Noise, Dust & Vibration Management Plan

Company: Keltbray Ltd
Contract No.: 1077
Site Address: 41-43 Beaufort Gardens Knightsbridge London SW3
Document No.: KB_1077_NDV_MP
Revision no.: 01
Start of Project: June 2014
End of Project: February 2015

Status of this Revision

<table>
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<tr>
<th>Revision No.</th>
<th>Issue Date</th>
<th>Author</th>
<th>Description of Modifications</th>
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<tr>
<td>00</td>
<td>15/10/2014</td>
<td>M.Sedgwick</td>
<td>Initial Issue</td>
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Overall Approval Status

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<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>Date</th>
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<td>X</td>
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<tr>
<td>CAT B – Not accepted for implementation. Resubmission required.</td>
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Date returned to Contractor:

SIGN OFF BY (Project Manager):

Print Name: Mark Sedgwick

Sign

Date
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1 Introduction

This document describes Keltbray’s approach to the management of noise, dust and vibration resulting from the works at Beaufort Gardens, and is part of Environmental Management Plan (EMP) submitted for the site. Throughout this document the term ‘the project’ refers to the demolition and associated works as defined in the scope below, it does not encompass the full redevelopment scheme (i.e. construction of new buildings).

This document has been produced due to the sensitive nature of the site, specifically the proximity of numerous sensitive receptors and concentrates specifically on noise, dust and vibration. We have produced an EMP for the project Ref: KB_1077_EMP_001. 41-43 Beaufort Gardens ‘Environmental Management Plan’, which describes all other environmental considerations for the site.

The majority of the contents included in this document have been communicated to the Royal Borough of Kensington & Chelsea, Environmental Department to insure full compliance with to date Code of Practice for Deconstruction and Construction Sites.

2 Approach

The approach employed to manage noise, dust and vibration on the site is to understand the environment where site is situated and assess who may be affected by these works and what will be the impacts. Then best available techniques and methodologies have been reviewed and assessed on their practical application on site and impacts on the environment – in particular with respect to the established sensitive receptors. Mitigation measures available will be reviewed and updated regularly at each project work-phase.

Keltbray are a member of considerate constructors and actively liaises with third parties prior to and for the duration of works. This project is not registered with the Borough of Kensington & Chelsea Considerate Contractor Scheme showing our management’s commitment towards achieving best environmental results at this project.

3 Location of Works

41-43 Beaufort Gardens
Knightsbridge
London
SW3
4 Scope of works

The demolition scope of works is as follows:

1. Securing of site, erection of site hoarding, and set-up site welfare facilities
2. Erection of demolition scaffold and loading gantry.
3. Façade Retention
4. Demolition of 2 number house Structures down to top of basement floor Slab.
5. Demobilization

The works are to be undertaken by Keltbray Limited who has been appointed the principal contractor for this phase of project.

Address:

Keltbray Limited
St. Andrew's House
Portsmouth Road
Esher
KT10 9TA

Contact Telephone numbers for key site personnel are:

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Contact Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations Director</td>
<td>Andy McClafferty</td>
<td>07711 888870</td>
</tr>
<tr>
<td>Project Manager</td>
<td>John McClafferty</td>
<td>07957 492166</td>
</tr>
<tr>
<td>Site Manager</td>
<td>Mark Sedgwick</td>
<td>07976 833393</td>
</tr>
<tr>
<td>Project SHE Advisor</td>
<td>Martin Sprange</td>
<td>07834 746793</td>
</tr>
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</table>

5 Hours of work

Monday to Friday 08:00 to 18:30
Saturday 09:00 to 13:00

6 Programme

The project duration is planned and sequenced in details. All demolition and associated works on site are programmed to take up to 40 weeks
Key Dates

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of works on Site</td>
<td>8th June 2014</td>
<td>40 weeks</td>
</tr>
<tr>
<td>Underpinning</td>
<td>30th June 2014</td>
<td>20 weeks</td>
</tr>
<tr>
<td>Site Hoardings</td>
<td>7th July 2014</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Scaffold erection</td>
<td>24th July 2014</td>
<td>1 weeks</td>
</tr>
<tr>
<td>Soft Strip</td>
<td>14th July 2014</td>
<td>6 weeks</td>
</tr>
<tr>
<td><strong>Phase 1:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demolition of Roof Floor level - 6</td>
<td>TBA</td>
<td>2 weeks</td>
</tr>
<tr>
<td>Demolition of floor 5 to floor Basement</td>
<td>TBA</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Façade Retention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th Floor level to ground floor level</td>
<td>TBA</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>

7 Site Description

The site is located in the Royal Borough of Kensington & Chelsea and is bound by Flats north & south, and Beaufort Gardens to the East, Beachamp Place to the West.

- The surrounding area is predominantly made up of commercial and retail units.
- Mostly residential properties
- In the vicinity of the site is Brompton road & Beachamp Place.

Existing Services

All drawings showing existing services were made available by the Client prior to works starting on site. However, we presume that not all services are shown on these drawings; hence safe precautionary measures must be adopted such as cat-scan, hand digging etc.

Any live services within the building (excluding services supplying third parties) will be terminated at the nearest head or stop cock, to the building’s boundary wall.
Keltbray will maintain a temporary water and electrical supply during the works.
Live services will be terminated before Keltbray leave site or maintained at the client’s request.

The water supplies will be used for fine mist sprays to reduce dust emissions during the works at work faces, drop zones and loading generally.

8 Sensitive Receptors

Keltbray have identified most sensitive receptors around the site. Most of the surrounding buildings are of robust construction incorporating modern double glazing systems.

For most of the buildings Keltbray has contacted property managers to inform them of the works. We have also made available a copy of the demolition notice/consent to our neighbours and will issue regular newsletters to keep them informed as works progress.
Commercial: Various office buildings adjacent to the site

There are several lower level commercial properties in the vicinity of the Beaufort Gardens. We have arranged for continuous correspondence so upon neighbours request we can accommodate special occasions around site "Quiet times" (10:00 – 12:00) (14:00 -16:00).

To ensure that environmental standards are maintained, Keltbray considers it necessary that all personnel working on the site are aware of company and their personal environmental responsibilities.

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

- Subcontractors are aware of and comply with the requirements of the this document and the full terms and conditions described on 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; and
- Complaints and queries are to be addressed as soon as it is practicable.

9 Tennant Liaison

Critical to the success of the project is the effective and regular communication with the local tenants.

Project Manager will lead the demolition team in ensuring good community relations by means of regular communication via;

- Site walkabouts/interaction
- Newsletters – minimum monthly (giving information on current and forthcoming activities)
- Tennant Liaison meetings
- Email notification and updates to parties as agreed
A list of the contacts is given in the following table;

<table>
<thead>
<tr>
<th>Property</th>
<th>Free-holder</th>
<th>Leaseholder(s)</th>
<th>Contact Details</th>
</tr>
</thead>
</table>
| 41-43 Beaufort Gardens |                                      | Concept Business Group Limited  
41 Whitehall  
London  
SW1A 2BY | • E-Mail nick.hughes@hmlhawksworth.com  
• Tel 0207 8020000 |
| 40 Beaufort Gardens  | 16number flats                        | Contact is Nick Hughes  
Hawksworth property management  
44 Gillingham Street  
London SW1 | • E-Mail brendan.williams@ansteyborne.co.uk  
• Tel 0207065 2770 |
| 44 Beaufort Gardens  | 16 number flats                       | Contact is Brendan Williams  
Anstey House  
4 Chiswell Street  
London EC1 | • E-Mail brendan.williams@ansteyborne.co.uk  
• Tel 0207065 2770 |
<table>
<thead>
<tr>
<th>Property</th>
<th>Freeholder</th>
<th>Leaseholder(s)</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Beauchamp Place SW3</td>
<td>Gladwell Patterson</td>
<td>Ashdown Phillips</td>
<td>Tel 0844 8800645</td>
</tr>
<tr>
<td>6 Beauchamp Place SW3</td>
<td>Pizza Express</td>
<td>As Before</td>
<td>Tel 0207 581 7646</td>
</tr>
<tr>
<td>8 Beauchamp Place</td>
<td>Ovington Property</td>
<td>K.Collection</td>
<td>•E-Mail <a href="mailto:Ollie@ovingtonpark.co.uk">Ollie@ovingtonpark.co.uk</a>&lt;br&gt;•Tel 0207589 5221</td>
</tr>
<tr>
<td>9 Beauchamp Place</td>
<td>As Before</td>
<td>Patara cuisine</td>
<td></td>
</tr>
<tr>
<td>10 Beauchamp Place</td>
<td>As Before</td>
<td>Synergy University Business School</td>
<td></td>
</tr>
<tr>
<td>11 Beauchamp Place</td>
<td>Ana Cristache</td>
<td>Relais &amp; Chateaux</td>
<td>Tel 0207 5848322</td>
</tr>
</tbody>
</table>

**Complaints**

Complaints will be dealt with as per our incident response procedure - Please refer to section 13.

**Liaison with the Royal Borough Kensington & Chelsea**

Keltbray will closely liaise with the Royal Borough of Kensington & Chelsea Pollution Control Team during all stages of the deconstruction contract. Code of Practice for Deconstruction and Construction Sites “Seventh Edition – May 2013” has been adopted and will be followed by Keltbray team, aiming to minimise disruption to the surrounding properties and third parties.
10 Methodology

The demolition will be carried out using small demolition plant working on a floor-by-floor basis. From structural assessment of the safe working load of the existing floors,

<table>
<thead>
<tr>
<th>No.</th>
<th>Plant &amp; Equipment</th>
<th>No. Of</th>
<th>BS5228/Defra Reference (TX.X)</th>
<th>L$_{Aeq}$ at 10 metres (dB)</th>
<th>PWL</th>
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<tbody>
<tr>
<td>1</td>
<td>Mobile crane</td>
<td>1</td>
<td>C.4.48</td>
<td>76</td>
<td>104</td>
</tr>
<tr>
<td>2</td>
<td>Convey</td>
<td>1</td>
<td>D3.84</td>
<td>82</td>
<td>110</td>
</tr>
<tr>
<td>3</td>
<td>Muck away (Waste) Lorry</td>
<td>4</td>
<td>C4.21</td>
<td>77</td>
<td>105*</td>
</tr>
<tr>
<td>4</td>
<td>Hand Held Circular Saw</td>
<td>2</td>
<td>C4.70</td>
<td>91</td>
<td>119*</td>
</tr>
<tr>
<td>5</td>
<td>Disc Cutter</td>
<td>1</td>
<td>C4.93</td>
<td>80</td>
<td>108*</td>
</tr>
<tr>
<td>6</td>
<td>Compressor</td>
<td>1</td>
<td>D7.44</td>
<td>75</td>
<td>103</td>
</tr>
<tr>
<td>7</td>
<td>Hand held hammer</td>
<td>4</td>
<td>D2.15</td>
<td>84</td>
<td>112</td>
</tr>
</tbody>
</table>

*Sound power level not quoted in table C.1. Sound power level has been calculated as per BS5228-1:2009, section F.2.3.1 General, “The sound power level values can be obtained by adding 28 dB(A) to the L$_{Aeq}$ values at 10 m distance”.

Primary Equipment to be used:
- Builders hoist
- Convey
- Compressor
- Mobile Crane

NOTE: The use of breakers will be managed to a minimum breaking time.

Site Set Up Works
- The site compound for loading away material will be in front of the building. Before this can happen 4 residents parking meters will be suspended with agreement with Kensington & Chelsea.
- Staged welfare facilities will be set up in locations to be confirmed.

Site surveys have been carried out to verify any existing services and also clarification of structural strength information.

Soft Strip Works (Ground & Basement)
A light soft strip comprising the removal of loose fixtures and fittings, carpet tiles, doors are being carried out ahead of the asbestos removal works. The workers will not be put at risk by disturbing the asbestos containing materials (ACMs).
All known services are terminated with certification issued and 110v temporary power is provided, for use during soft stripping of the building and subsequent removal of internal debris.
Items are being loosen using hand-held tools, in a general soft stripping exercise, and transported to awaiting skips.
This works are being carried out using hand held tools (mattocks, hammers, shovels, reciprocal saws, disc cutters).
Exclusion zones are established on a floor by floor and building area basis with barriers / safety signage. Assessment of structural walls and non-structural walls has been carried out. Only lightweight partitions will be removed during soft strip operations. The soft strip will commence at ground floor level. Debris will be cleared in a controlled manner working progressively by teams of deconstruction operatives. Partitions and ceilings will be broken down, plasterboards, rubbish and light iron separated while flooring will be lifted (carpets and raised floors), stacked and removed. Debris will be transferred to lifts/drop zones on each floor using trolleys, wheeled bins etc.

As part of environmental policy requirements, materials will be separated for reuse and recycling where possible and disposed to licensed facilities.

**Protection of Trees**
No protected trees are located within the site footprint.

**Erection of Site Hoarding**
- Site hoarding will be erected around the loading gantry. Based on liaisons between the neighbors who are located to the south & north of the project, and the client, Keltbray have proposed that the height of the hoarding adjacent to the buildings will be erected to 2.4m as indicated on Appendix C. The hoarding will be supported by scaffold tube (a design is to be provided).
- We will be 1 number door retained throughout the works at a width of 870mm wide. This will provide the main pedestrian entrance into the site also to the cabins and fire escape.
- Following the erection of the back perimeter scaffolding Keltbray will provide this with monoflex.

**Removal of remaining roof mounted plant**

Roof mounted plant has been cut up into manageable sizes and temporary stored locally where will be moved down to the processing areas, so it can removed via the loading gantry ( see method statement KB-1077-MS-009)

- Sections will be cut utilising a mixture of electrical and petrol driven grinders, electrical reciprocating saws and oxygen / propane gas axe's.
- All hot works will be subject to the Keltbray permit to work system, Keltbray Procedures
- Leading edges will be protected with a suitable and sufficed hand rail, which will be progressively erected as soon as reasonable practicable once the roof areas are cleared.
- Prior to the removal of any roof plant, the perimeter access / protection scaffold will be in place.

All plant will be transported down to ground level by hand.

**Floor by floor demolition**
This section describes the procedure by which the buildings will be reduced top-down, on a floor by floor basis.( please see Method statement KB-1077-MS-04)

This method will utilise a combination of convey and loading gantry with the use of wheel barrows for the purpose of removing the demolition arisings generated as the works progress.

The following is a basic sequence for demolishing a floor:

- The structures will be demolished hand held tools with suitable attachments.
The debris will be broken down onto the floor below and processed and separated to increase the efficiency of debris removal.

Resultant demolition debris will be cleared using the wheel barrows or by hand and deposited throughout the appointed ‘drop zone’ onto a rubble mattress at basement and first floor levels.

The rubble “mattress” will be generated by backfilling of the existing lift shaft bases with initial demolition arisings, aiming to decrease noise levels generated from drop zones.

Any structural steel and reinforcement produced during the demolition process will be cut into small sections and dropped through the drop zone.

The cutting of any steel or concrete/rebar stanchions and beams will be carried out using oxy/propane burning equipment. And accessed from alloy tower or standard scaffold.

A ‘Hot Works’ permit to work system will be enforced when any works of this nature are undertaken and fire extinguishers will be prominent. Hot works will cease one hour before the end of a working shift and the area thoroughly checked prior to leaving site.

To prevent inhalation of toxic fumes operatives will wear ‘Airstream’ helmets or active charcoal Ori-Nazel masks during the burning/cutting of galvanised trunking or when fume densities persist whilst cutting other types of metal. The selection of the mask will be via the personal preference of the operator, subject to compliance with being fit for purpose.

Only trained and competent operatives will carry out these works and segregate ferrous and non-ferrous material for subsequent recycling.

All static noise sources will be sited (as far as reasonable practicable) well away from neighbouring properties to prevent excessive disturbance.

Dust emissions will be controlled at the working face, well hole, and loading away area by a fine water spray. The quantity of water emitted by the sprays will be regulated and controlled to prevent any flooding at ground/basement level.

Keltbray Ltd will take all reasonable steps to avoid the outbreak of fire, particularly during ‘hot’ work involving the use of naked flame or intense heat. Where work necessitates the use of such equipment, appropriate and adequate portable fire extinguishers will be readily available. It will be impressed on the workforce that no smoking is allowed on site and the accumulation of rubbish must be prevented.

Dedicated traffic marshals will be deployed at the site entrance to control all pedestrian and traffic movements. They will be dressed in High Visibility clothing (Orange).

The works will be supervised by a ‘top-man’ positioned at the working floor level, and a banks man positioned at ground level in full radio communication to control the “drop zone”.

Stringent fire precautions will be implemented and the material arisings regularly cleared to minimise floor loading.

Operative walkway routes at the working floor will be kept clear at all times. The works will be undertaken from the highest floor downwards.

PPE requirements for all operatives will be assessed in accordance with specific Risk and COSHH assessments, and enforced accordingly.

Throughout the works, fine-mist water sprays will be used to control the soft-strip dust emissions at source, at ground level and the lift shaft/well hole.

**Edge Protection**

Edge protection will be in place at leading edges in the form of scaffold A -frames. Where a operative is working at a leading edge.

Where possible brick walls adjacent to lift shafts etc will be left approximately 1m high thus protecting the edge. Where this is not possible e.g. brick risers then edge protection will be erected in the form of scaffold A -frames. There is likely to be a transition period at times and it may be that pedestrian barriers are used to form exclusion zones around part demolished risers etc. These barriers will be at least 3m back from any voids and will be replaced with scaffold at the earliest opportunity.

An internal hand rail will be installed on the upper most scaffold lift at any time.
Working at leading edges - people
Where practicable, operatives will work behind scaffold edge protection. This will not always be possible in which case persons will wear full body harnesses attached to suitable anchor points. The preferred anchor point for persons working at an open leading edge / shaft is to the arm of the excavator. Where this is not available inertia reels / strops will be used secured to scaffold.

Well Holes
Well holes will be used to move demolition debris vertically to the basement and first floor. Materials will be loaded into the well holes by hand. Handrails will be erected around them at all times, if required to be replaced due to damage etc then persons working around them will wear full body harnesses properly attached.

The edges will be cleared regularly; this will be done by the works supervisor where possible. Any persons required to work behind the edge protection will be wearing harnesses.

Well holes will be controlled by nominated persons at floor level and ground level. The nominated persons will be in radio contact at all times. No materials will be dropped into the shaft without the go ahead from the nominated person at floor level. No persons will enter the bottom of the well hole until confirmed as safe to do so by the nominated person on the floor level.

A fine water spray system will be installed on the top level of well holes to control emission of dust. The amount of water used will be calibrated to control any dust being released and water will be absorbed by demolition arising, so there will be no running water.

Internal Shafts / stairs
Internal shafts will be backfilled as demolition progresses to reduce the risk associated with them.

Crane works
The crane will operate under a separate lifting plan. The crane will be used to cabins on to scaffold gantry.

Scaffolding and Hoardings
Scaffolds will be protected using fire retardant polythene and plywood as required to prevent debris falling through. The scaffold has three fully boarded lifts at all times, one of which will always be below the demolition area.

A gantry (double boarded with polythene membrane) will be erected over the footway on the front of Beaufort Gardens as communicated and agreed with Kensington & Chelsea.

The scaffold will be struck as the demolition progresses with ties removed to allow the side columns to be pulled in. Extra ties will be inserted as required.

External scaffold including access/egress is being erected to the working levels by a specialist scaffolding contractor.

Scaffolds (mobile towers and erected scaffold) are inspected daily/weekly and inspection recorded.

Temporary propping
Floor loadings have been checked by our structural engineers and there will be no need for propping for our /demolition.

Burning Equipment
Where burning equipment is to be used, the following points will be observed;

Bottles will be distributed to the working floors (single bottles). All gauges will be fitted with flash back arresters.

Suitable fire points will be sited adjacent to cylinders and on each floor level.
Warning signs, “Danger No Smoking” and “No Naked Flames” to be erected.
A system of hot work permits will be adhered to.
Single bottles will be used and distributed via trolleys.
Burners will operate under a Hot Works permit. Water hoses will be on hand to damp down the working area and local scaffold.
Burners will not be required to work at open leading edges, but if so they will be wearing full body harnesses attached to suitable anchor points.

Services
All relevant service providers have been contacted and disconnections / isolations will be made within the footpath / at retaining wall as required. Any access points (manholes etc.) will remain accessible during the works e.g. hoardings will be splayed / modified to ensure points are not built over.

Electricity
Temporary electrics (110V)
Existing main power supply will be decommissioned during the works. Existing building supplies cut back to service head. All existing supplies will initially be decommissioned back to transformers and certification provided.
Decommissioning certificates will be issued to floors ahead of soft strip / demolition. Temporary services with RCD protection will be installed

Gas
Existing supplies to be decommissioned / isolated ahead of the works as per tender documents.

Telecommunications (BT/ Data etc)
Existing supplies have been decommissioned prior to works commencing on site.

Water
Existing supplies have been cut back to incoming mains generally and water for the works / welfare to be provided via temporary supplies.
Water sprays are to be used to control dust during the deconstruction works.

11 Mitigation – Measures to reduce noise, dust and vibration

Best Practicable Means (BPM) (S72 of CPA 1974) will be employed to minimise noise and vibration. Keltbray Limited will retain full control and keep any responsibility for, any subcontractor working under their management on the site.

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

- Exclusion zones will be established if noise levels are perceived to be high, operatives will be provided with appropriate ear defenders.
Environmental Legislation Requirements

Keltbray will comply with the relevant requirements of the following legislation:

- The Control of Pollution Act 1974
- The Environmental Protection Act 1990
- EC Directives 2000/14/EC & 2005/88/EC.
- The Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 (as amended)
- The Highways Act
- The Road Traffic Act
- The Control of Asbestos at Regulations 2012
- Asbestos Essentials Task document
- The Hazardous Waste Regulations 2005
- The Waste Electrical, Electronic Equipment Regulations
- The Provision & Use of Work Equipment Regulations 1999
- The Control of Noise at Work Regulations 2005
- BS 6187: 2012 Code of Practice for Demolition
- Local Authority requirements
- Planning permission and associated working methods conditions
- Client and Keltbray's Environmental Policies and procedures.

Plant Specifications

Keltbray Limited will only use plant which complies with the relevant EU/UK noise limits applicable to that plant or is no noisier than would be expected from the noise levels quoted in BS 5228: 2009.

Noise Control Measures

- Stationary plant such as generators will be located as far as practicably away from the nearest sensitive receptor;
- All plant powered by combustion engines will be fitted with suitably maintained silencers;
- Electrical or LPG powered plant will be used, where practicable, rather than plant powered by combustion engine;
- Plant will be used in accordance with the manufacturers’ recommendations;
- Plant such as mobile cranes which may be used intermittently will be shut down between work periods or throttled down to a minimum;
- Acoustic covers to engines will be kept closed when engines are in use;
- Appropriate screens or enclosures will be provided where practicable.

At the working floor level, the scaffold encapsulation (with monarflex) will be installed at a height of at least 2 metres above the working floor to provide the right level of noise attenuation and secure protection from any flying debris. The striking of the perimeter scaffold will be once the demolition of ground floor slab has been completed. The external scaffold will be clad in flame retardant double sheeting monarflex type sheeting. On the front elevation adjacent to the flats the hoarding will be 2.4m
Noise, Dust and Vibration
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to further mitigate environmental factors. The site cabins will provide an acoustic barrier at 1st floor level. Above the height of the site cabins, the front windows will be covered with scaffold with monoflex.

**Dust Control Measures**

Erecting scaffolding and monoflex sheeting will confine the dust arisen during demolition works. Fine water spray techniques will continue to be deployed as they have been for the duration of programme to keep the dust to a minimum. The wheels of vehicles leaving site will be cleaned using a high pressure jet wash.

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

- Maintaining solid 2.4m high hoardings.
- Sheeted scaffold to building to be demolished
- Spraying water at work faces, loading operations and site access roads;
- Dampering of exposed soil and stockpiles if necessary;
- The location of stockpiles of brick, concrete, soil and other materials away from dusts sensitive properties,
- Regular inspection and cleaning of local highways and site boundaries for dust deposits;
- Loading of material into lorries within designated bays/areas;
- Hoarding around the site;
- Sheeting of lorries leaving site carrying loose deconstruction material;
- No unauthorised burning of any materials on site; and
- All site personnel trained in best practice for dust control by regular Environmental Toolbox talks.
- Keltbray are an accredited Gold FORS freight operator
- Low sulphur diesel lorries
- Keltbray only use plant and vehicles that are in good repair and conform to the manufacturer or legislative/British Standard emission standards. Plant maintenance and defect reports shall be held on site in designated file. Wherever possible, plant shall not be left running for long periods when not directly in use. Where appropriate electrically powered machinery and plant shall be used instead of petrol or diesel powered.
- Monitoring site perimeter

**Vibration Control Measures**

Keltbray will use BPM to minimise vibration from the works including;

- Site personnel will be instructed in environmental matters and BPM to reduce noise and vibration. They will be informed in the site induction into the surrounding environment. Hardcore mats utilised to absorb energy from demolition arisings
- Loading of material into vehicles within designated bays only
- Sensitive location of drop zones and loading areas
- All deliveries to be scheduled to occur during daytime hours only and engines to be switched off when waiting
- All plant to comply with relevant national or international standards, directives and recommendations
- Monitoring perimeter of site for visible signs of defects

12 Monitoring

During the works attended monitoring will be carried out in accordance with the projects requirements. Environmental monitoring records are kept electronically and a hard copy maintained on site.

Keltbray project manager will liaise with environmental manager to ensure the monitoring is reflective of site activities (i.e. not solely during quiet periods).

**Noise**

A sampling technique will be used in accordance with BS 5228 Part 1, Annex G. Measurements will be undertaken by a suitably competent person. Noise monitoring will be undertaken for a 1 hour interval at relevant receptors. For example, if the current works are only being undertaken adjacent to a single receptor one hour monitoring will be undertaken at this point. If work is ongoing across the site, 4 separate readings will be taken (one at each receptor) for 15 minutes. Noise monitoring will be undertaken in response to complaints both external to the complaints building and internally. During this time the plant which is used for each activity will be checked against the plant list. Further checks will be made to ensure that the BPM measures are being adopted, that any deployed hoardings are effective, that working hours are adhered to.

The noise monitoring equipment used corresponds to that specified in BS EN 61672-1 Electroacoustics - Sound Level Meters – Part 1 Specifications (2003).
Vibration

Vibration monitoring will be undertaken in response to complaints and in accordance with BS 5228 Part 2. Measurements will be undertaken by a suitably competent person.

During this time the plant which is used for each activity will be checked against the plant list. Further checks will be made to ensure that the BPM measures are being adopted, that any deployed hoardings are effective, that working hours are adhered to.

Vibration levels to be regularly monitored using a Vibrock 901 digital seismograph.

Dust

Dust readings will be taken in response to complaints and also in the event of exceedance of the action level visible dust. Response will be in accordance with the action plan detailed in section 13.

Site management will appoint a person responsible for taking dust monitoring using a Casella Micro Dust Pro equipment which measures dust in real time monitoring (mg/m3).

Results (Noise, Vibration and Dust)

All results will be recorded on a suitable log sheet and a monitoring report, which will include times of day, duration of measurement and details of other relevant sources, together with site activities at the time of monitoring.

Prevailing weather conditions including wind speed shall also be recorded with each set of monitoring results.

The monitoring reports will be signed by the competent person undertaking the measurements and communicated to the Project Manager.

Where the results of monitoring indicate that the action level limits are being exceeded at the identified monitoring locations, the Project Manager shall be notified and action taken as per the Action Levels/Incident Response below.

13 Action Plan – Incident Response

ACTION LEVELS

Noise

- Action level – +3dBA above baseline levels at nearest receptor points when carrying out attended noise monitoring

Vibration

- Action level 5mm/s and 7mm/s in residential

Dust

- Dust alarm trigger level PM10 @ 50 µg/m3 at RP2 elevation (school elevation)
• Action Level – visible dust or above 0.150 mg/m³ when readings of these levels are recorded during random spot checks attended monitoring at any receptor point

INCIDENT RESPONSE

Incidents where action levels are exceeded will be responded to as follows;

• If during site activities action levels are exceeded this will be reported to the project manager.
• Keltbray environmental manager will be contacted and updated on the incident/occurrence.
• He in cooperation with project management team will investigate the work being undertaken, to see if the correct plant and equipment is being used in accordance with the BPM.
• 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 BPM is being carried out, the Royal borough of Kensington & Chelsea and neighbors will be notified and the reasons and timescales explained.
• Further monitoring will be carried out following the corrective action to ensure works proceed within the action levels,

Record of any such incident and action taken are to be kept on site filing system and communicated to involved parties.

Incidents where complaints are received;

• All complaints received will be recorded, in a site complaints book retained in the site office, investigated, and any corrective action implemented and feedback given to the complainant.
• Kensington & Chelsea will be advised of any complaint 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 complaints received will be dealt with by the project manager supported by our SHE adviser.

14 Noise Prediction

Keltbray have analysed the works to assess and quantify the likely noise that will be generated through the project. To understand the noise profile of the project we have modelled the works on site at specific dates on the programme using – Noise Prediction Software. These ‘time slices’ provide a representative noise profile for the project, the dates selected are:

1. 16th June 201 to 23rd November 2014 – Underpinning and soft strip upper floors
2. 27th October 2014 to 8th February 2015 – Demolition down to top of basement slab level and Façade retention.

This analysis has allowed us to determine the extent of attenuation required in order that our works do not exceed an Laeq Thr predication at the facade of the adjacent properties.
Figure 1 - Acoustic barrier performance

A sound insulation test was carried out on Friday 10 February at a site on Philpot Lane, London. A pink noise generator was used to establish the attenuation at one metre behind the barrier with and without the barrier material fitted.

The octave band sound attenuation achieved are shown in the table below:

<table>
<thead>
<tr>
<th>No</th>
<th>63</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1000</th>
<th>2000</th>
<th>4000</th>
<th>8000</th>
</tr>
</thead>
<tbody>
<tr>
<td>dB</td>
<td>5</td>
<td>8</td>
<td>12</td>
<td>12</td>
<td>17</td>
<td>14</td>
<td>22</td>
<td>26</td>
</tr>
</tbody>
</table>

Peter Wilson (for Toby Treadwell)
Demolition plan of 41-43 Beaufort Gardens