the above ground sensitive receptors directly adjacent to the site boundary.

The placement will consider the adjacent sensitive receptors and other factors including prevailing winds and existing structures / features that may act as acoustic barriers.

Under CDM regulations PPOC, as the Principal Contractor, has a statutory obligation to undertake various duties.

The primary requirement is to set up welfare facilities, site security and to install temporary site power and water services. The monitoring units will be installed during initial site establishment - post establishment of welfare and temporary services installations but prior to physical demolition works.

The monitoring units will be utilised for one week to take "actual" base line measurements these will be compared with the clients estimated baseline predictions as examples in the clients DEMP. Where there is meaningful change to the baseline measurements, Knowsley Council will be informed, and the figures as previously agreed will be adjusted accordingly. Once confirmed all units will be set to the agreed trigger levels.

Project Team Responsibilities

HSEQ team

- Produce and communicate this procedure to the project management team as well as ensuring that designated personnel prepare and issue monitoring reports to UOM and RLB as agreed.
- Carry out regular periodic audits to ensure compliance with this Environmental Management Plan, and other relevant documents.
- Ensure that equipment for monitoring noise, vibration and dust are serviced and calibrated in accordance with the manufacturer's recommendations.

Contract Manager

- Ensure that communication and liaison arrangements for organising communications with adjacent neighbours and with the Local Authority with regard to noise, dust and vibration are maintained for the duration of project.
- On receiving monitoring alerts or a complaint, the PPOC Site Manager will inform UOM and RLB and then initiate an investigation on the probable cause of the event and commence reviewing available monitoring data with the Environmental Monitoring Coordinator. The PPOC Site Manager will correlate the time of the event and other pertinent information, including activities on or in the proximity of the site, to determine the probable cause of the alert or complaint. Where this is deemed to have emanated from site activities, propose corrective measures which are to be agreed and approved by the HSEQ team and monitoring consultants as necessary to ensure the implemented remedial actions will satisfy the predictions of preventing future recurrences.

Site Manager / Supervisors

- Monitor daily activities to ensure BPM are followed during all aspects of the works.
- Be on the initial contact for text alerts from the system and will immediately cease works that cause a breach of proposed levels.
- Maintain the works area until the source of the breach has been investigated and eliminated or negated via adopting different works methods or additional controls.

Dust Control and Mitigation

The following mitigation measures will be considered to minimise dust and other emissions from site activities and disruption or nuisance to neighbouring occupiers:

- Fine water spray techniques be deployed as necessary to keep the dust to a minimum.
- The wheels of vehicles leaving site will be cleaned using wheel wash or jet washing system.
- Spraying water at work faces, loading operations and site access roads.
- Dampening of exposed soil and stockpiles if necessary.
- The siting of stockpiles of brick, concrete, soil, and other materials away from dust sensitive areas.
- Regular inspection and cleaning of local highways and site boundaries for dust deposits via mechanical road sweeper.
- No fires on site.
- All site personnel trained in best practice for dust control by regular Environmental Toolbox talks.
- All abrasive cutting will have any dust generated suppressed by way of a continual flow of water from proprietary equipment.
- Any abrasive cutting will be undertaken in a designated, isolated area to ensure that any dust generated whilst suppressed cannot cause any unnecessary nuisance.
- Sheeting of all wagons leaving site carrying loose aggregate deconstruction material such as soil and hardcore which can be seen in the picture below.
- Erecting windbreak netting around material stockpiles and vehicle loading/unloading areas, where required.



Vibration Control and Mitigation

P. P. O'Connor will use best practicable means to minimise vibration from the works including;

- Site personnel will be instructed on environmental matters and best practicable means to reduce vibration during the site induction.
- Sensitive location of drop zones and loading areas etc. away from sensitive receptors.
- All deliveries to be scheduled to occur during off peak daytime hours only to prevent disturbance to the local community.
- Engines to be switched off when waiting during delivery times.
- Monitoring will be carried out in accordance with the projects requirements to be agreed with the client's representative.
- Environmental monitoring records are kept electronically and available at all times.
- Only appropriately sized plant and equipment will be utilised on the project.
- Crushed concrete mats utilised to absorb energy from demolition arisings.
- Hydraulic powered Pulverisers and shears will be used when practicable (in lieu of pneumatic hammers).
- Aqueduct protection measures are still under discussion with the relevant stakeholders at this time.

Noise Control and Mitigation

P. P. O'Connor will use best practicable means to minimise noisy works including;

- Stationary plant such as generators will be located as far as practicable away from the nearest sensitive receptor.
- Plant will be used in accordance with the manufacturers' recommendations.
- Appropriate screens or enclosures will be provided where practicable, around plant and machinery and work area perimeters.
- Radios will not be permitted to be used anywhere on site.
- All engines will be turned off when not in use.
- All operatives will be issued with hearing protection to be worn if exposed to noise above 85 decibels.
- Hearing protection zones will be put in place using signage in areas suspected to have noise over 85 decibels. This will be confirmed by a noise assessment completed by the HSEQ team.



WARNING
This is a designated
ear protection zone



**You are required
by law to wear
ear protectors**

- P. P. O'Connor will only use plant and vehicles that are in good repair and conform to the manufacturer or legislative/British Standard emission standards BS 5228-2:2009.
- Plant maintenance and defect reports shall be held on site in designated file.
- Wherever possible, plant shall not be left running when not directly in use.
- P. P. O'Connor will ensure that all moving plant will have white noise reversing alarms, which are inherently quieter than those of standard manufacture.
- Hydraulic breakers, pneumatic drills and other noisy appliances will not be used outside the working hours agreed with the Local Planning Authority (LPA).

Incident Response

Incidents where action levels (as listed above in Action Plan – Incident Response) are exceeded will be responded to as follows;

- If during site activities action levels are exceeded this will be reported to the PPOC Site Manager.
- P.P. O'Connor's HSEQ team will investigate the incident and will collate the report and supply a copy to the Board of Directors, the client and the EHO as necessary.
- If the work, plant, and equipment are not being used correctly the works will be stopped and corrective action taken.
- If high readings are being caused due to unforeseen circumstances and the correct methodology/plant and best practice measures are being carried out, the client, Manchester City Council and neighbours will be notified, and the reasons and timescales of nuisance works will be explained.
- Further monitoring will be carried out in accordance with the corrective action to ensure works proceed within the action levels, Records of any such incident and action taken are to be kept on site and communicated to all site personnel, the client (UOM) and Clients Management Team (RLB) and Manchester City Council.

Incidents where comments and observations are received;

- All comments and observations received will be recorded, in a site comments and observations book retained in the site office.
- Comments and observations will be investigated, and any corrective action implemented, and feedback given to any negative comment.
- The client will be advised of any negative comment and actions taken to investigate the validity and any actions which have been put in place to rectify the situation if this is found necessary. This may include local monitoring. Noise, vibration and dust comments and observations received will be dealt with by the Site Manager supported by the HSEQ team.

The categories for monitoring and reporting amber and red level responses are outlined below:

GREEN – All monitoring data is within acceptable levels –

- No action required
- Continuation of demolition activity
- Continuation of monitoring.

AMBER LEVEL - Measured Noise levels Alert - indicating exceedance of this threshold –

- Text message alert showing amber level exceedance
- PPOC Site Manager to undertake visual inspection of site activities and ensure that best practice measures are in place.
- Project delivery team will implement additional practicable measures where these are identified including re-sequencing of activities.
- Continuation of demolition activities and continue noise monitoring.

RED LEVEL - Measured Noise levels Alert - indicating exceedance of this threshold –

- Text message alert showing red level exceedance sent to the PPOC Site Manager and site team notifying them of the exceedance. Manchester City Council EHO to be notified.
- Stop works and review the best practice measures in place and implement additional mitigation measures where practicable, including shortening the daily duration of the noisy activities.
- HSEQ team will download and analyse the data and look at trends, relationships and correlate the Alert with work activities on site.
- PPOC Site Manager to undertake visual survey to check best practice measures are in place for the work activities
- Agree with Manchester City Council EHO and implement remediation techniques (prepare method statements if required).
- HSEQ team to complete a full incident investigation report and provide instruction to re-start works only on implementation of practicable mitigation methods identified.

Reporting Requirements

The results of the environmental monitoring will be reported on a monthly basis to key stakeholders unless agreed and instructed otherwise by the client. These can be cross referenced against site activities as detailed in site diary records from PPOC, should this be deemed necessary. The monitoring report will show both the trigger and actions levels and measurement data taken during working and non-working hours. Where monitoring values have exceeded trigger and action levels, a brief description of the reason(s) for this will be provided, together with any available mitigation taken to prevent recurrence.

Name	Company	Role	Email	Phone
Richard Speake	PPOC	Demo Contracts Manager	Richard.speake@ppoconnor.co.uk	07512 300201
Nikki Rowan	PPOC	HSEQ Manager for Demo	Nikki.rowan@ppoconnor.co.uk	0161 776 0333
Paul Holohan	PPOC	Demo Site Manager	Paul.holohan@ppoconnor.co.uk	07872 455712
Hayley Kirsch	RLB	Project Manager	Hayley.kirsch@uk.rlb.com	07825 312809
Rob Childs	RLB	Assistant Project Manager	Rob.childs@uk.rlb.com	07552 242047

Odours

As there are to be no biological processes during the planned work the main sources of odour will be:

- Fuels used for plant and machinery
- Fumes from hot works
- Canteen / Welfare waste

The following measures will be implemented to control and minimise odours. Diesel will be stored in a dedicated tank / bowser (double bunded), located within the Principal Contractors Compound away from sensitive receptors. The storage of fuel will not result in any odour emissions as the fuel will be contained within a dedicated tank. Fugitive odour release may occur during re- filling of the tank and filling of machines/plant from the tank. However, these events will be of short duration and infrequent.

The following specific measures will be undertaken:

- Processing of material takes place with local water suppression in place (as required).
- The stockpile materials shall be located in places not exposed to windy weather conditions. (As far as reasonably practicable).
- Storage of stockpiled processed material on site will be kept for limited time.
- Latest innovation on dust suppression controls will be utilised at this project
- Ensuring project personnel used dedicated locked / sealed skips for canteen and welfare waste
- Hot Works / Flame cutting operations will be undertaken only by experienced operatives, away from sensitive receptors.

Site Personnel Briefings

Operatives will be briefed on the requirements to keep noise and vibration to a minimum in their induction training and through method statement briefings.

To ensure that environmental standards are maintained, PPOC will ensure that all personnel working on the site are aware of the company and their personal environmental responsibilities.

PPOC will aim to keep levels of noise, dust, and vibration to a minimum from its activities on the site by ensuring that:

- All subcontractors are aware of and comply with the requirements of the project DNVMP and the full terms and conditions described within the project EMP.
- Resources (personnel and financial) are available to meet the environmental management requirements for this project.
- Corrective actions are implemented without undue delay and investigations carried out.
- Records and other relevant documentation are maintained.
- Continuous communication is kept with the adjacent occupiers and the local authority.
- Complaints and queries are to be addressed as soon as it is practicable.
- Exclusion zones will be established, if noise levels exceed 80 decibels operatives will be provided with appropriate hearing protection. If the noise levels exceed 85 decibels all personnel will need to use appropriate hearing protection.

Quality Assurance

Regular audits will be undertaken to ensure that monitoring and reporting is carried out in accordance with this procedure. Records of calibration and monitoring activities will be maintained in electronic format and are subject to document control as per project procedures. The supplier of all monitors will ensure they are maintained and calibrated throughout the duration of the project.

Audit

The DNVMP will be reviewed and accepted by the client prior to demolition works commencing and will be audited and reviewed periodically as part as the quality audit programme.

Non-conformances will be corrected immediately followed by a management review meeting. A copy of all audits carried out on the site will be filed in accordance with quality management system requirements.

Abbreviations

Abbreviations	The abbreviations listed below apply to this document:
Ambient Noise	Noise in each situation at a given time, usually composed of sound from many sources near and far, but excluding site noise
Background Noise	A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, <i>T</i> measured using time weighting, <i>F</i> , and quoted to the nearest whole number in decibels
Noise Sensitive Premises (NSPs)	Any occupied premises outside a site used as a dwelling (including gardens), places of worship, educational establishment, hospital or similar institution, or any other property likely to be adversely affected by an increase in noise level.
dB (A)	A-weighted decibels are an expression of the relative loudness of sounds in air as perceived by the human ear.
EA	Environment Agency
EHO	Environmental Health Officer
EMP	Environmental Management Plan
EMS	Environmental Management System to EN ISO 14001
RP	Receptor Point (position where environmental monitors are stationed)
Environmental aspect	Element of an organization's activities, products, or services that can interact with the environment
Environmental impact	Any change to the environment, whether adverse or beneficial or partially resulting from an organisation environmental aspect
SAC	Special Area for Conservation
Section 60 notice	Issued under the Control of Pollution Act 1974 to control noise pollution and nuisance. If issued the conditions must be complied with until revoked or successfully appealed against
Section 61 consent	Issued under the Control of Pollution Act 1974 to permit noise on site.
Sustainable development	"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (from the Bruntland Report).
MCC	Manchester City Council
CoPA	Control of Pollution Act 1974
BPM	Best Practicable Means
PPV	Peak Particle Velocity
RLB	Rider, Levett & Bucknall – The Clients Management Company
UOM	University of Manchester – The Client

Fig 1. Above Ground Sensitive Receptors including Proposed Stockpile Locations and Wheel Wash Facilities if required.

