SAFE SYSTEM OF WORK – NOISE ASSESSMENT AND METHOD STATEMENT

FOR

79 CAMDEN ROAD, CAMPDEN, LONDON. NW1 9EU

REV 02 – DATED 24 04 2015

SSoW02 Rev 0

OUTLINE SAFE SYSTEM OF WORK

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1 Introduction

This Noise Assessment of the Project takes into account the legislation, recommendations and guidelines laid out in the following documents:

- The Control of Noise at Work Regulations 2005.
- HSE Publication – INDG362 – Noise at Work
- BSI British Standards BS:5228-1:2009 – Code of Practice for Noise and vibration control on construction and open sites – Part 1: Noise.
- DEFRA – Construction Noise Database (Phase 3) – Database of noise emissions from equipment used on construction and open sites.
- Considerate Contractors Scheme – Code of Considerate Practice (Protect the Environment – Minimise Noise Pollution) – guidelines.
- Camden's Minimum Requirements for Construction / Building / Demolition Sites.

Noise at work can cause hearing damage that is permanent and disabling. It can also lead to other problems such has tinnitus and other health related problems.

In addition excess noise has further safety considerations in that it can interfere with communications and makes warnings harder to hear. It can also reduce people's awareness of their surroundings. These issues can lead to safety risks – putting people at risk of injury or death.

It is therefore important to Erith that as part of their Safe Systems of Work (SSoW) they consider a Noise Assessment as part of their overall and ongoing Risk Assessments and Method Statements when managing their project based activities.

The assessment considers that fact that 79 Camden Road as a Construction Site will naturally create levels of noise as a part of its natural process affecting the following:

- Workers on Site.
- Local Residents
- General Public
- Visitors to Site.

As such an assessment of the project is carried out in advance by Erith to ascertain what these expected Noise issues may be and how best to management them through the standard Hierarchy's of Control.

2. Planning of the Project

In planning the project, consideration has first been given to the affect that noise will place upon the general public and local residents outside the site, for whom the option of the last Hierarchy of Control, i.e. the issuing and correct use of PPE is not an option. Instead an assessment of how Noise within the Site can be managed, so that its exposure to those outside the project is either eliminated, controlled or reduced, so as to have a limited impact on those outside it.

Methods of planning that have been employed on the project:

3. Site Establishment and Set Up.

A hoarding has been placed around the site, which shall act as a noise reduction barrier to those members of the public outside the site.

In the area of Rochester Place, a road closure is to be implemented for the establishment of Welfare Facilities. The Cabins for the Welfare will be strategically placed so that they face into the site, with their backs to the Properties along Rochester Place. These Cabins can therefore act as an addition Sound Barrier to the activities of the site. In addition by ensuring the cabins face into the site, any noise from the cabin, doors, or personnel within the cabins can be turned away and back into the site rather than affecting the local residents and passing members of the General Public.

To assess the effectiveness of this Welfare Cabin Set Up, a survey point is to be established behind the cabins so that its effectiveness can be recorded against a similar survey position at the nearest corner of the site where the additional cabins are not in place to provide an additional barrier. (See Section 7 [below] points 5 and 2 marked out on the Proposed Locations for Site Monitoring Outside the Site).

4. Piling Activities.

The method to be employed on site involves a Case and Auger system for the piling rig. This is carried out using Rotary Rigs which are far more effective in reducing noise than Driven Pile Rigs. The Casing to be initially installed is rotated into the ground as this is far more effective as well as quieter than using vibro-hammers to vibrate or impact the casing into the ground.

In addition because the use of Case and Auger method is also being employed over the CFA (Continuous Flight Auger) method, the time the rig spends in the ground extracting the augers as well as using a pump whilst extracting is greatly reduced therefore reduces the exposure time that these particular items of plant are active. Where possible concrete trucks can also be reversed up to the prepared open bores so that the Concrete Pump is not needed, reducing noise further.

5. Programming of the Bulk Excavation Works.

The sequence of the works has also been fully reviewed so that the best possible programme to stream line the activities allowing Erith to achieve getting to the Sub-Basement level as soon as safely and practicably possible will be achieved. This has been reviewed through the process of assessing the Critical Path Analysis of the project.

- Bulk Excavation works are a major aspect of the project. The objective is to try and limit the impact of these works on local residents by controlling the hours of working and making residents aware of the progress of the works so as to better educate them on the expected duration of this high traffic flow and machine interface section of the project.

- The working hours of the site have been restricted to 8am to 6pm Monday to Friday and Saturdays (where required) from 8am to 1pm. On Saturday's particular consideration will be paid to ensure that any noisy works are limited so as to limit noise pollution to the local residents and general public at weekends.
- Active participation in the Considerate Contractors Scheme, of which control of Noise Pollution and its effect on the local community is a decisive factor.

6. Training on Site.

Training – Operatives will be trained on BS5228:2009 and supervised to employ appropriate techniques to keep site noise to a minimum where reasonably practical to ensure that best working practice in respect of noise reduction is adhered to. This ongoing training will cover:

- The proper use and maintenance of tools and equipment.
- The positioning of machinery on site to reduce the emission of noise to the neighbourhood and to site personnel.
- The avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment,
- The protection of persons against noise;
- The operation of sound measuring equipment (selected and trained Erith personnel).
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Evidence of completion of staff training will be kept on site for inspection as necessary and used as a record to determine the need for refresher training.

Operatives, as part of their induction will also be made aware of the affects their own presence and noise can have on those outside the site. Operatives will be advised to consider those around them so that unnecessary loud talking or yelling does not take place, particularly in the Welfare Area, situated close to the residents of Rochester Place. Signage will also be placed internally along this hoarding to maintain awareness.

It is important to Erith that local residents are aware of Erith's positive approach to noise control and that Erith where possible will take all possible measures to control or avoid unnecessary noise.

7. Noise Monitoring and Selection of Equipment.

Special attention should be given to the use and maintenance of sound-reduction equipment fitted to power tools and machines. To ascertain the exact noise emissions that personnel are exposed to there is therefore a need to obtain noise measurement data in respect of the typical items of construction plant that is currently being employed. Reference can be made to the DEFRA – Construction Noise Database (Phase 3) for a database of common items and expected noise limits, however these act as only a very rough guide and do not necessarily reflect the actual undertakings of the Project at 79 Camden Road.

The DEFRA – Construction Noise Database (Phase 3) should therefore be only seen as a guide and where necessary information should be sought from the specialist suppliers, manufacturers of the

equipment to obtain further information on bespoke items of plant and equipment. Where necessary a noise assessment can be made of the equipment to:

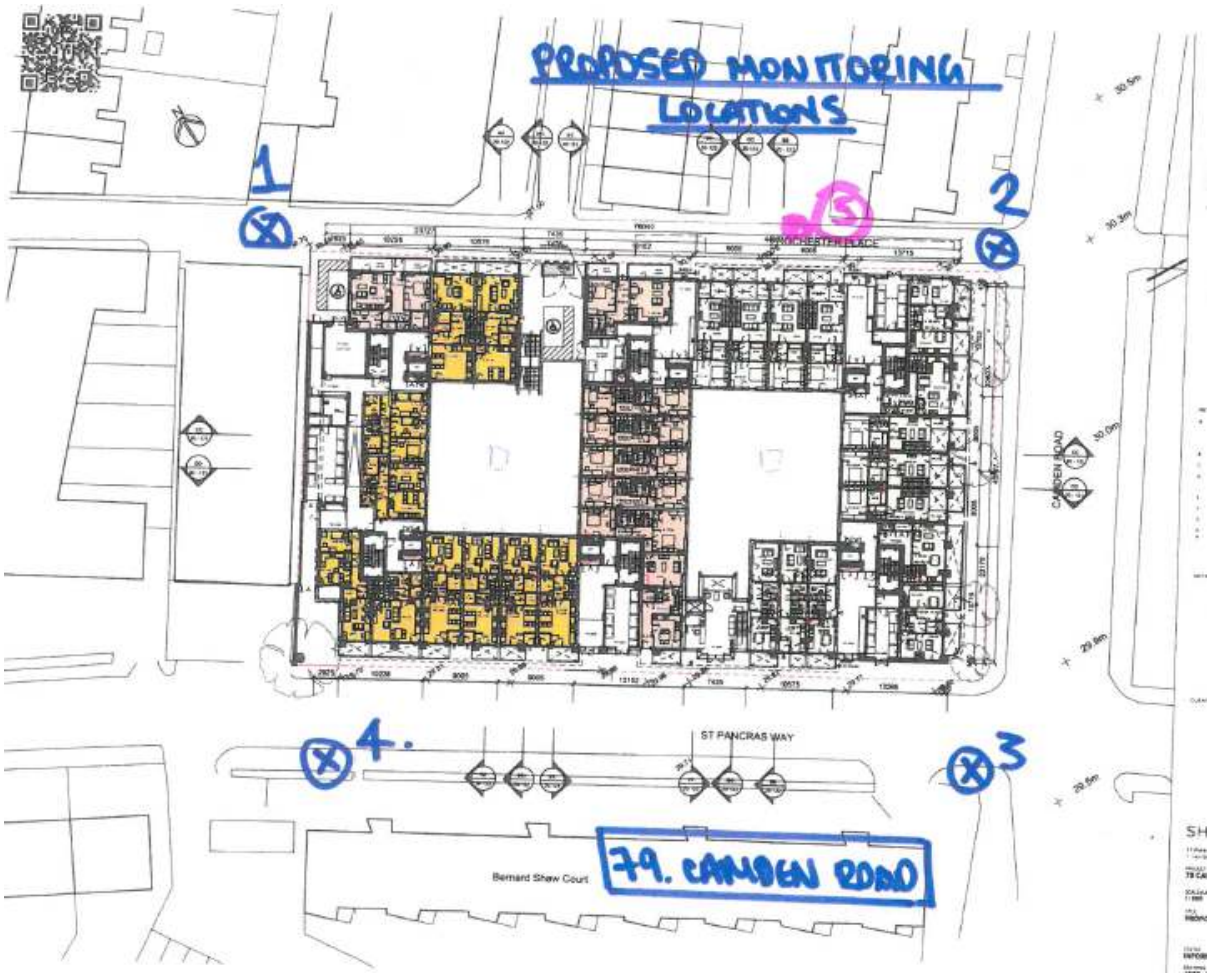
a) Confirm or establish the noise emissions of particular items of interest and

b) To ensure an ongoing assessment of items is carried out if required to ensure that certain items of plant or equipment do not exceed those limits as a result of wear and tear or defects of the equipment.

Erith shall establish and maintain a programme of monitoring to ensure that conditions limits are not exceeded and that all relevant recommendations are met.

Both On-Site and Off-Site noise levels should be monitored regularly, particularly at changes in the phasing of the project, when there are significant changes in plant, equipment, location or activities that will create a very significant change upon the activities and noise pollution of the site.

The monitoring shall initially comprise of a baseline survey outside the site to ascertain the ambient background noise levels in the following locations:



Proposed Locations for Site Monitoring Outside the Site.

8. Control of Noise on Site

On those parts of a site where high levels of noise are likely to be a hazard to persons working on the site, prominent warning notices shall be displayed and, where necessary, suitable ear protection shall be provided as well as ensuring that the correct training in the correct use and maintenance of hearing protection is given. This will also include the giving of guidance as part of Tool Box Talks, supervisors regularly checking that operatives hearing protectors are serviceable and in good order and encouraging operatives to raise any of their own concerns in relation to noise exposure, plus encouraging operatives to put forward recommendations on how they think noise could further be controlled.

9. Control of Noise at Source

Operatives are to consider ways at which they can control the noise they create on site when undertaking any task. Some recommendations provided by British Standards include:

- Avoiding unnecessary revving of engines and switch off equipment when not in use:
- Minimise drop heights of materials
- Start-up plant and vehicles sequentially rather than all together.

10. Review of measures

Continuous review of the mitigation measures employed on this development is to be carried out to ensure that the measures taken are relevant to the current construction phase and are effective. A complaints register is to be kept to record all feedback and any subsequent actions taken. An incident logbook is also to be kept to record any incidents and actions taken to prevent the recurrence of a similar event.

11. Use and siting of equipment

Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas. Plant from which the noise generated is known to be particularly directional should, wherever practicable, be orientated so that the noise is directed away from the noise-sensitive areas. Acoustic covers to engines should be kept closed when the engines are in use and idling.

Whilst piling works are taking place there will be ancillary mechanical plant and equipment that might be stationary, in which case care should be taken in location, having due regard also for access routes. Plant may include concrete pumps and compressors for example.

12.Duties of Machine Manufacturers on Noise

Under the Health and Safety at Work etc. Act 1974 and the Supply of Machinery (Safety) Regulations 2008 a supplier of machinery must:

- Provide machinery that is safe and without risk to health, with the necessary information and instructions to ensure those aims can be met during installation, use and maintenance.
- Design and construct machinery so that the noise produced is as low as possible.
- Provide information about the noise the machinery produces, including description of the operating conditions under which the noise was measured.

As such all plant and equipment on site will provide a baseline of expectations for that item of plant or equipment that is on site for a noise assessment to be made. This will allow for the monitoring of that item of plant and equipment to ensure that it is still meeting with the standards for which it was manufactured and produced. It is therefore imperative that equipment remains correctly maintained at all times. A List of Current Equipment and Decibel Readings will be maintained as part of the Site Records and maintained on site. A current list of expected items on site can be found at appendix A.

13. Maintenance

Regular servicing and effective maintenance by trained personnel is essential and will do much to reduce noise from plant and machinery. Increases in plant noise are often indicative of future mechanical failure.

Sound-reducing equipment will be used where possible but it should be noted that it can lose its effectiveness if not maintained correctly.

Noise caused by vibrating machinery having rotating parts can be reduced by attention to proper balancing. Frictional noise from cutting action of tools and saws can be reduced if the tools are kept sharp. Proper lubrication of other contact parts of machinery will also reduce noise caused by friction.

14. Distance and placing of Equipment

When working on site, consideration needs to be given to where equipment is to be placed if it has a noise impact on either the workers or those outside the site.

Placing noisy equipment next to hoardings should be avoided where possible. In addition working directly next to noisy equipment should be avoided where possible. Instead each task should be planned where noisy equipment is to be used, or where works will potentially need to access areas currently occupied by noisy plant or equipment. For example stationary plant such as compressors and generators should ideally located away from hoardings or work areas.

15. Screening.

Where it is not possible to reduce a noise problem by increasing the distance between the source and receiver, screening may be a possibility. For maximum benefit screens should be close either to the source of noise or the listener. Therefore given that with regards to safety the priority is to the collective over the individual, screening should be established when used as close to the source of noise as possible so as to benefit the maximum number of collective individuals.

It is worth remembering that the project is aiming to undertake the bulk excavation works down to lower ground floor level as soon as practicably achievable, therefore the walls of the basement (which are sheet piling) will act as a natural screen to the outside but due to their hard nature, these sheet piles can also act as a means of increasing the noise feeding back into an area or site. Therefore placing a noisy piece of plant next to the sheet pile wall and then placing a screen to the inside of the site will have an adverse effect. The noise from the plant will merely reflect against the sheet pile wall and back into the site. Consideration should therefore at all times be given to hard and reflective surfaces when siting plant and equipment or when undertaking potentially noisy works.

16. Ventilation

When screening or siting equipment, the priority should always be given to ventilation of the equipment. A lot of plant and equipment for example emit exhaust fumes which in confined or screened off areas limit the free flowing air and ventilation in those areas. Before screening equipment the first priority and thought should always be – is it safe! Does the area remain well ventilated at all times!

17. Safety Risks

Safety is affected where systems of work rely on verbal communications and therefore these systems should be reviewed where levels of noise or the wearing of hearing protection could lead to misunderstandings.

18. Duty of Employer to their Workers

Erith ensure that they fully compliant in their legal obligations as well as considering the overall welfare of their employees and workers on their site. As such Erith continue to look at the following:

- Improved ways of working to reduce noise levels.
- Using quieter equipment or a different quieter process where reasonably practicable.
- Using screens, barriers or enclosures or absorbent materials
- Limiting the time workers spend in noisy areas.
- Providing employees with hearing protectors and making sure they use them fully and properly when their noise exposure exceeds the upper exposure action values.
- Provide employees with hearing protectors if they ask for them, and their noise exposure is between the lower and upper exposure action values;
- Identify hearing protection zones – areas of the workplace where access is restricted, and where wearing hearing protection is mandatory.
- Will employ safe systems of supervision and training to ensure that protectors are worn correctly and that they are worn all the times when required to be worn.
- Ensuring that all Hearing Protection supplied is CE-marked and approved.
- Consult with the workers and their representatives over the types of protector that are provided.

19. Duties of Employees and Workers on Site.

Employees and workers on site have a duty to ensure they are correctly and properly use any noise-controlled device properly, and following any working methods that are put in place.

Wear any hearing protection that they are given and wear it properly, for which they will be given training, and to wear it all the time when they are doing noisy works or are working in hearing protection zones. Taking hearing protection off even for a short time will greatly reduce the overall protection that is obtained from the correct use of the hearing protection, meaning that hearing could still become damaged if not used correctly.

All workers are to ensure that they correctly look after any hearing protection they are issued. Workers will be instructed how to do this properly and it is the responsibility to all workers to:

- Ensure they look after it correctly.
- Report any damage to their equipment immediately to their supervisor.

20. Exposure Limits

There are legal limits to the levels of noise to which workers may be exposed.

To comply with the exposure limits workers must be required to wear hearing protection if:

- There are reach 87 decibels for daily or weekly person noise exposure: and
- 140 decibels for peak sound exposure.

However the first priority will always be given to try and reduced the risks from noise to as lower as reasonably possible.

21. Visitors to Site

At all times it is to be assumed that visitors to site are most at risk from the activities taking place with the site area itself and this also applies to their knowledge, understanding and exposure to noise as well as the noise and safety risks they present.

As such no visitor to site will be allowed onto the site unless he has been fully inducted or is escorted by an approved member of site personnel.

All personnel when escorting a visitor onto the site, should ensure that they are fully aware of any noise or hearing restrictions and that they ensure that the person they are escorting is fully aware of requirement to wear hearing protection where necessary. However the requirement for any visitor to enter an area requiring hearing protection should be seen as an exceptional circumstance given that hearing protection will also expose unexperienced and unfamiliar visitors to the risk of a lack of ability to understand verbal communications, which is a fundamental requirement of being safely escorted around an unfamiliar site.

22. MOST IMPORTANT

It should at all times be remembered that Hearing Protection such as earmuffs and earplugs are the last line of defence against damage.

Hearing protection may be mandatory at certain times and in certain locations but the **preferred method of Control of Noise** is to **LIMIT THE NOISE WHERE POSSIBLE AT SOURCE.**

In the event that hearing protection is the last line of defence against noise ensure that you recognise the relevant safety signage.

Know the signs: if the following sign is seen then the wearing of hearing protection is Mandatory and must be complied with.

23. NOISE INDUCED HEARING LOSS (NIHL)

All operatives are encouraged to ensure that they also recognise the signs of NIHL, even temporary NIHL and in the event that they experience any they are to inform their immediate Supervisor/Manager. Signs of NIHL can consist of the following:

What are the effects and signs of NIHL?

When you are exposed to loud noise over a long period of time, you may slowly start to lose your hearing. Because the damage from noise exposure is usually gradual, you might not notice it, or you might ignore the signs of hearing loss until they become more pronounced. Over time, sounds may become distorted or muffled, and you might find it difficult to understand other people when they talk or have to turn up the volume on the television. The damage from NIHL, combined with aging, can lead to hearing loss severe enough that you need hearing aids to magnify the sounds around you to help you hear, communicate, and participate more fully in daily activities.

NIHL can also be caused by extremely loud bursts of sound, such as nail-guns or explosions, which can rupture the eardrum or damage the bones in the middle ear. This kind of NIHL can be immediate and permanent.

Loud noise exposure can also cause tinnitus—a ringing, buzzing, or roaring in the ears or head. Tinnitus may subside over time, but can sometimes continue constantly or occasionally throughout a person's life. Hearing loss and tinnitus can occur in one or both ears.

Sometimes exposure to impulse or continuous loud noise causes a temporary hearing loss that disappears 16 to 48 hours later. Recent research suggests, however, that although the loss of hearing seems to disappear, there may be residual long-term damage to your hearing.

Can NIHL be prevented?

NIHL is the only type of hearing loss that is completely preventable. If you understand the hazards of noise and how to practice good hearing health, you can protect your hearing for life. Here's how:

- Know which noises can cause damage (those at or above 85 decibels).
- Wear earplugs or other protective devices when involved in a loud activity (activity-specific earplugs and earmuffs are available at hardware and sporting goods stores).
- If you can't reduce the noise or protect yourself from it, move away from it.
- Be alert to hazardous noises in the environment.
- Consider those around you and instruct them if they should also be wearing noise projection as well – also do not commence noisy works if you know others will be affected. Procedures need to be followed.
- Make everyone, even family, friends, and colleagues aware of the hazards of noise.

Have your hearing tested if you think you might have hearing loss.