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Method Statement

For

Construction Method Statement for the Basement Structure

at

8 Pilgrims Lane

Document Control

Version No	Prepared by	Revised by	Date	Checked by
Rev00	Henry Hathaway	HH	08/08/14	MK

CONTENTS

1 INTRODUCTION

8 Pilgrim's Lane, NW3 is an existing building to which a proposed basement construction is intended along with the refurbishment of the existing building

This document serves to highlight the methods and the relevant measures to be undertaken in order to mitigate such risks to the Construction process and the party walls and to provide a Construction Method Statement to execute the works in a manner such as to achieve the intended product with minimal disruption to any neighboring party. It will be described how the existing proposed construction works are in close proximity to the shared walls and how the process of planning and early contact with relevant stakeholders will contribute to a managed effective solution while undertaking those works to the engineered intent. Principally the proposal of the method of works will be the protection of the party wall through a site managed and maintained engineered solution.

In writing this statement and proposal the following documents have to be considered:

- Preconstruction Information by Greg-Ling
- Greg-Ling Structural Drawings
- Ground Investigation Report 12.01.017; 2012; Listers Geotechnical Consultants
- Basement Impact Assessment 218554; 2012; Arup Geotechnical
- 04 A.6 Construction Management Plan; 2012, AandI
- P968 Pilgrims Lane Parking Survey &Swept Path Analysis; 2012; Paul Mew Assoc

2 SCOPE OF WORKS

Operations include but are not limited to:

- Preparation of all Documents to allow for Stakeholders to recommend that there is sufficient information to allow works to start.
- Contiguous Piling to the extent of the Basement Structure.
- Maintenance and Monitoring
- Excavation within closed box in a controlled planned manner under observation of Party Walls
- Underpinning of Party Walls
- Propping of Party Walls
- Further Excavation within closed box system

3 SEQUENCE

- Site Establishment including hoarding to the front elevation of the extent of the property.
- Stage I underpin to the underside of the Party Walls and internal structure as depicted within Greig Ling Drawing 612/01
- Secant Piles to Exterior Basement Extent and internal temporary bearing piles
- Construction of Ground floor slab bearing onto temporary piles and providing lateral support to the party walls and the piles/underpins
- Phased excavation internal and external in a top down method
- Basement Slab Construction and Vertical Element Construction
- Complete Basement Frame.

4 METHOD OF WORK

4.1 Preambles and Information

In accordance with Construction (Design & Management) regulations 2007, the Principle Contractor for the project shall complete the F10 and ensure that it is displayed in a prominent position.

As Principle Contractor, they are responsible for providing adequate welfare facilities (as detailed in Schedule 2 of the aforementioned regulations) and to provide the necessary emergency procedures and perimeter security fencing.

It is fundamental to the execution of a successful project that there is a clear, definitive line of communication and that site inductions are comprehensive and impart essential information. The method statement will be displayed on site and conveyed to the workforce. Preliminary investigations will be undertaken so as to prove or validate existing structures within the garden. Prior to any machinery or and plant or skips being placed into the garden, it shall be identified through local excavation as to whether there exists a well. Safe Routes are to be established and where access is to be granted to the Boiler Unit of No. 10, this shall be catered for with 24 hour access and all site members shall provide for such unobstructed access to such elements.

4.2 Proposed Program

The proposed program of the works will be circa 40 weeks

4.3Hours of Work and Workforce numbers

The hours of work are to be Mon-Fri 8-6pm and Sat 8am-1pm. All works are to be undertaken under supervision and for the purposes of this project there will be a Site Engineer/Manager and a Site Manager/Foreman. Both individuals will work together and assume control of the project and personnel to encourage a successful project. Workforce personnel will range in numbers depending on the specific activity however, it is envisaged that there approximately will be 10 on average. Such members of the workforce will be

encouraged to arrive to work just prior to the site being open and will be directed to leave immediately after work. It will be directed that break times will be catered for within the Site facilities within the main body of the house.

4.4 Traffic Management

Primary reference to the traffic management of the site at 8 Pilgrim's Lane is document P968 Pilgrims Lane Parking Survey &Swept Path Analysis; August 2012 and document 04 A.6 Construction Management Plan; 2012, AandI. This documents is intended to compliment the findings of such reports and considerations as to the methodology proposed within the considerations of the referred documents.

Access through the side passage under No 10 will be used for smaller material and lorry deliveries and will be subject to control by the site banksmen.

The Traffic Management Plan for the project is one of minimising the interface wherever possible between Public and Site traffic, and reducing the number of deliveries were practicable, including the staging of deliveries such that the volume of traffic is kept as even as possible avoiding peaks and controlling vehicular movements on the project.

Responsibility for Construction Traffic movement is that of the Project Manager who together with the Security team will:

a) Ensure that subcontractors and suppliers adhere to procedures set out in the Pre-site conditions bybooking in deliveries giving the required notices.

b) Prevent unauthorised contractors parking and the congestion of traffic.
Signs will be placed along the entrance to the road to direct the drivers and a banksman will be in position to direct them upon their arrival, if need be they will be held in a predefined holding area locally. For the duration of the contract parking immediately to the front of the House will be held for the purposes of loading and unloading. The banksmen are responsible for the tidiness of the area and will periodically clean the area, the wheels will be checked to make sure there is no dirt on them prior to departure and if so cleaned.

5. CONSTRUCTION OF BASEMENT STRUCTURE

5.1 Monitoring of Adjacent Structures

Of crucial importance is the establishment of the monitoring regime and the establishment of the accurate baseline prior to any excavation. This sets the relationship between the allowable movement limits. Monitoring will take place at regular intervals and as a minimum to discharge the monitoring specification. Definitive levels of movement are generally agreed at the point of boundary or party wall agreements, such positions while formally agreed and arranged during the party wall process will be adopted during the construction.

There is to be a system of warning trigger limits and both will impose a set of mandatory directions for the Piling and Excavation teams to follow should a trigger occur and in certain events this will amount to a cessation of the works if the triggers were to be breached. For example, monitoring of the adjacent buildings will be undertaken on a regular informed basis set upon agreement. This system of readings is to be undertaken by City Basements as a point of responsibility, however, interim verification readings will be undertaken by a third party (as referenced within the A and I report) independent of City Basements to verify findings and to provide that necessary third party input.

Base readings are to be undertaken prior to the undertaking of the works to ensure that any trends or similar can be incorporated into the analysis of the reporting of the monitoring results. When there are substantial works such as piling and excavation the monitoring of the targets will be undertaken on a frequent basis. In principle, when readings of a magnitude of an amber level are reached, it will direct the team to inspect, monitor more regularly and consider the method and to highlight to the consulting engineer that such a movement has occurred. If a red limit is reached it will then be a position that the work is to stop immediately. During this cessation, monitoring is to increase and method reviewed to decide on the reasoning of the movement and the manner to progress. Party Wall surveyors are notified.

Monitoring is to be undertaken on the following aspects of an element of a building in a manner to provide information such as to describe any potential lateral, vertical or rotational movement of an adjacent structure. It is intended that such base readings prior to the initiation of the works will be in place for a period of time of no less than one month prior to the start of the works, that those results are referred through party wall surveyors as a baseline to be measured against for future works and they represent the passive state of the circumstances as they exist prior to works.

5.2 Support of Foundation to No 10

With reference to Drawing 612/SK01 rev A; titled Sketch of support to foundations of No 10 the works described will form one of the initial and primary elements of work in the scheme. The monitoring regime is to be implemented and baseline surveys are to be carried out prior to the execution of the works. Those baselines are to be measured against as the foundations are worked upon. Carefully the locations of the piles are to be identified and with hand tools are to be exposed and probed in the specific area.

With a considered detail design, the piling rig (Klemm 702) will pile the required and designed piles and the pile caps will then be placed. Referral of findings and inspections to the works will be ongoing owning to the nature of the works by the consultant team. A system of support connections of the existing columns to the new support system will be integrated. Thus this will transfer the action of the loadings and will provide that excavation can take place to the underside of the existing foundations. The intention ultimately will be to transfer the line load of the columns through to newly installed deeper pads or newly formed piles that will be designed so as to protect the positioning of the two structures. This will be a party wall matter and such details will be formed specifically on the basis of the award and the detailed design of the scheme.

When the new foundations are installed and inspected it will be so that the temporary works are removed and the line action will transfer to the new foundation/piles.

5.3 Underpinning

Primarily of importance to the party walls is the undertaking of the construction of the underpins. In summary there is level of seven underpins of approx. 2.5m height and

reinforced as indicated in Drawing Number 612/01. The same scheme directs that there is 20 number unreinforced underpins to be undertaken. The principle of the execution of the underpins remains similar and is directly related to the undertaking of the monitoring as described above. Underpins are executed in bays of 5 units. No two units shall be open beside each other at the same time and follow a sequence of 1,4,2,5 and 3. This is depicted on the sequence and layout drawing. Firstly a preliminary trench is excavated with a closed trenched wall support system with braced frames and sheet piles. This provides lateral restraint to the potential open faces of the excavation while maintaining safety for the work force. There will be an open side to the trench support system that allows excavation to be systematically undertaken underneath the wall being underpinned.

Examination of the underside of the foundation of the existing wall will be monitored and should the position occur that there was a requirement to allow for a vertical support to the underside of the foundation, sacrificial props would be introduced. The backside of the excavation face will be lined with steel sheetpiles to retain the earth. The width of the underpin is to be the width of the foundation of the wall minus the brick corbelling to the inside face that will be trimmed off. The length of the underpin will be no greater than 1.0m. A shutter is placed in front of the underpin having placed the steel and the concrete is poured. The shutter is removed the next day and after 24hours the 75mm gap between the underside of the foundation and the top of the underpin is dry packed which will include combextra an anti-shrink additive. This process continues as per sequence.

In all instances, monitoring will be undertaken so as to immediately highlight any divergence from what is intended and to intervene in time to as to cause no detriment.

5.4 Piling

As mentioned above the verification of the location of the piles will be explicit.Site Grids and Primary Controls that are fundamental to the setting out of the pile locations will be undertaken. Site drawings and measurements will be retaken and verified by both Contractor and Main Contractor. The Consultant team of Engineers will be invited to site to review control mechanism prior to undertaking works and will be welcome to visit at any point during the works.

There will be direct contact information between both the Contractor and the Consultant teams and the Employers Representative.

The soil conditions in the view of the writer and on behalf of the contractor are those typically of what would be expected within the geographical area. Although there is considered experience in piling in such ground conditions through Claygate and hence to London Clays there is always a specific and considered approach as to how such methods are to be undertaken.

As the method of construction proposed is to be a top down construction, that is to build the Ground Floor first so as to lock the prop the top of the piles and the underpins first, there will be a requirement to install temporary piles to support the Ground Floor. Such piles are internal and away from the perimeter of the site and hence away from the party walls. It is intended to verify known quanta and characteristics of the soil performance whilst piling by undertaking the internal piles first. This will indicate the integrity of the shaft and viability of whether segmental casing is to be used. The findings of the verification of the soil strata and the technique commonly and successfully implemented will be witnessed by the Consultant teams to verify the position of the project team's intention. In short, known knowledge of the soil strata can be verified as a method. T

he principle behind the piling is that it will either be a cased open bore solution with the toe of the pile embedded into the impermeable clay layer or a Segmental Flight Auger solution. Both solutions undertaken with care will maintain the shaft of the pile and prevent mixing and loss of structure to the shaft causing disturbance.

Piling will be carried out using a Klemm 709 (or similar) piling rig using 450mm diameter segmented flight augers. The following describes the cased open bore technique:

- Set out the position of the piles and probe the existing surface locally, such probing not to undermine the existing foundations and to provide access for the shaft only. Should there be obstructions to a depth whose removal would unduly undermine or compromise the existing foundations, a temporary works method would be employed to correct such.

- A 3t excavator will be used to probe at each pile position to a depth of 1m. Once each section has been probed it shall then be backfilled to existing ground level.
- A piling mat will not generally be necessary. In areas of soft landscaping, a piling matt of minimum 300mm thick Type 2 material will be placed and compacted in layers with a roller-80.
- Set out pile positions and mark with steel pins.

  Track rig into pile positions with mast in rest position and position onto the Maybey Mats to allow for the load to be spread if required to spread loading.

- Manoeuvre rig as close to required pile position as possible. Shut off/lock track controls.
- Operate hydraulic control and pivot drill mast into vertical mode. Once in vertical position raise/lower drill mast so that mast foot/drill guide is firmly seated on ground.
- Hydraulically adjust rig with rams, or pack to underside of track gear to ensure rig and mast are vertical.
- Check mast foot for adequate bearing on ground.
- Raise rotation gearbox and motors to top of mast (full travel).
- Offer drill rod (450mm diameter and cutting head), in 1.0 metre sections into guide.
- Lower rotation unit and engage drive flange/spigot into lead auger flight. Insert fail-safe locking pins between drive flange/auger flight. Check mast/augers etc., for verticality. When connecting sectional augers using manual handling techniques the piling rig operators will remove their hands from the control levers The inter-Locking guard will be opened, a section of flight will be placed by an operative that operative will then stand clear of the piling rig and close the Inter-Locking Guard Only then will the rig operator place their hand back on the control levers and resume operating the piling rig.

This sequence will be followed each time a section is added or removed. At no point will the piling rig operate with the cage open.

- Rotate auger unit and flights clockwise at same time as feeding rotation unit downwards and drill auger into soils.

- Pull excavated spoil to one side using site excavator.
- Disconnect drive flange from auger and insert further 1.0 metre sections of augers using above method, i.e. raising rotation units, inserting drill rods, drilling etc., until the required depth is attained.
- Once depth is attained (as dictated by the engineers design), retrieve augers, using spanner and lock into position against guide, lowering rotation unit and lifting augers, as required.
- Remove flights one by one and clean for use at next pile position.
- Check depth of pile and record.
- The reinforcement cage will be prefabricated by experienced steelfixers in accordance with the engineers design. This reinforcement will now be installed in to the open bore. The vertical lengths of cage will be spliced together as the cage is lowered.
- Subsequently fill the pile bore with concrete. This may be delivered directly from the concrete lorry or by using concrete pump and line. Top pile up with concrete and check top level.
- Site Engineer shall fill out City Basements Quality Control Form for each bored pile and record.

5.5 Underslab Drainage

With reference to drawing 612/01 of Greg-Ling, it is noted that there is to be a zone of underslab drainage to allow free movement of groundwater below the proposed basement. It is intended that this is constructed at the point in time prior to the construction of the basement slab following the excavation of the mass dig area. It will comprise of perforated piping wrapped in terraim to exclude fines transport and for the resulting trench to be filled with a no fines gravel.

Having wrapped the piping system construction of the elements will continue. This construction is subject to inspection by building control and the consultant team prior to the covering up of the works.

5.6 Formation of Ground Floor Slab, Excavation and Basement Slab

It has been described that a top down approach will be taken to the construction of the Basement at 8 Pilgrims Lane. This primarily will provide an advantage to the overall method of construction and certainty to the overall intention. It provides a number of advantages. Firstly, it will provide the permanent lateral support to the piles and the underpins thus propping the party walls as intended for in the permanent case at an early stage of the construction process. This will manage and mitigate any potential further movements to those interfaces. It eliminates the requirement for further temporary works and further analysis of methods of temporary works by implementing that intended permanent support system early. Secondly, and as important, is that it provides a platform for use as a storage area to the site. This will minimise the required area external to the footprint of the site for use as storage of materials required for the construction of the basement area.

Goods maybe delivered through the access lane under the flying freehold of No. 10 and those materials offloaded and stored on the slab when constructed. It is therefore, intended that this area of the slab to the rear garden be built early and as soon as practical. It provides that the remainder of the excavation is under the constructed Ground Floor Slab and thus provides that there is a minimisation of the visual impacts of the works for the basement excavation. It is intended therefore, that the excavated material is dug and transported through the existing house where a proposed construction is to be undertaken and a conveyor system is to be used to transport the material for removal. The excavation will entail a smaller 3 Tonne excavator in the dig area which will feed the material to the conveyor systems.

This greatly reduces the number and impact of proposed vehicle movements. When formation is reached to the basement, reinforcement and sundry items used in the construction of the basement slab will have been stored on the Ground Floor slab and fed to the lower area and used in construction. Typically it will be a similar notional arrangement in the construction of the basement perimeter walls, thus completing the basement structure.

It is important to note that when excavating, that the proposed secant piled wall has been constructed in accordance with the specification and performance required. One particular requirement is that it should be built as a closed cofferdam with no leaking points where

there would be a potential of allowing ingress of water or fines from the surrounding ground. Therefore, there is importance that the cofferdam remains sealed. The site will be bound to carry out an inspection regime as the excavations progress. If there at any point is a leak or breach in the cofferdam that the excavation is halted and that a system of repair is undertaken, most likely to be as an injection grouting. Pumps are to be readily available and pump out the water enclosed within the closed cofferdam and there shall be a system of backup pumps also.

No works associated with the development shall take place until the proposed method of grouting associated with the basement works have been submitted to and approved in writing by the Council in conjunction with the advice of the appointed independent engineering assessors. The works shall be carried out in accordance with the approved method statement.

Access to the works at this point is by a Haki staircase to the east elevation of the dig and will need to be moved and resited as the excavation progresses. This position will provide for workers to access the basement area to avail of mess facilities and will not need for them to pass in close proximity to heavy plant.

When the base slabs are poured, vertical elements in the form of columns and walls willbe poured as soon as possible after the pouring of the floor slab. It is worthy to note that the concrete contains an admixture by Pudlo that is hydrophobic and resists water penetration and renders the concrete waterproof.

Safety is a clear and ultimate aim and while escape routes, two as a minimum is available, good house keeping will be the foremost to withstand accidents. There is an element of working at heights and while it cannot be eliminated, measures and controls are introduced to certainly minimise it to a great extent.

5.7 Ground Characteristics with Regards to Total Petroleum Hydrocarbons

In accordance with the findings of the Ground investigation Report, findings of an elevated level of Total Petroleum Hydrocarbons (TPH) were noted. This will require a further investigation as the work proceeds and will require an individual work plan.

The further investigations will require the extent to be determined and for the samples to be tested and allocated as to the extent and the nature of the potential contaminants that are found. This will be required so as to assess the removal technique and extent and for it to be removed at source. Precautions will be implemented for the safety of the workforce and those in the vicinity and it will be necessary that all risks are identified and the correct PPE is worn.

6. HEALTH AND SAFETY

6.1 Information and Training:

- All *City Basement's* operatives are registered CPCS or CSCS card holders.
- Method statements, Risk assessments, Manual handling assessments, Hand Arm Vibration assessments, Noise assessments and COSHH assessments, will be communicated by the site manager/foreman to all *City Basement's* operatives prior to the work commencing.
- Directly related to this concern is the location of the LUL tunnel directly underneath the location of the site and that location is to be definitively located prior to works. Toolbox talks are to be undertaken with regards to the location of the tunnel and the associated risks and hazards of that tunnel.
- Signatures of acknowledgement from all operatives involved in the process will be gained at the rear of the method statement as proof of communication.
- Tool Box talks will be held weekly on the safe system of works to be employed to ensure that all tasks are carried out in a safe manner.
- Operatives will also have been issued with a *City Basements*, Health and Safety Handbook covering many of the operations which they may become involved with.
- Monthly Safety Alerts are also distributed to all operatives informing them of current safety problems/occurrences.
- Monthly safety meetings with Contracts Managers and Site Managers and Operatives form which the minutes and any information is passed to the workforce.
- External H&S consultants will provide "toolbox talks" and training as required.
- All Sub Contractors shall have adequately trained operatives to carry out works onsite with minimum requirement of CSCS Card required.
- All Sub Contractors shall issue a fully detailed Method statement & Risk Assessments prior to commencement of works onsite.

6.2 Regulations & Related Guidelines:

- Health and Safety at Work etc. Act 1974
- Personal Protective Equipment Regulations 2002

- Provision and Use of Work Equipment Regulations 1998
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
- Construction (Design and Management) Regulations 2007
- Control of Substances Hazardous to Health 2002.
- Controlling of Noise at Work Regulations 2005.
- Controlling of Vibration at Work Regulations 2005.
- Confined Spaces Regulations 1997

6.3 Plant & Equipment

- Klemm 709 and 702 piling rigs
- 13t excavator
- 1.5t Excavator
- 3t dumper.
- 1T dumper
- Static concrete pump.
- Fan extraction equipment.
- Gas monitor + Oxy saver set
- CAT
- Water hose.

6.4 PPE:

All site operatives will wear the following PPE whilst carrying out works on site:

- Safety Helmet - EN 397 Type 1 Class C
- Goggles - EN 166 Class 1. B
- Safety Boots - EN 345
- High Visibility vest - EN 471 Class 27
- Saftey Harness with static line (MEWP)
- Gloves - EN 388 Waterproof Coated.
- Ear Defenders / Push in Plugs (When Req) - Minimum rating of SNR 37.

- Dust Masks - EN 149:2001 FFP2
- Safety Glasses - EN 166 Class 1.F

6.5 Equipment and Personnel Certification:

All thorough examination test certificates will be provided and made available for inspection for all plant used on the project.

All lifting equipment and gear will be provided with current in date test examination certificates for all equipment used to carry out lifting operations.

All equipment which is provided to be used as work equipment will be inspected on a weekly basis by the City Basements Ltd site management, copies of this weekly inspection record will be provided to the Client.

All plant operators will hold valid CSCS or CPCS competency cards, which will be made available for inspection by the Client.

The following certification will be provided on site, or can be gained from City Basements Head Office on request:

- Portable Abrasive Wheels Disc Cutter Competency Certificates.
- HSE - First Aid Provider Certificate.
- CSCS, CPCS Cards.

6.6 Storage of Tools and Equipment:

City Basements will supply its own 10ft secure lock-up and storage facilities onsite.

All hand tools and equipment will be placed into the secure lock-up at the end of each working day.

At the end of each working day, all plant machinery will be parked in a secure location and protected against theft, vandalism and secured to stop unauthorised use.

Fuels used for powered plant will be stored in or on purpose built bunded tanks with lockable dispensers. (Note any spills or leakage caused during the works will be cleared up

immediately) A spill kit which is capable of collecting the spilled amounts shall be provided and located in the immediate area of the fuel bund.

All fuels are to be stored a minimum of 10m from any trees or water drain, they should be placed on bunds to collect any spillages, each fuel storage area must have a spill kit provided which is to remain in position with the fuels.

6.7 Site Specific Safety Requirements:

- Appropriate PPE must be worn on site at all times.
- A minimum of 1 trained first-aid person is to be present on site at any one time.
- Only certified competent/trained operatives to operate machinery/tools
- Site induction is to be provided for all operatives and visitors to the site. This to include site rules, details of risks present, details of hazards present, emergency and evacuation procedures.
- An HSE approved first aid kit is to be kept in the PC office (unlocked) at all times. The emergency phone numbers are to be available and displayed in a prominent position on the walls of the office.
- All heavy machinery and lifting equipment/gear is to have been inspected and certified safe prior to use. Additional weekly checks are required to be made by a competent person, and record of the inspection held on file for audit purposes.
- All operatives and sub-contractors are to be inducted in the City Basements operating procedures and site rules.
- Entry past this point will be monitored by City Basements Ltd Site Management to restrict unauthorised personnel.

6.8Site Fire, Emergency and Evacuation Arrangements:

City Basements site management team as PC shall be responsible for completing the Fire, Emergency and Evacuation Plan and for communicating this to the entire site workforce, e.g. through site inductions and emergency procedure briefings. These arrangements are to be displayed in a prominent position on site.

6.9 Hot Working:

Portable Abrasive Wheel disc cutters, Burning Gear and Welding shall be used only where necessary; prior to the use of this type of equipment, a Hot Works Permit is to be sought from the site management.

Any other type of hot works which may create heat and or sparks is to be notified immediately to the site management.

7 WASTE MATERIAL REDUCTION AND RECYCLING

City Basements Ltd will endeavour to recycle as much waste material as is possible. All other steel/metal will be disposed to a licensed waste recycling plant. Fires on site will not be permitted under any circumstances. All waste removals will be covered by valid waste transfer notes.

Waste materials are to be disposed of via the certified Waste Carrier to an approved disposal site.

City Basements Ltd will record the details and location of the Waste Disposal site.

Waste transfer tickets are to be provided and recorded by site management when any movement of waste has occurred.

7.1 Environmental Concerns:

All operations which create dust will be suppressed using water hoses. Machines which are creating dust are to be fitted with dust suppression measures; the creation of dust is to be monitored and works to stop if dust becomes excessive.

Any run off from the dust suppression measures using water is to be monitored at all times, no water containing contaminants or slurry is not to be allowed to enter the drains or any water courses. If during the process it is believed that contamination may occur, the water course or drain is to be sealed off to prevent the run off entering. This must happen prior to the run off entering the system.

Under no circumstances should the runoff from the dust suppression enter into either of these environmentally susceptible areas.

All fuels will be stored in bunds which will be capable of accepting the full contents of the container which is placed upon it. These bunds are to be protected against filling up with rain water and overflowing.

The suppression of dust is in the interests of both the operatives and the local inhabitants, and must have due care and attention paid to this process.

Any spillages of oils, chemicals or fuels must be reported to the site management, and cleaned up immediately using the appropriate spill kits.

Noise will be routinely monitored and if required measured readings will be taken to ensure compliance with current regulations.

Noise and vibration will be assessed regularly to ensure disturbance is kept to a minimum at all times. Best practical means as defined in the Control of Pollution Act shall be applied at all times.

A Noise and Vibration plan will be established for this project, and will be adhered to for the course of the project works. Where trigger levels are exceeded an investigation will be conducted into the methods of work used and applicable mitigation measures that can be applied. The Local Authority consent shall also be referenced and any specific requirements reviewed and implemented as applicable.

All plant used on site will comply with the noise limits quoted in the directive 2000/14/EC/United Kingdom Statutory Instruments (S) 2001/1701. Adopt recommendation of BS 5228 (Annex B of Part 1 and sections 7.3 and 9.2 of Part 4).As far as reasonably practicable, plant or equipment liable to create noise and /or vibration will be located away from sensitive receptors. Quiet periods will be established during which only selective works will be undertaken that are noise sensitive. Barriers will be used to reduce noise levels, as applicable, at all times. Plant and equipment will be maintained in good working order, including noise control measures. Electrically powered plant, equipment's and tools will be preferred over diesel of petrol driven. When reasonably practicable, effective exhaust silencers will be fitted and maintained in good working order. Machines not in use will be shut down or throttled down to a minimum. Notifications will be given to receptors in advance of works with high levels of noise and / or vibration giving details of duration and likely impacts. Toolbox talks will be carried out to make staff aware of the sensitivity of the site location.

Dust deposition will be measured using a Dust Disc which is a case (similar to a CD case) positioned at the required receiver and which contains a "sticky pad" where settled dust will accumulate for a period of one week. The case is collected, sent to the laboratory for

assessment and replaced. The Dust Disc samples are measured for settlement AAC% (Absolute Area Coverage) and EAC% (Effective Area Coverage). Although susceptibility to dust nuisance is not easily measured, value guidelines have been suggested by Beaman and Kingsbury (1981). Dust monitoring will start at various locations on the site boundary before the demolition starts to obtain baseline dust settlement rates.

For noise, a Class 1 sound level meter (SLM) will be used in compliance to relevant British Standards. The model which will be used will be the RION NL31, fitted with windshield, compact flash card reader, calibrator and tripod wherever is required.

The vibration monitoring strategy consists of a combination of continuous and attended short-term vibration monitoring undertaken throughout the main construction phase. Guidance given in BS 5228-2 2009 will be used to assess the likely impact of vibration.

7.2 Waste Management

All personnel working on-site for, or on behalf of City Basements shall be competent (on the basis of training, skills and experience) in relation to the responsibilities outlined in this document, including the use of any plant and equipment used on site.

Compliance with environmental legislation in relation to waste management, including compliance with the duty of care and the requirements of the environmental protection act 1990 and related legislation.

1. Ensure so far as reasonably practicable a clean tidy site at all times, in terms of waste.
2. Managing the availability, suitability and condition of waste containers around City Basements area of work.
3. Arrangements for the onward transfer of waste for treatment, recycling or disposal.
4. Maintenance of accurate records (waste transfer notes, hazardous waste consignment notes, copies of registered waste carriers certificates, waste management licences and exemption details).

5. Monitoring and monthly reporting accurate information on the quantities of waste recycled, reused and land-filled for each material type to assess City Basements performance against agreed waste recycling targets.

City Basements are responsible for:

1. Control and management of their waste
2. Correctly segregating their waste and placing it into their allocated containers.
3. Correctly segregating their waste and placing it into the roll on–roll off (or other) skips used for bulk disposal of construction arising's.
4. Timely removal of waste and construction arising's from the workface in order that the work place is kept clean and tidy so far as reasonably practicable without effect to neighboring properties.
5. Ensuring all waste is stored in areas away from surface water drains.
6. Ensuring that stockpiles of arising's in roll on roll off-skips are sufficiently damped down to prevent excess dust being liberated.
7. All metals shall be separated into ferrous/non-ferrous types before being removed from site by means of skips provided for the purpose by City Basements.
8. Wood and concrete shall similarly be separated for recycling/ re-use by others following removal from site by means of skips provided for the purpose by City Basements.