

John F Hunt

Draft Demolition Environmental Management Plan

MANAGING THE SITE ENVIRONMENT

at

Station Hill Reading

11/01/2019

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1) Introduction

The purpose of this EMP is to describe and detail the measures proposed in order to minimise and mitigate the environmental impact of the demolition works. Specifically, the EMP sets out:

- To ensure that construction industry best practice standards are adopted throughout the entire demolition process
- To ensure that the impact of the project on neighbours and the surrounding area will be suitably controlled.
- To confirm that where impacts upon neighbours and stakeholders cannot be avoided, the EMP demonstrates the commitment of the contractor to undertake the demolition activities in such a way as to avoid or minimise any environmental effects and provides a mechanism for the implementation of recommended mitigation and monitoring measures throughout demolition operations.

Legal Compliance

Considerable environmental legislation applies to the works to be undertaken. Prior to the demolition works, all relevant legislation, including requirements for licenses, permits and/or consents, shall be identified by the Contractor, as appointed Principal Contractor, will provide details of how compliance is to be achieved as noted within this EMP.

Scope of Works

- Hoarding to be in the Clients designated colour and lit supplied with lockable gates at site entrances.
- Establishment of Site Security located at the Site Entrances
- Establishment of all site management and welfare facilities for the maximum number of persons anticipated to be on site at any one time
- Establishment of all contractual HSEQA documentation, notifications and meeting requirements
- Carrying out of all appropriate surveys (e.g. Asbestos)
- The identification, isolation and disconnection of all site M&E and fire detection and protection services in liaison with relevant utilities in conjunction with the Client
- Establishment of all required site temporary electrical power and lighting and water requirements using company approved M&E services subcontractors
- Establishment of all site Fire, First Aid and Site Evacuation Procedures
- Design, supply, install and maintain all temporary works to maintain the stability of the existing structure(s) and surrounding structures during the demolition phase
- Establishment of all site transport and pedestrian routes
- Establishment of site storage areas
- The removal of all hazardous classified wastes from site for disposal at a licensed waste carrier and disposal landfill site

- Pre- Demolition Environmental clean of building removing all rodent infestation, drug related debris and other hazardous or biological risks wastes
- Working into the building from the top down, bay by bay will maintain stability throughout the works.
- This systematic process of demolition and clearing will continue until the building has been demolished.
- This process will continue until all structures have been safely reduced to the ground floor slab level.
- Sheet piling and underpinning of retained walls
- Basement slab and foundation removal
- Final inspection of the site and removal of all plant, equipment and tools
- The preparation and submission of the Demolition Project Completion Report for the site and submission to Client for inclusion within his site safety file

Location

Station Hill
Reading
RG1

Contract Programme

The contract programme for the works is

TBC

Site Times

The site operating times will be

0800 to 1800 Monday to Friday
0800 to 1300 Saturdays (If required)

There will be no working on site on Sundays and Bank Holidays

Any requirements to work outside these times will be by prior agreement with the Local Authority.

A Section 61 application will be submitted to the Local Authority prior to works beginning on site.

Contact Details

TBC

The Client

The Client has overall responsibility for appointing the Client's Representative, Employer's Agent, Community Liaison Officer, Terrestrial RV reception surveyor and the Demolition Contractor.

Demolition Contractor acting as Principal Contractor

(Insert Contractor), will be the Principal Contractor, responsible for the day to day Management of Health and Safety and Environmental and Quality performance during the demolition works. The Contractor will be responsible for implementing the EMP, including the development of detailed proposals in connection therewith, monitoring the performance of sub-contractors and maintaining records to demonstrate the compliance with and implementation of the EMP.

Employer's Agent

The Employer's Agent will carry out regular reviews under the terms of the Demolition Contract and be responsible for directing The Contractor as Principal Contractor with regard to the delivery of the EMP in accordance therewith.

All of the Contractors Staff and Subcontractors:

All of the Contractors and subcontractors will have the responsibility to ensure that they:

- Work to agreed plans, methods and procedures to minimise environmental impacts;
- Understand the importance of avoiding pollution on-site, including noise and dust, and how to respond in the event of an incident to avoid or limit environmental impact;
- Report all incidents immediately to their line manager;
- Monitor the work place for potential environmental risks and alert their line manager if any are observed; and co-operate as required during site inspections and audit.

2) Managing the Environment

In undertaking the work the Contractor will aim to maximise the requirements of sustainable development within the site's new construction. This will be achieved by meeting the basis of sustainability which is "The meeting of the needs of the present without compromising the ability of future generations to meet their needs". It's the efficient use of resources and energy today without compromising future primary resources for others.

The Contractor will contribute to this by:

- Returning to the new construction of the site, and the construction industry in general by recovery for reuse or recycling the highest amount of materials from what was originally used on site. So, maximising the use of secondary materials and minimising the use of primary resources. Therefore, achieving an increase in resource efficiency so reducing redevelopment costs for the new construction and the projects overall environmental impact
- The monitoring and reduction of energy and water use on site
- The monitoring and reduction of emissions from site and from all those vehicles coming and going from the site
- Assessing and continuously improving The Contractor's environmental performance on site

The Contractor will undertake the environmental management of the site in accordance with appropriate Environmental Management Policies, developed site work package Risk Assessments and Method statements and this Environmental Management Plan all of which have been developed to ensure compliance to ISO 14001. Where this is the commitment to lessen the site activities adverse impacts on the environment and maximise the beneficial impacts all by employing the best available techniques.

The principles of the Environmental Management System being to: -

- Identifying all the environmental aspects and impacts
- Evaluating the significance of each impact
- Setting of objectives and targets for the improvement of those impacts
- Introducing controls and monitoring of those impacts
- Maintaining adequate environmental records and auditing those systems to measure environmental performance
- Environmental Training for persons implementing and managing the requirements
- Provision of site environmental inductions for all site operatives and subcontractors

The management of this project shall also be compliant with the relevant safety requirements as detailed within the Contractors Health and Safety Policy and Asbestos Management Policy and those listed within this document.

The submission of this Environmental Management Plan is to ensure compliance with the Local Authorities Considerate Contractors scheme whose aim is to ensure the demolition work on site is carried out with due regard to those living and working adjacent to the project, and to those pedestrians and vehicle users passing the site.

The site will be registered with the Considerate Constructor's Scheme and subject to their auditing schedule.

All site management, operatives and subcontractors will be advised of the requirements of this Environmental Management plan as part of their site induction provided by the Site

Project Manager, and will be required to achieve compliance with its aims and requirements

The Contractor will also maintain regular liaison all relevant authorities and environmental consultative resources available to ensure this Environmental Management Plan remains effective and compliant

Aspects

Following a site assessment, the following provides details of the Aspects identified from the Station Hill Reading Demolition Project;

- Delivery and collection of plant and equipment to site.
- Plant operations and lorry movements to achieve the scope of works.
- The storage and use on site of diesel, fuels, oils etc.
- The storage of oxygen and L.P.G.
- Site Security and task lighting.
- The removal and disposal of asbestos containing materials.
- The removal and disposal by recycling of all ferrous and non-ferrous materials, plant and equipment.
- Removal of soft strip materials and disposal off site.
- Site traffic movements and off-site transport movements.
- Hazardous and non-Hazardous waste collection and disposal.

Adverse Impacts

The following provides details of the Adverse Impacts identified from the Eastbourne Terrace Demolition Project;

- Demolition process noise, dust and vibration.
- Potential for possible asbestos fibre release from Notifiable and non-notifiable asbestos containing materials being removed.
- Potential for mineral insulation fibre release.
- Adjacent drainage and waterway pollution.
- Site energy and water usage.
- Significant commercial vehicle movements to and from site.
- Diesel fuel use.
- Diesel fuel and various oils usage and spillage.
- Site plant and commercial vehicle exhaust fumes (carbon emissions).
- Site lighting intrusion from the site demolition works.
- Effects of the demolition work on site neighbours and those passing the site.
- Rodent and pest infestation and migration.
- Community concerns.
- Wildlife and habitat disturbance.

Beneficial Impacts

The following provides details of the Beneficial Impacts identified from the Project:

The recovery for reuse or recycling of such materials as: -

- All non-ferrous scrap materials
- Structural steelwork
- All high and medium voltage cabling

- All stripped out mechanical and electrical services and associated fixtures and fittings having a potential reuse or recycling value
- All soft strip fixtures and fittings having a reuse value
- Recoverable glass
- Carpet tiles for local authority properties
- Carpeting for covering scaffold access platforms
- Salvaging of artefacts for reuse

In the recovery for reuse or recycling of materials the Contractor will use local hauliers where possible to reduce on miles travelled for collections. A list of local hauliers can be found in Section 5.

Sensitive Receptors

Table to be inserted

Adjacent / Adjoining properties to Merchant St, Friars Walk, Gerrard St and Station Hill.

Friars walk high St

Reading Station

Environmental Aspect and Impacts – Prioritisation Matrix

Likelihood of occurrence	Certain Constantly in normal conditions	4				
	Likely Intermittent in normal conditions e.g. monthly or weekly	3				
	Occasional Possibly may occur e.g. annually. May be due to staff or equipment failure	2				
	Unlikely To occur, no evidence of occurring, extreme situations only	1				
			A	B	C	D
Severity of consequences	Scale & Impact		Minimal reversible. Environmental impact Reversible in 1 month	Minor pollution. Short-term localised impact reversible in 1 year.	Moderate pollution. Short term implications not reversible in 1 year, complaints	Major pollution. Long-term global impacts Irreversible impacts health/ toxic etc.
	Legal/ Policy/ Other			Policy/ performance standard aspiration	Potential breach of regulations	Actual breach of regulations
	Business Issues Litigation/ clean-up costs		Potential for minimal loss (£s)	Potential for minor loss (£'s)	Potential for moderate loss (£'s)	Potential for major loss (£'s)
	Reputation			Potential for internal complaint/ non conformance	Potential for external complaint	Because of breach actual serious complaint/ PR issue etc.

Having assigned a priority score for each environmental aspect and impact the following table suggests timeframes for managing different priority environmental aspects and impacts (actual timeframes should be agreed with process owners).

	Risk	Action	Timeframe
	High	Short Term	Within 2 months
	Medium	Medium Term	Within 6 months
	Low	Long Term	1 year +

ACTIVITY	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT	SIGNIFICANCE			RISK RATING	CURRENT CONTROLS	RISK RATING
			Policy	Legal	Other			
Office Cleaning by contractors	Use of chemicals and cleaning agents; Resource use - water	Water Pollution Resource Depletion Hazardous Waste	✓	✓	✓	A3	Cleaning contract Visual Control Contractors Procedure / Inductions	A3
Buildings maintenance work by contractors	Controlled & Hazardous waste disposal & recycle	Controlled Waste	✓	✓	✓	B3	Cleaning contract Visual Control Contractors Procedure / Inductions	A3
Buildings Heating	CO ₂ emissions Due to inefficient insulation, heating systems & layout	Resource Depletion Air Pollution	✓	✓	✓	A4	Maintenance checks Awareness raising training and materials Visual Monitoring / O&Ts Heating thermostat	A3
Buildings Lighting	CO ₂ emissions Electricity - Bulbs; fluorescent tubes; energy efficient bulbs	Resource Depletion	✓	✓	✓	B3	Light Censors Maintenance checks Awareness raising training and materials Visual Monitoring	A3
Buildings Water	Resource Use - Water	Resource Depletion	✓		✓	A4	Maintenance checks Awareness raising training and materials Visual Monitoring / O&Ts	A3
Buildings Chemical Use	Washing up liquid; soaps; air fresheners; screen cleaners; white board cleaners	Water Pollution Resource Depletion Hazardous Waste	✓	✓	✓	B3	Awareness raising	A2
Paper Waste Management	Paper reused, and recycled Small amount to Landfill	Resource Depletion Controlled Waste RD(+ve); CW	✓	✓	✓	B3	General Training Awareness Raising Monitoring records Waste Stream Schedule / Re-Cycle	A1
Office Waste Management	Glass, Plastic Composting Cans Cardboard	Resource Depletion Controlled Waste RD(+ve); CW	✓	✓	✓	C2	General Training Awareness Raising Monitoring records Waste Stream Schedule / Re-Cycle	B1
Generation of waste	General Refuse to Landfill	Controlled Waste	✓	✓	✓	B4	Waste Management Procedure Awareness Raising	A3
Use of electrical and electronic equipment	Resource Use Material Use Electricity Consumption Computers, Display Screens, Printers, Heaters, Faxes, Kitchen Appliances	Resource Depletion Statutory Nuisance	✓	✓	✓	B4	General Training Awareness Raising for energy usage Monitoring records	B3
Disposal of electrical and electronic equipment	Solid and Hazardous materials Packing	Hazardous Waste	✓	✓	✓	B2	Recycle Re-use WEEE Regulations	B2
General training - induction process. The need to include environmental considerations	Influence indirectly upon environmental performance via the behaviour of staff	ALL	✓		✓	B2	Training procedures	A1

ACTIVITY	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT	SIGNIFICANCE			RISK RATING	CURRENT CONTROLS	RISK RATING
			Policy	Legal	Other			
Storage of chemicals	Hazardous materials and health and safety issue. Breach of containment and spills could cause lead to pollution of land and local watercourses and groundwater.	Hazardous Waste Land Contamination Water Pollution	✓	✓	✓	C3	H&S procedures Use of Chemicals Procedure COSHH Assessments Workplace Instructions	B2
Travel for work purposes	Use of Public Transport Trains & Cycle/Walk. CO ₂	Resource Depletion Air Pollution Statutory Nuisance RD(+ve); AP; SN; RD	✓		✓	B4	T&S rates. General awareness raising materials/ greening newsletter and bulletins etc.	B3
Arrangement of Meetings and Training	Use of Phone Conferencing Unnecessary travel for meetings & training	Resource Depletion Air Pollution Statutory Nuisance	✓		✓	A3	General awareness raising materials/ greening newsletter and bulletins etc.	A2
Operating site plant	Noise emissions from moving plant. CO ₂ emissions. Dust emissions from moving plant across site.	Resource Depletion Air Pollution Statutory Nuisance	✓	✓	✓	C4	Dust Suppression with Water Speed Restriction Plant engines are turned off when not required and not ticking over.	C2
Vehicles, engines, Machines, boilers & compressors	Depletion of resources and emission of pollutants	Resource Depletion Air Pollution Statutory Nuisance	✓	✓	✓	B3	Maintenance routines	B2
Water use Vehicle and plant wash waters	Water use Potential pollution to local water courses and groundwater	Resource Depletion Water Pollution	✓	✓	✓	C3	Consent to Discharge Maintenance checks Greening awareness raising training and materials Monitoring records Water management procedure	C1
Site drainage & Septic tanks	Potential pollution to local water courses	Water Pollution	✓	✓	✓	C2	3 Way Interceptor including maintenance checks Consent to Discharge.	C1
Fuel and oil storage	Spills and accidents during fuelling and refuelling could lead to pollution of land and local watercourses and groundwater	Water Pollution Land Contamination	✓	✓	✓	C3	Including maintenance checks Workplace Instructions Use of Chemicals Procedure	C1
Chemicals storage	Breach of containment and spills could cause lead to pollution of land and local watercourses and groundwater	Water Pollution Land Contamination	✓	✓	✓	C4	including maintenance checks Workplace Instructions Use of Chemicals Procedure	C1
Storage and Disposal of Hazardous Waste	Electrical goods storage & disposal. Hazardous material storage & disposal.	Hazardous Waste Water Pollution Land Contamination	✓	✓	✓	C4	Recycle & Re-use EA exemption registrations Disposal using Specialist Waste Contractors	C1
Removal, Handling & Disposal of Notifiable & Non-Notifiable Asbestos Containing Material	Release of Fibres into air and water.	Hazardous Waste Air & Water Pollution	✓	✓	✓	B1	Asbestos removal area sealed Area Smoke tested prior to works Fibre Monitoring Competent operatives & Supervision Waste Double bagged and Labelled	B1

ACTIVITY	ENVIRONMENTAL ASPECT	ENVIRONMENTAL IMPACT	SIGNIFICANCE			RISK RATING	CURRENT CONTROLS	RISK RATING
			Policy	Legal	Other			
							Licensed Carriers & Transfer Stations	
Removal, Handling & Disposal of MMMF	Release of Fibres into air and water	Hazardous Waste Air & Water Pollution	✓	✓	✓	B1	Wetting Fibre before removal Designating Contaminated Areas Fibre Materials wrapped when not in use Exhaust ventilation Licensed Carriers & Transfer Stations	B1
Oxy-Propane Cutting Lead Coated & Galvanised Metal Work	Emission of Hazardous Fumes	Statutory Nuisance Air Pollution	✓	✓	✓	A2	Toolbox Talk Competent operatives & Supervision Work Area Ventilation Risk Assessments Mechanical Techniques used when Possible	B1
Demolition of Cooling Towers / Large Central Air Conditioning Systems	Release of Legionella Dust Emissions Noise	Statutory Nuisance Air & Water Pollution	✓	✓	✓	B2	Risk Assessments Toolbox Talk Chlorine / Chlorine Dioxide Copper-Silver Ionisation Thermal Eradication	B1
Erecting / Dismantling Scaffolding	Noise from handling materials	Statutory Nuisance	✓	✓	✓	A3	Minimise Manual Handling Convey materials by mechanical means Pre-Plan work to consider adjacent areas Risk Assessments	A2
Conventional Soft Strip & Demolition Works	Dust Emissions Noise Emissions Vibration	Statutory Nuisance Air & Water Pollution Resource Depletion Controlled Waste Hazardous Waste Land Contamination	✓	✓	✓	B3	Dust Suppression with Water D/N/V Monitoring Screen Demolition Area Risk Assessments Impact Mats Work at Designated Times	B2

3) Managing the Site Environmental Impacts

The following provides details how the identified site Impacts will be managed on site by the Contractor's Management Team.

All employed sub-contractors for this project will be advised of the contents of this Environmental Management Plan and will be required to ensure compliance with its contents, and sign up to the requirements of the Environmental Management policy.

Site Parking

There will be no parking on site, the use of public transport will be encouraged to all site operatives and project management.

There will be special arrangements for the transportation of the crane to be used on site and if required, any additional large excavators. This will be planned following discussions with the Police and Local Authority.

- All staff and visitors will be encouraged to use public transport.
- Contractors will be encouraged to use public transport or use crew buses.
- There will be no waiting up areas for site vehicles in the road around the site.
- Whilst there is a limited amount of space within the site boundary, it is anticipated that vehicles coming to site will be controlled by a relevant logistics manager and will have specific time slots booked that they must ensure they keep. It will then be down to the delivery/waste away driver and company to ensure they arrive at site at the specific time.
- Most vehicles will be fitted with an in-cab communication system which will aid the control of vehicle movements to and from site.

Getting to Site

All site operatives, subcontractors and visitors will be advised to attend the site entrance to the site. Site visitors will be encouraged to use public transport to travel to site and no parking will be available on site.

Security on Site

To secure the site, security cabins and entry control system controlling access will be established and operated at all times

- Only authorised persons will be allowed on site.
- A Site Risk Assessment will be produced which will detail how security will be managed on the site.
- Any person identifying unauthorised personnel on-site should contact the Site Manager who will take appropriate action and ensure the unauthorised person leaves the site safely.
- All entry and exit points will be manned during operational hours, and any access/egress point not in use will remain locked.
- Provisions of alarms will follow HSE requirements and comply with BS EN 50131 1-3 as appropriate

Gates and hoarding

Gates in the fencing or hoarding will, as far as is practicable, be positioned and constructed to minimise vehicle noise impacting on noise sensitive buildings, either from the worksite direct or from plant entering and leaving the site.

Gates will be constructed to allow a minimum clear opening of 4.5m and should swing open into the site. Details of gates should be agreed with Local Authorities Network Management and/or Highways Licensing teams.

All gates will be controlled to give the minimum amount of time open for passage of vehicles to minimise plant and vehicle noise impacts on the locality.

Access to the site will be situated to ensure minimum disturbance to occupants of noise or dust sensitive premises e.g. schools, care homes, hospitals, residences etc., from vehicles entering or leaving the site.

The hoarding will be set at 2.4m high and will be installed so that it does not reduce the effective width of the adjacent footways and will be licenced and notified by the Council.

Health and Safety on Site

H&S inspectors will visit the site at regular intervals to ensure high standards are being maintained and to score the site and circulate reports that are read at Director Level.

Public protection is a key requirement that will be considered for all demolition activities. This is reviewed on a daily basis and at weekly H&S meetings.

Barriers, platforms and hoardings will be erected, adapted and maintained throughout the demolition phase to completely segregate the public from demolition activities. The solid hoarding will be installed around the perimeter of the site at ground level and remain throughout the project.

Air Quality Management

Any emissions of nuisance dust and fine particulates emissions are to be adequately controlled and kept within acceptable limits

Therefore, having a potential impact on the local environment, the air quality relating to nuisance dusts and airborne particulates from the demolition works and operating plant will be continuously monitored for the duration of the project. With those air quality levels being monitored by installed continuous operation dust monitoring data loggers placed at various pre-determined locations around the site.

The monitoring will measure:

- Dust emissions from the ongoing demolition processes
- Vehicle exhaust emissions from the operational demolition plant
- Exhaust emissions from vehicles accessing and egressing the site

Baseline air quality monitoring will be undertaken by the Contractor who will monitor the equipment being used and shall collect and collate all recorded results which will be issued to both Site management teams

All works will be compliant with the Greater London Authority (GLA) Guidance 'The Control of Dust and Emissions during Construction and Demolition' Supplementary Planning Guidance (2014) and the Local Authorities Minimum Requirements for Construction

NRMM (Non-Road Mobile Machinery)

The PM shall register the site on the NRMM register if plant used on the development is of net power between 37kW and 560kW. <https://nrmm.london/user-nrmm/register>

Non-road mobile machinery (NRMM) is defined as any mobile machine, item of transportable industrial equipment, or vehicle - with or without bodywork - that is:

- Not intended for carrying passengers or goods on the road
- Installed with a combustion engine - either an internal spark ignition (SI) petrol engine, or a compression ignition diesel engine.

Examples of non-road mobile machinery include, but are not limited to:

- garden equipment, such as hedge trimmers and hand-held chainsaws
- generators
- bulldozers
- pumps
- construction machinery
- industrial trucks
- fork lifts
- mobile cranes

The PM shall contact the company supplying the equipment to ensure that plant is of Stage IIIA of EU Directive 97/68/EC for Major Development Site within Greater London and Stage IIIB of EU Directive 97/68/EC for any site within the Central Activity Zone or Canary Wharf.

Further information can be obtained from <https://nrmm.london/>

Air Quality Control Measures

To ensure the previously described impacts are minimised the following control measures will be implemented during the demolition project:

- Those demolition work areas generating dust will be liberally damped down by the controlled use of fire hose supplied fine water sprays
- All demolition waste lorries will be sheeted over prior to leaving site
- Any demolition waste stockpiles will be damped down during any dry dusty days
- Where required site routes around the demolition areas and traffic routes that become dusty will be damped down by water sprays supplied from towed water bowsers.
- A site speed limit of 5mph to be implemented on site
- Wheel washing facilities will be fitted by the site exit to reduce the dirt and dust from leaving site.
- All site plant and waste collection lorries engines will be maintained in a fully serviced condition to ensure there are no smoke emitting exhaust pipes

- To minimise the emission of exhaust particulates all site plant will operate on Low Sulphur diesel fuel, and all diesel-powered road vehicles and waste lorries will be required to provide confirmation of the use of commercially available Low Sulphur diesel and be fitted with catalytic converters and are fitted with Euro Group classification diesel engines
- The movement of all commercial vehicles particularly waste lorries to and from the site will be pre- planned to prevent unnecessary vehicle movements
- All contained refrigerant gases or other hazardous substances having an adverse impact will be removed by a specialist licensed sub-contractor for disposal in accordance with the hazardous waste regulations, at no time will venting to atmosphere of such materials be allowed
- At no time will substances or chemicals be used on site which are likely to produce offensive odours
- At no time will the burning of any demolition materials be allowed on site
- All Fibrous asbestos containing materials will be removed under fully controlled conditions within constructed containments by a licensed asbestos removal contractor
- All Firmly Bonded asbestos containing materials including asbestos cement products will be removed in accordance with the HSE Asbestos Essentials Tasks Manual. The Asbestos Cement Sheeting removal will also be in accordance with HSE Guidance HSG 189/2 Working with Asbestos Cement

To establish any potential asbestos fibres in air release during the asbestos removal works a UKAS accredited laboratory will be employed to carry out regular spot check background and personnel asbestos fibre in air monitoring with all readings recorded.

All asbestos containing materials will be removed in accordance with developed Method Statements and Risk Assessments.

Noise Management

Due to the sensitivity of the sites location site noise-monitoring will be undertaken for the duration of the project. With the noise levels being monitored by installed continuous operation noise monitoring data loggers placed in predetermined locations around the site boundary.

Spot noise levels will be taken on a regular basis by the visiting company Environmental manager, or appointed representatives, using hand held noise monitoring equipment at selected locations around the site where various items of plant are working.

The noise level assessments will include:

- Noise emissions from the individual demolition site processes
- Noise levels from operated demolition plant and plant moving around the site
- Noise emissions from traffic accessing and egressing the work site

Baseline noise monitoring will be undertaken by the Contractor who will monitor the equipment being used and shall collect and collate all recorded results which will be issued to both Site management teams

Noise Control Measures

To ensure the previously described impacts are kept to a minimum the following control measures will be implemented for the duration of the project:

- All demolition works will be undertaken by plant using 'quiet' hydraulic powered demolition pulverising attachments thus minimising the use of percussive impact breakers
- To lessen noise migration from the site the site boundary will be enclosed by 2.4metre high erected hoarding. Additional noise barrier will be utilised if required.
- Each section of the project will be planned to ensure all noisy working requirements are identified along with the timescales so such information can be advised to all concerned parties. There will be no site working during any anti-social hours
- The use of fully serviced plant with fully operational exhaust systems
- Ensuring all plant engine covers are kept closed at all times
- All site plant not in use will be shut down and not left idling on site
- All provided site generator plant will be of the new 'whisper' operational type
- The shouting out of instructions on site will be strictly forbidden, all site management and supervisors will be issued with site communication radios
- There will be no noisy working during any 'anti-social' hours or hours determined by the contract or in liaison with the Local Authority Environmental Protection Team
- The playing of radios etc on site will be strictly forbidden at all times
- The sounding of vehicle hooters on site or in any adjacent street will be strictly forbidden at all times
- No commercial vehicles will be allowed to park in the adjacent streets waiting for access to the site, particularly with engines left 'ticking over'
- Where possible all site plant will be effectively silenced and located in such areas of the site so as to cause the minimum amount of noise migration to areas beyond the site boundary.
- Maximum noise generation levels will be determined for each major item of plant from such information as supplied by manufacturers or company noise monitoring records. This will enable the potential level of noise generation to be anticipated.
- A full noise level management programme will be developed in liaison with the Local Authority Environmental Protection Team
- Where appropriate to minimise noise emissions from within the building work areas all glazing will remain in place for as long as possible
- There will be no site activities or plant engines started or lorry movements to and from the site made before 8am and not after 6pm

- All plant deliveries and collections plus all waste management requirements will be coordinated to ensure the noise impact from all such vehicle's movements on the community is kept to a minimum and is within agreed times. This will be particularly relevant to the unloading and collection heavy plant.

A Section 61 Prior Agreement application will be submitted to the Local Authority detailing the list of plant to be used and respective Sound Power Levels. Sound propagation levels were then calculated to BS5228: Part 1 to identify high risk areas. Further noise mapping software CadnaA was then used to more accurately show which receptors are at most risk, this allows us to set our trigger levels at each location in relation to risk rating.

Vibration Management

To ensure the effects of ground vibration are minimised to lessen the impact on site neighbours a site vibration-monitoring scheme will be implemented for the duration of the project. With the vibration levels being monitored by installed continuous operation vibration monitoring data loggers placed in various locations around the site boundary.

Such vibration level assessments will include:

- Falling demolition debris
- Lorries being loaded with demolition wastes
- Working demolition excavators

Baseline vibration monitoring will be undertaken by the Contractor who will monitor the equipment being used and shall collect and collate all recorded results which will be issued to both Site management teams

Vibration Control Measures

To ensure these impacts are kept to a minimum, the following control measures will be implemented for the duration of this demolition project:

- Prior to the demolition commencing, where required debris pads can be constructed around the work areas to enable rubble to drop onto the pad, and not onto any slab which will act as a conductor of vibration to many adjacent areas.
- Where achievable all operating demolition plant e.g. excavators will operate standing on constructed debris pads
- No demolition materials will be allowed to fall from any height which may result in the generation of vibration
- All waste lorries will be loaded by excavators operated by competent plant operators with the debris placed into the vehicle and not dropped in

Vibration monitoring will be implemented by the Contractor on selected adjacent properties, to establish any potential risk, particularly prior to, during and after demolition. The Site Demolition Manager will monitor the general day-by-day vibration caused by the works.

To determine any potential adverse effect of any generated vibration on structures where required prior to the demolition project commencing a Structural Condition Survey will be undertaken by appointed engineers on all adjacent buildings particularly those which have been identified as listed.

Then on completion of the project a Post Demolition Structural Condition Survey will be undertaken on the same properties to identify any structural defects, which may have occurred.

Monitoring Management

The process of monitoring the air quality, noise and vibration equipment, and for the collection of that data will be undertaken by the visiting Company Environmental Manager. Copies of the relevant data will be circulated to all interested parties as determined by the Project Management team.

The location of these monitors will be placed in relation to the high risk areas of site and depending on the closest sensitive receptor. Further details will be laid out in a Site Environmental Monitoring Plan using noise mapping software to identify high risk areas.

Liquids & Water Management

To eliminate the risk of any potential ground, water course or drainage contamination from the various liquids which are used on site and from generated effluents the following control measures will be implemented on site.

Liquids & Water Control Measures

- All diesel fuel for the site plant will be stored on site within double skinned fuel bowsters located at predetermined points on site for easy access by plant but away from any drainage access point. The refuelling lines will be fitted with automatic shut off devices and unattended refuelling will not be allowed at any time. Lorries and other vehicles normally used on public roads will not be refuelled on site.

The plant refuelling areas will be on a hard stand area and have a quantity of absorbent materials available in case of any diesel spillage, which will be cleaned up immediately.

- To assist in the clearing up of any spillage such as diesel or oil a number of spill kits will be available on site at the most appropriate location. Also, where required drip trays will be placed under any item of plant which has a potential for leaking
- Other items requiring storage on site such as hydraulic oils etc. will be in the appropriate storage drums stored in a provided secure container or bunded area located at the appropriate position within the lower basement areas
- All site welfare facilities effluent and sewage discharge will be via connections to the public drainage system.
- All wastewater from the site welfare facilities shall flow through fixed connections to the appropriate drains. At no time will any effluent be allowed to discharge directly onto the ground.
- All active drainage points within and adjacent to the site will be clearly identified and where necessary a means of water filtration installed around them.
- All waste water from the on-site asbestos personnel de-contamination units will pass through installed proprietary waste water filters before entering the drainage system

- All town main water requirements for the site facilities will be measured through water meter readings. For on-site water requirements the Contractor will use mains water where possible and install water meters to measure water usage.
- At no time will any dust control water sprays be allowed to generate a flow of runoff water. All such water spray operations will be controlled and managed by appointed site personnel in attendance at all times.
- Demolition site damping down water run-off and all other wastewaters will be disposed of in accordance with the requirements of the Environmental Agency and the Local Authority
- The Contractor will identify then regularly inspect all on-site drainage systems and those adjacent to the site boundary, and will ensure that they are maintained in an efficient state of repair and remain free of contamination and are not providing a potential means of rodent access.
- A specialist waste contractor will be employed to dispose of any hazardous liquid wastes found on site and disposed of in accordance with those regulations
- In accordance with the oil storage regulations any storage tanks proposed to be used on site and containing more than 200 Litres of oil etc. will:
 - Be stored within an oil tight constructed bund area capable of retaining the full contents of the tank plus 10% in an emergency
 - Have all valves lockable
 - Have a working contents gauge on it
 - Have contents name and capacity painted on it

Ground Contamination

To minimise the risk of ground contamination on site the following control measures will be implemented which will be actioned by designated site personnel using liquid absorbent materials such as granules and fine sand, which will be stored at a designated location on site. All such wastes from clearing a spillage incident will be placed into the appropriate waste container such as an oil drum which will then be removed from site for disposal as Hazardous Waste.

To ensure ground contamination is kept at a minimum the following standards will be actioned:

- All diesel storage and refuelling areas will be on a hard stand which will be covered in absorbent granules and have their own fire points
- An area on site will be designated the plant service and maintenance area where it will be covered in absorbent granules
- Any liquid escape or spillage such as an oil leak will be cleaned up immediately by the designated site personnel acting as a site spillage team
- All standing plant will have drip trays placed underneath them

To ensure that ground contamination is kept at a minimum a plant service and repair area will be allocated on an easily accessible section of hard stand large enough to accept all sizes of site plant and visiting maintenance vehicles.

To minimise the risk of ground contamination all plant operators will be required to clean up any small fuel or oil spillage immediately

For any risk of ground contamination on site from a significant fuel or oil spillage the following control measures will be implemented by a designated Site Spillage Team who will use liquid absorbent materials such as granules and fine sand, which will be stored at a designated location on site.

In the event of a significant fuel or oil spillage the following actions will be implemented

- The incident will be reported immediately to the Site Project Manager
- The Site Project Manager will notify his Site Spillage team who will then collect all the required materials from the designated storage area, load into a site van and go to the spillage area
- They will then implement measures to initially prevent the spread of the spillage. Particularly to any drainage point. Then implement measures to clear the spillage.
- All collected waste materials will then be placed into the appropriate waste receptacles such as oil drums for disposal off site as hazardous wastes
- All such incidents will be recorded on a Site Incident Report a copy of which will be issued to the appropriate personnel.

Ground Remediation

The requirements of the remediation works for this project are still to be finalised, but the Contractor will provide all required competent resources and plant to achieve the requirements of this category of works. All the ground remediation works will be carried out in accordance with the procedures detailed within the Environmental Management Policy

Unexploded Ordnance

Due to a significant amount of wartime bombing the site suffered, the potential for finding Unexploded Ordnance (UXOs) has to be treated as a real threat.

Therefore, the following needs to be adhered to.

Based upon information supplied by the Client or from other sources (war time records), if any area on the site is suspected to contain UXOs, the following procedures need to be implemented via a written Risk Assessment:

1. Detailed plans of the ground areas shall be obtained or produced with those plans grid referenced.
2. Prior to commencing ground works, the whole work area shall have been surveyed by specialist engineers using ground radar techniques to detect the potential location of all ordnance risks on site, which when identified are then clearly marked on a squared grid line site ground survey. This site survey shall then detail the level of ordnance risks within each of those squares and form the plan of remediation.
3. The high level of ordnance risks locations on site shall not only be marked on a survey but also clearly indicated out on site by a flag system.
4. Prior to any work commencing on site, every person working on site including site management shall be provided with a safety talk by the MOD bomb disposal facility or other competent persons, who shall provide information on procedures for dealing with ordnance risks found on site. All such procedures shall then be recorded and issued to every person on site and displayed within all the appropriate site facilities.

5. Any area where Unexploded Ordnance or Bombs are discovered shall be fully cordoned off, all work on site shall stop and site management shall inform the MOD bomb disposal facility. No further work on site shall progress until it has been confirmed safe to proceed by the MOD bomb disposal facility.

Visual Intrusions

To ensure the impact of visual intrusion on adjacent areas is controlled the following control measures will be implemented

- The Contractor will ensure that the lighting of the site is kept at the minimum luminosity necessary for adequate security and safety. In addition, the lighting shall be located and directed such that it does not cause undue intrusion to adjacent properties.
- When the site is closed all unnecessary site lighting will be turned off and only adequate security lighting will be maintained
- The site will be made less intrusive by the erection of security hoarding around the whole perimeter of the site.
- The maintenance of all road areas adjacent to the site particularly at the site entrances will be carried out by mechanical and manual means on a daily basis
- If required particularly during wet days all waste lorries leaving site will egress the site via a installed wheel cleaning system installed at that egress point
- All waste lorries will be required to be maintained by their operatives in a clean and roadworthy condition at all times

Site Traffic and Transportation Management

Road Transportation

To lessen the impact of site traffic and their contribution to carbon emissions from vehicle exhaust gases this impact will be controlled by the following measures

- The Contractor, in consultation with the Local Authority shall prior to commencing work on site agree the designated traffic routes, which are to be used by the Contractor and its sub-contractors See attached site access plans and swept path analysis drawings.
- The designated traffic routes to and from site and to and from the originating and final locations are to be determined using the following philosophy:
 - The avoidance of using residential roads particularly those with sensitive areas such as schools, hospitals, community centres etc
 - Avoiding any school starting and finishing times
 - The routing to the major A roads as quickly as possible
 - Avoiding routes through any residential areas

The nominated route to and from site will be advised in writing to all interested parties particularly the waste lorry companies

- The delivery of all materials, plant and equipment will be pre-planned and to designated times of the day to minimise the impact on the local area from the continuous accessing and egressing of the site by vehicles. Any deliveries and movements of large vehicles will be restricted to outside of peak times to avoid any significant impact on the local traffic.
- All goods deliveries will be to a designated area on site where all vehicles will be unloaded and the materials taken to the appropriate storage area immediately
- To ensure an efficient management of, and minimising the number of vehicles coming to and from site, where required in liaison with site management requirements a designated management representative will be appointed to act as the Site Transport Co-ordinator. Who will manage all the waste removal collections and documentation, and for the efficient ordering and delivery of site consumables, all of which will be at agreed appointed times
- All such vehicle movements will be under the strict control of appointed Banksmen and this system will be subject to a site speed limit of 5mph
- To further lessen unnecessary traffic movements, it is proposed the site will employ its own site van to undertake multi collection rounds from suppliers of all required consumables etc, many of these suppliers being local businesses.
- To lessen vehicle movements all such requirements will also be pre-planned and coordinated by the appointed person.
- The times of the movement of the required mechanical plant to and from the site will be dependent upon constraints placed by the local traffic police, who may be required escort such large loads, and such escort times will normally fall between 7pm and 7am. Upon confirmation of any escorted load being moved all relevant persons likely to be affected will be advised of the potential for possible short-term disruption. All such movements will also be in arrangement with the Local Authority Environmental Protection Team
- The site management will check the use of the designated routes by waste vehicles leaving site.
- No vehicles will be allowed to park in any of the adjacent roads particularly with engines left ticking over, and there will be no parking within the constraints of the site.
- Due to site restrictions a designated waiting area will be identified where commercial vehicles such as waste collection lorries can be parked waiting to be called to the site via radio communications or mobile telephone by the site transport co-ordinator
- All waste collection lorries will, where possible, will come from one company who will designate a suitable number of lorries with the same drivers to enable them to be familiar with all site requirements and the determined haul routes to their disposal destinations
- All site operatives, subcontractors and visitors will be instructed to attend the site via the easily accessible modes of public transport

A site logistics plan is included on the last page of this document, highlighting the traffic routes for site.

Rodent Infestation and Pest Controls

To minimise the adverse impacts from pests and rodents the following control measures will be implemented on site in the following order

- ❖ All drainage systems and access points will be kept secure to prevent rodent access
- ❖ All generated rubbish particularly food waste will be cleared as it is generated and placed into secure containers and removed off site for disposal on a continuous basis
- ❖ A high level of good housekeeping will be maintained on site and in all facilities
- ❖ Site rules will be implemented to prevent the feeding of such pests as pigeons and seagulls
- ❖ All food stuffs brought on site will be within storage containers
- ❖ Where all other control measures have been actioned then pest control management will be implemented on site by a reputable pest control company

Pigeon Waste

It is anticipated that a small number of the buildings on site will require prior to demolition, decontamination of pigeon waste by the following procedures which will be recorded in a developed risk assessment:

- Operatives wearing white coveralls, Wellington boots, and respiratory protection fitted with P3 filters will initial spray the contaminated areas with bleach mixed with water on a 1:1 basis from hand held sprays
- These sprayed areas will then be left for a number of hours
- Then operatives using shovels etc. will remove the waste and put it into polythene waste bags which when full will be taped sealed
- As the waste is being removed the areas will again be sprayed with the bleach, and again at the end of the works
- No area will be swept as this will increase the risk of airborne pollution causing a respiratory risk
- Areas being decontaminated will have all windows and doors closed during the work

Archaeology Attendance

If relevant all required assistance will be provided to any attending archaeologists who may wish to visit the site.

Potential Significant Environmental Impacts

A table of potential environmental effects relating to the demolition works is provided below.

Topic	Potential Environmental Effect
Transport	Increased traffic movement on and off site, however is minimised through set delivery times for certain vehicles
Cultural Heritage & Archaeology	It will be imperative to ensure that the local heritage is protected during the demolition as there are a number of listed buildings in the surrounding area. Whilst these buildings do not adjoin site it is still important to monitor our impact so vibration monitoring will take place at our site boundary. This coupled with our top down working method will minimise drop height of materials and ground borne vibration.
Hydrology & Water Quality	Unless there are contaminants found in the ground source that may seep into the water table if contact is made with them, there will be very little to no impact on water quality. Water that may be contaminated from asbestos will be filtered to remove contaminants before disposal.
Townscape & Visual	There may be a visual impact on the surrounding area as the site will be surrounding by hoarding.
Noise & Vibration	Noise and vibration may be caused by vehicle movement and through other demolition works, the contractor will work closely with the local authority and neighbours to ensure that complaints and impacts are minimised.
Local Air Quality	Dust may impact on the air quality of the surrounding area so dust suppression machines will be located on areas of the site that are under demolition to minimise the dust intake into the air.
Waste & Materials Management	Waste management on site will adhere to the waste hierarchy and attempt to either reuse materials on site or send for recycling at every possible opportunity. All waste vehicles will be inspected when leaving to ensure all is secure and is clean to prevent further pollution.
Contamination & Hazardous Substances	The removal of hazardous substances such as asbestos will be removed. Hazardous material will be disposed of and sent for landfill in contained waste carriages to minimise the risk of contaminating other areas.
Ecology & Nature Conservation	There will be minimal impact on the surrounding ecology and nature on site. Local trees that are to be removed will be done so via an arboriculture team and sent for recycling.

4) Community Relations

The Contractor will ensure the effective liaison with the neighbouring properties, adjacent residents and local community by utilisation of such means as:

- ❖ Circulated newsletters and newsletters placed in information boxes located outside the site entrances – these will be sent on a monthly basis and/or when a significant change in working practices is likely to affect the local environment
- ❖ Site information meetings between company site management and representatives from all adjacent neighbours and other interested parties
- ❖ When appropriate undertaking in small numbers site tours of the site
- ❖ Information boards mounted at the site entrances which will provide details of the following information
 - Clients Details
 - Principle Contractors details
 - Nature and duration of project.
 - Principal milestones of the project
 - Site operating times
 - Site management names and contact details
- ❖ Site contact details will be available so that any complaints can be communicated.

There will be no deliveries or collections to the site, and the starting of site plant during peak times. Where any exception is liable to occur such as the movement of heavy plant this will be in accordance with pre-planned times.

The Contractor will ensure a level of courtesy is maintained by all site personnel at all times to all local residents, site visitors and the passing public particularly females.

This will also relate to any member of the ethnic communities as any form of racial discrimination, verbal abuse, or incitement will be viewed as a serious breach of this company's policies

The Contractor will ensure that at no time will any site personnel will be allowed in any public area wearing tee shirts with offensive slogans on them

At no time will any site personnel be allowed to sit outside the site in any public area during working hours whilst wearing site clothing

The Contractor will ensure that no site personnel will be allowed to leave site and in particular travel on public transport wearing site clothing. All site clothing shall be changed to domestic clothing prior to leaving site

All persons working on site will be advised that the highest priority relating to environmental impacts will be to maintain the quality of life to the highest level for all site neighbours and local community at all times

Any site person receiving a concern or complaint from adjacent properties or passing pedestrians shall refer the matter immediately to the site demolition manager who will record the fact and refer the matter to the management team who will then carry out an investigation. The site project manager will oversee all compliant investigation and the end results shall be recorded in the site diary,

Environmental Incident

If an environmental incident occurs on site following actions will be implemented by the Project Management team

- ❖ The Site Management will be notified immediately, and dependent upon the type of incident notification will be issued to the relevant authority such as PLA, Environment Agency and the Local Authority Pollution Control Team.
- ❖ Actions will be put in place to immediately control the incident and limit the adverse impacts of that incident
- ❖ The environmental incident will be recorded in the site diary and a Site Incident Report form completed
- ❖ The Contractors Safety and Environment Manager shall be informed and provided with a copy of the Site Incident Report, who will then attend site
- ❖ A joint site investigation will then be implemented by the Safety and Environment Manager and Site Project Manager.
- ❖ As a result of the investigation where required the appropriate actions will be implemented
- ❖ Then those action will be monitored
- ❖ Then the incident will be recorded as closed out

5) Waste Management

Introduction

A waste management strategy will be developed for this project in accordance with the I.C.E. Demolition Protocol, this will allow the following to occur:-

- Improve environmental performance
- Meet legislation requirements
- Reduce waste disposal and its costs
- Maximise resources available
- Benefit clients BREEAM rating

The waste management strategy will have the aim to maximise secondary material use within the new construction of the site and within the construction industry and also to lessen the demand on primary resources so producing an increase in resources efficiency.

Therefore, considering the materials listed below a pre- demolition site audit will be undertaken to determine what materials can be reclaimed for reuse or recycling and their amounts which will then be developed into a spreadsheet to produce a “Demolition Recovery Index” (D.R.I) which will be provided to the Client for issue into his new build design considerations

A post demolition site audit will then be undertaken of the actual materials recovered and the Demolition Recovery Index Efficiency calculated

The materials that will be considered for the (D.R.I) will be: -

- Any mechanical and electrical plant and associated fixtures and fittings having a potential reuse value
- All soft strip fixtures and fittings having a reuse value such as doors, wood floors, wood panelling and door surrounds, sanitary ware, light fittings, light switches socket outlets, installed facilities such as kitchens etc

- Office Furniture and associated fixtures and fittings
- Structural timber
- Recoverable Glass
- Salvageable artefacts

For this Project the Demolition Materials Recovery Index will include the following headings to which will be recorded figures when estimating the Total Estimated tonnage. Then as the project nears completion the Actual Recovery tonnage will be recorded. By comparing the two this will then provide the Contractor with a Demolition Recovery Index Efficiency Rating

For this Project the Demolition Materials Recovery Index is

Material	Total Estimated Tonnage	Actual Recovered Tonnage
Ferrous Scrap	TBC	
Soft Strip/Rubbish	TBC	
Concrete & Brick	TBC	
Muck	TBC	
Plasterboard & Gypsum	TBC	
Timber	TBC	
TOTAL	TBC	

Demolition Recovery Index Efficiency is 99%

In addition to the recycling of generated demolition materials, additional recycling will be undertaken of the following materials generated from the management of the project: -

- Recycling of site hoarding materials
- Recycling of all packaging and containers
- Returning computer cartridges
- Returning of all pallets to original provider
- Collecting all waste paper, aluminium drink cans, glass bottles and plastic containers and placing them into their respective containers for recycling.

Hazardous Wastes Management

Where any hazardous waste is to be handled for disposal this shall be carried out in accordance with developed risk assessments, and where a potential hazardous waste cannot be identified then a waste management company or consultants will be employed to determine what the substance is, the required control measures for handling it, means of transportation and method of disposal

All identified hazardous wastes will be removed and placed into separate secure and sealed waste bins which will be located within their own area within the lower ground levels. Categories of hazardous waste will consist of:

- Asbestos containing materials
- Pigeon Waste
- Japanese Knotweed
- MMMF Insulation
- Fluorescent light tubes
- Waste electronic and electrical equipment
- Waste oils etc

A maximum of 80 cubic metres of Hazardous waste shall be stored on site at any one time

Any clinical waste or drug related debris will be collected in accordance with laid down company methods and placed into approved containers for transportation to an incinerator point.

The EPP sets out any procedures to deal with contamination if any issues were to arise in the future not previously identified. Therefore, if necessary all the workers on-site will be made aware of potential contamination issues on the site and will use best practice techniques during the demolition phase. The operation of demolition vehicles and the handling, use and storage of hazardous materials will be undertaken as follows:

- Construction vehicles and plant will be regularly maintained and supplied with spill kits and drip trays to reduce the risk of hydrocarbon contamination;
- Refueling would be undertaken in specified areas. Drip trays will be installed to collect leaks from diesel pumps;
- The handling, use and storage of hazardous materials will be undertaken in line with the Environment Agency's Pollution Prevention Guidelines (e.g. PPG2 Above Ground Oil Storage Tanks);
- Adequate bunded and secure areas with impervious walls and floors, with a capacity of 110% of substance volume, are to be provided for the temporary storage of fuel, oil and chemicals on site during construction;
- Development of site pollution control procedures in line with Environment Agency's Pollution Prevention Guidelines, and appropriate training for all demolition staff. Provision of spill containment equipment such as absorbent material on site; and
- Where possible, store all demolition and oil, fuel and diesel materials as far from the nearby water bodies and drainage as possible.

Hazardous materials already present on-site, or proposed to be used during the demolition works will be identified and an appropriate Control of Substances Hazardous to Health that any new substances hazardous to health are identified prior to being brought on to the site and that suitable arrangements are made for their storage, use and disposal.

Hazardous Waste Producer Code

The asbestos cement sheets will be classed as Hazardous Wastes, and as all other such wastes will be disposed of in accordance with the Hazardous Waste Regulations 2005. Therefore, the site will have to be registered with the Environmental Agency and a Waste Producer Code obtained

This code will be required to be placed on all Hazardous waste documentation

Materials Storage

Materials used in the demolition process such as fuel oil, chemicals, cleaning materials and paint have the potential to cause serious pollution. The Environment Agency's Pollution Prevention Guidance and other relevant guidance will be followed during the handling and storage of such materials.

Plant and equipment will be stored in areas which are less susceptible to possible pollution incidents, or on dedicated areas of hard standing. All static plant shall be placed with drip drays to prevent ground contamination as a result of oil spills and leaks.

Refueling of plant will occur in designated areas on an impermeable surface and away from any drains or watercourses. Appropriate numbers of spill kits will be available for use in the event of an accident. Refueling will always be carried out in a controlled manner with absorbent materials available to clean up any spillages. All deliveries on site will be monitored during delivery to prevent overfilling and to ensure that the product is delivered to the correct tank.

A bunded storage area will be located on-site and will be provided for the duration of the demolition period for the storage of oils, fuels, chemical and other hazardous demolition materials. The base and bund walls will be impermeable to the material stored and will be of adequate capacity.

Storage containers will be clearly labelled. Storage areas and containers will be protected against vandalism and unauthorised access. All containers on site will be adequately ventilated.

Leaking or empty oil drums will be removed from the site immediately and disposed of via a licensed waste disposal contractor.

Procedures will be set in place to respond to any emergency incidents which may occur on site. All appropriate staff will be trained and made aware of the spill contingency plan set in place. In the event of an incident the Environment Agency will be notified immediately;

Non- Hazardous Wastes Management

All non-hazardous wastes will be removed and placed into open waste bins which will be located within their own area within the lower ground basement level. Such non-hazardous wastes will consist of:

- All soft strip materials
- Fixtures and fittings
- Ferrous and non-ferrous materials
- Plaster board with a sulphate content of more than 10%
- All generated reinforced concrete waste
- Office furniture and carpeting

All generated demolition wastes will be sorted for reuse or recycling or disposal, and placed into their respective storage bins by mechanical excavators. Once full, waste Lorries from the registered waste hauliers will transport the wastes to a contracted recycling centre or nominated landfill site.

All asbestos containing materials will be placed into secure waste skips which will be transported by road

In accordance with the Environment Agency requirements concerning plasterboard disposal and recycling all on site clean plasterboard waste will be removed and placed into their own designated waste skips. This will then be transported to a plasterboard recycling facility known to the Contractor.

It is anticipated that a considerable number of tanks, other vessels and pipework will be insulated with manmade mineral fibre materials (MMMF) which is classified as an irritant. Therefore, based upon the parent body location and means of access the insulation will be removed prior to the demolition activity or alternatively when it's on the ground. With the removal being undertaken using controlled conditions applied by operatives wearing the required PPE and appropriate respiratory protection. All removed insulation will be placed into polythene bags and taped sealed and placed in the appropriate waste skips

Waste Hauliers

The following licensed waste removal contractors will be employed for the removal and disposal of the identified category of wastes

<u>Waste Description:</u>	<u>EWC</u>	<u>Waste Carrier</u>			<u>Disposal Site</u>	
		<u>Name</u>	<u>Licence Number</u>	<u>Expiry Date</u>	<u>Name</u>	<u>Licence Number / Exemption Ref.</u>

Waste Management Documentation

All Hazardous wastes will be disposed of in accordance with the Hazardous Waste Regulations Duty of Care Consignment Note procedures and removed by a licensed hazardous waste removal company for disposal at the appropriate licensed hazardous disposal site.

All non-hazardous wastes will be placed into open waste skips provided by designated waste hauliers. All non-hazardous wastes will be disposed off site at a designated licensed disposal site. Company waste transfer notes will be issued for each consignment called "Authenticated Receipts".

The management of all such documentation will be undertaken by the Environmental Manager working in liaison with the Site Project Manager

Records – Site Waste Management Plans

All waste information will be recorded on a Site Waste Management Plans which will assist in providing information for the End of Project Report and BREEAM requirements and as an aid for acting as a checklist so as to minimise the landfill destination of generated wastes and maximise their reclaim or recycle value.

This information will assist in producing such reports as detailing material tonnages being removed against energy usage which will assist the Contractor in developing a strategy for reducing its carbon footprint

Company Energy and Waste Minimisation

Despite the Contractor having a priority towards reuse and recycling within the Environmental Management plan it will also have a commitment towards energy and waste minimisation achieved by the following: -

Minimisation of Packaging

Achieved by:

- Purchasing in bulk e.g. site gases and diesel fuel. Thus, lessening the need for delivery vehicle movements which gives many benefits
- Encouraging suppliers to deliver bulk orders on pallets, seal wrapped, and not put into individual boxes
- Having orders delivered in returnable containers
- Where the above is not achievable, ensuring all such packaging as cardboard, paper, pallets etc are recovered for returning or recycling by being placed into the appropriate skips on site
- The reduction in postage by having the site office connected to the broadband system for e-mails and placing orders with Head Office and suppliers

Minimisation of Energy and Water Consumption

The following procedures are included within the Environmental Management Plan and relate to every part of the site

- All processes and procedures to be examined to determine where and how energy is being consumed
- Then looking at setting objectives and targets to reduce energy consumption and produced waste
- Detailed assessments of the waste being produced and assess how that level can be reduced by continuous improvement in the setting of objectives and targets
- Keeping detailed records of any raw energy being consumed
- To train all site staff to be environmentally aware
- Use of low energy light bulbs

One of the major adverse impacts for this project will be the use of clean mains water for the management and reduction of airborne nuisance dusts and particulates from the:

- Demolition of reinforced concrete
- Loading lorries with dust hazard wastes
- Controlling dust emissions from any stock piles of materials

6) Wildlife Protection

Prior to any work commencing a full ecological survey of the area and buildings will be undertaken to determine what wildlife does inhabit these areas and if so the means of protection or movement required. If any protected species of animal or its habitation is discovered then that fact will be reported to English Nature for their advice and recommendations.

7) Environmental Training & Communication

The raising of environmental awareness is viewed as a crucial element in the appreciation and implementation of the EMP. This EMP will be distributed to members of the project team, including suppliers and subcontractors as necessary to ensure that environmental requirements are adequately communicated.

The Contractor will be responsible for ensuring that all people on-site are provided with relevant information concerning environmental protection and will operate a system whereby all staff and operatives receive a site-specific safety and environmental induction prior to starting work on-site.

The training requirements of Company staff will be monitored via individual appraisals and through 4 weekly Health, Safety and Environmental Planning meetings. At these meetings the forthcoming operations will be discussed in detail, including the standard and level of training required of site operatives and subsequently the individual needs of the staff. Training records for staff will be held on a central database and made available through regional offices.

Induction for Vehicle Drivers will include:

- Road safety for public and site roads including speed restrictions and defensive driving;
- Site procedures including queuing and parking – notably that there will be no queuing on public roads, and managed within the site boundary;
- Cyclist awareness video;
- Environmental issues and processes required for their minimisation, including noise and vehicle cleanliness leaving site; and
- Discussion on potential hazards and risk reduction.

All company personnel will be provided with Environmental awareness training by the following means

- Regular circulation of the relevant environmental information from Company Safety & Environment Manager obtained from such sources as Environment Agency Website
- Issue of Company Environmental Policy and induction talks on its contents
- Attending Environmental Awareness training provided by such resources as

- o Company Environmental Consultants
 - o Environment Agency
- Site specific Induction Talks given by the Safety and Environment manager and the issue of this Environmental Management Plan
- Prior to each demolition work package commencing those employees and subcontractors involved in the works shall attend a safety talk given by site management which shall include the relevant environmental management requirements

8) Environmental Site Management

The responsibility for the successful site environmental management will be the ultimate responsibility of the Site Project Manager aided by the site Demolition Managers achieving the requirements of this Environmental Management Plan and associated Environmental Management Policy.

The Site Project Manager will be responsible for the daily management of all demolition environmental management documentation such as, noise, dust and vibration monitoring registers, wastes records, incident reports, information for the end of project report, and in the daily management of the Site Waste Management Plan. He will be aided by the visiting Environmental Manager who will attend site on a regular basis

At the end of the project the Site Project Manager will produce a company “End of Project Report” which will include all relevant safety and environmental information for the client’s site safety file which will be issued to the CDM Coordinator

To ensure that all the requirements of this site Environmental Management Plan and Company Environmental Management and Asbestos Management Policies and compliance with legislation regular unannounced site safety and environmental inspections will be undertaken by the Safety Manager and Environment Manager who at the end of site and document inspection will issue a report to the following personnel:

- Site Project Manager for any required actions
- Site Responsible Director for any required actions

From these site safety and environmental inspection reports the Safety and Environment Manager will review these reports to determine whether any environmental issues are developing which need to be rectified by:

- Site management meetings
- Implementation of individual or groups of employees discussions
- Company employee or subcontractor site inductions or specific topic training
- Discussion at the formal Monthly Project progress and Safety and Environmental Management meetings
- Discussion topic at Senior Management Meetings

In the Safety and Environmental Management of the project the following means of communication will take place

As part of the Contractors Safety and Environment Manager site visits he will:

- Hold informal talks with all site employees discussing environmental issues

- Hold a Site Safety and Environmental meeting with the Site Project Manager, Demolition Managers
- Formation of a Project Committee where the Contractor and Subcontractor management representatives along with selected site employees attend to discuss all safety and environmental issues
- Carry out site inspections

9) Environmental Risk Management

The Contractor will have all its Environmental risks associated with these works recorded within the Environmental Management Risk Management Register. A copy of this register will be on site for these works. Opportunities for material reuse are identified within the Site Waste Management Plan during the pre-demolition audit. This audit will consider the life cycle use of any material on site to ensure the best route for its reuse or recycle.

10) Environmental Legislation

The Contractor will undertake the environmental management of the project in accordance with the following environmental management legislation

- The Control of Pollution Act 1974
- The Environmental Protection Act 1990
- The Highways Act
- The Road Traffic Act
- The Control of Asbestos at Regulations 2012
- Construction (Design & Management) Regulations 2015
- Asbestos Essentials Task document
- HSG 189/2 Working with Asbestos Cement
- The Hazardous Waste Regulations 2005
- The Waste Electrical, Electronic Equipment Regulations
- The Control of Pollution (Oil Storage) Regulations 2001
- The Provision & Use of Work Equipment Regulations 1999
- The Control of Noise at Work Regulations 2005
- BS 5228 Noise & Vibration Control on Construction & Demolition sites
- BS 6187: 2011 Code of Practice for Demolition
- The Wildlife & Countryside Act 1981
- The Conservation (Natural Habitats) Regulations 1994
- London Councils "The Control of Dust and Emissions from Construction & Demolition Best Practice Guidance"
- Environmental Permitting (England and Wales) (Amendment) Regulations 2015
- GLA's 'The Control of Dust and Emissions during Construction and Demolition' Supplementary Planning Guidance (2014)
- IAQM's 'Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites' (2012)

Sources of Information

The following sources of information have been consulted in the development of the EMP and should be used as reference documents;

- Environment Agency (no date), PPG1: General Guide to the Prevention of Pollution of Controlled Waters;
- Environment Agency (February 2004), PPG2: Above Ground Oil Storage Tanks;

- Environment Agency (no date), PPG5: Working in, Near or Liable to Affect Watercourses;
- Environment Agency (no date), PPG6: Working at Construction and Demolition Sites;
- Environment Agency (August 2004), PPG7: Refueling Facilities;
- Environment Agency (February 2004), PPG8: Safe Storage and Disposal of Used Oils;
- Environment Agency (no date), PPG13: High Pressure Water and Steam Cleaners;
- Environment Agency (February 2004), PPG21: Pollution Incident Response Planning;
- Methods on Land Affected by Contamination: Guidance on Pollution Prevention (NC/99/73);
- Environment Agency (2006), Consignment Notes: A Guide to the Hazardous Waste Regulations; and
- DEFRA (2006), Circular 01/2006 Environmental Protection Act 1990 – Part 2A Contaminated Land.
- London Best Practice The control of dust and emissions from demolition and demolition
- BS 5228:2009 Noise and Vibration Control on construction and Open Sites, Part 1 – “Noise” and Part 2 – “Vibration”
- Road Vehicles (Construction and Use) Regulations 1986 (as amended)
- BS 6187: 2011 Code of Practice for Demolition
- BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations
- BS 3998: 2010 Tree work. Recommendations

11) Relevant Contact Details

The following provides details of the relevant contacts for the project

Name	Contact Number

12) Appendices

APPENDIX 1 - ENVIRONMENTAL MONITORING

Site Plan



Figure 1. Site map and monitor locations

Key

Orange square Loading/Unloading area

Blue square Welfare

Green arrow Access to site

Red arrow Egress from site

Yellow square Site outline

Blue line Internal hoarding



Noise/Dust Monitor Location



Vibration Monitor Location

Monitoring

Continuous noise, dust and vibration monitoring will be installed on site and reported monthly. These units will include trigger levels that will alert the site Project Manager who can control accordingly.

Actions to be taken following Site Action Level Exceedance:

Amber Exceedance:

Where an Amber exceedance occurs due to site activity, the site manager will monitor site emissions relevant to the alert and where necessary review methods of working. The site manager will also assess whether remaining work could continue to exceed the Amber threshold and if so, modify working methods, where practicable.

Red Exceedance

Where a Red exceedance occurs due to site activity, the site manager will stop the relevant activity whilst alternative construction methodology options are investigated, and where practicable adopted. If effective remedial action is not obvious, the site will consider an alternative technique or additional mitigation measures.

Complaints

Where a complaint is received, an investigation will be undertaken to establish whether the vibration is due to site activity. Where this is established, the site manager will adopt the process set out above for the receipt of an Amber exceedance. Where a complaint is received, details of the complaint, details of the exceedance, the source and remedial action taken will be logged

Noise

Sound levels will be continuously measured on the site boundary at the locations show on Figure 1. Sound levels will be monitored according to the methods set out in Appendix B of BS 5228: Part 1. All measurements should be made on a sound level meter complying with BS EN 61672-1:2013 Electroacoustics – Sound Level Meters Part 1 – Specifications.

The following noise levels will be applied to the works as per the Technical Guidance for Construction – 2016.

Parameter :	TRIGGER (AMBER)	ACTION (RED)
Noise level :	75 dB(A) L_{aeq} 5min (short term) 70 dB(A) L_{aeq} 10hr (08:00-18:00)	80 dB(A) L_{aeq} 5min (short term) 75 dB(A) L_{aeq} 10hr (08:00-18:00)

Vibration

Vibration affecting occupied buildings will not exceed levels that are likely to give rise to damage to the building or discomfort to the occupants of the building. Vibration affecting unoccupied buildings will not exceed levels that are likely to give rise to damage to the building. Appropriate limits will be set in terms of Peak Particle Velocity (PPV). These will be monitored continuously and controls set in place for the trigger action levels.

The following vibration levels will be applied to the works as per the Technical Guidance for Construction – 2016.

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

Dust

Dust units will be set in place in the locations shown in Figure 1. These will monitor continuously and will follow the IAQM's recommended site action levels shown below;

PM10 CONCENTRATIONS – Continuous monitoring		
Parameter	TRIGGER (AMBER)	ACTION (RED)
Environmental Dust Units - PM ₁₀	200µg/m ³ 15 min	250µg/m ³ 15min
DUST DEPOSITION – Batch Monitoring		
○ Frisbee-type Deposition Gauges: 200 mg/m ² /day, averaged over a 4-week period		
○ Glass Slide Deposit Gauges: 25 soiling units (SU) per week, measured as a running 4-week average		
○ Sticky Pads: 2-5% EAC/day, measured over a 1-week period		

APPENDIX 2 – SITE LOCATION PLAN

Logistics

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- Trees pruned & protected 2No
- Trees removed 3No
- Monarflex clad independent scaffold
- Scaffold protection fan
- Protected Walkway
- HAKI Access Stairs
- 2.4m high hoarding
- Lane closure required, Taxi rank temp relocated to create additional lane to maintain 2 lanes traffic
- Traffic marshals
- Pedestrian crossing
- Felt & battens weather protection
- Party wall temporary works & felt & battens weather protection required

