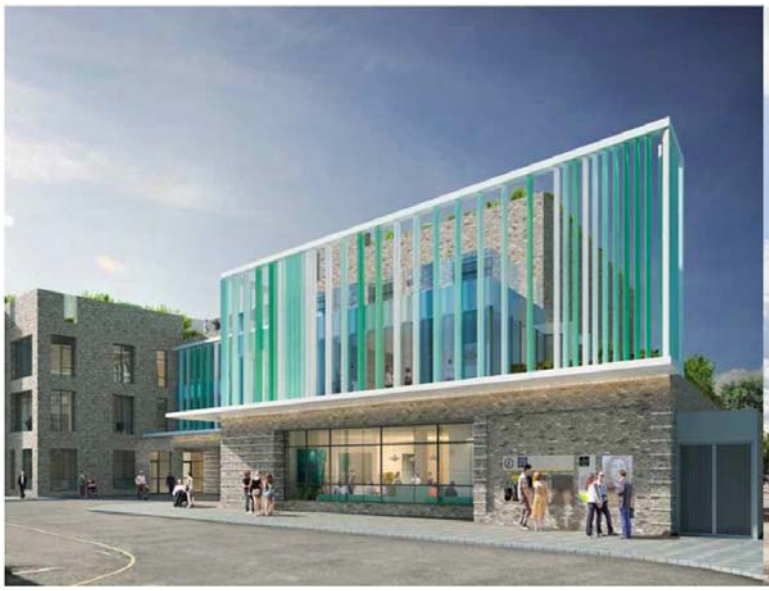

GREENWOOD PLACE AND HIGHGATE ROAD SITE

Community Resource Centre, Centre for independent living and new residential units

Outline Construction Environmental Management Plan

September 2013

Camden

Tibbalds
Multidisciplinary Team

CampbellReith
consulting engineers

Document History and Status

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1.0 INTRODUCTION

1.1. This Construction and Environmental Management Plan (CEMP) provides the framework required for the planning and implementation for the redevelopment of Greenwood Place and Highgate Road site, Kentish Town, London. It sets out the detailed approach for the proposed construction works and in particular, explains how construction activities can be undertaken in accordance with the environmental constraints that have been identified.

1.2. The report sets out the methodology and approach to the construction works for the new community centre, residential units, landscape areas and highway works. This report also includes details of any logistics, environmental controls and mitigation measures that will be deployed during the construction phase of the development.

1.3. Possession of the site will be granted to the contractor in accordance with the programme for the construction works.

1.4. It is acknowledged that this CEMP has been prepared for the purpose of illustrating the controls and mitigation that will be put in place and has been based upon assumed working methods. The Principal Contractor for the works (once appointed) shall be required to take this document forward and update in accordance with the finalised construction plan, method statement, and any planning Conditions placed upon the consent for development.

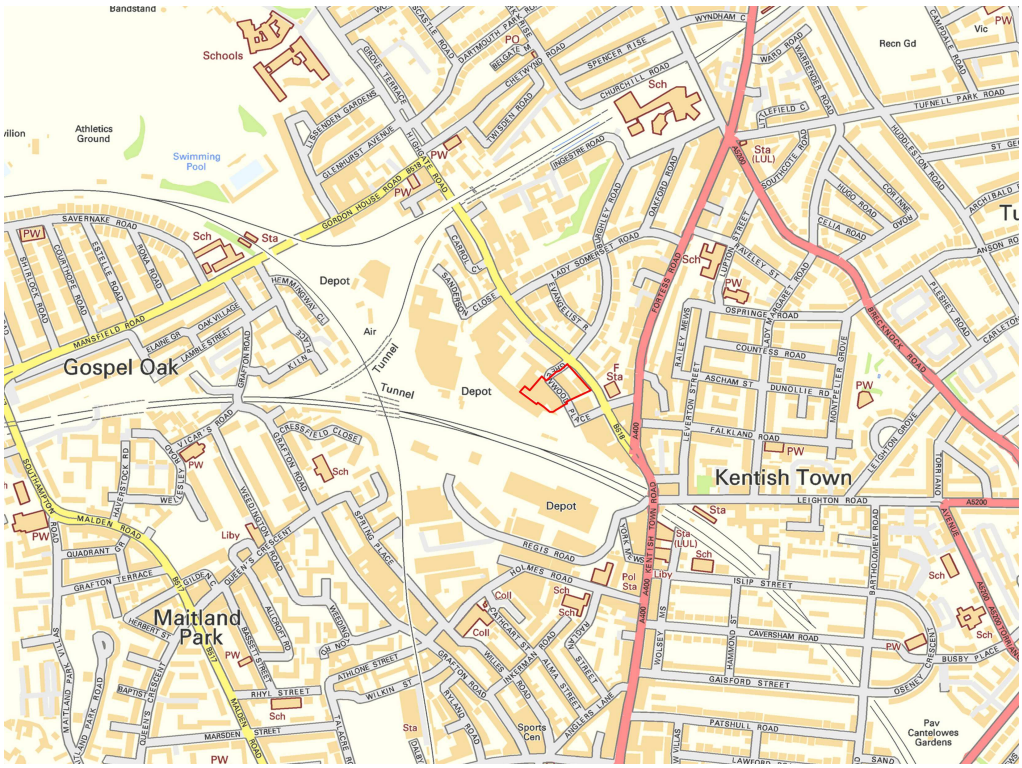
2.0 SITE LOCATION

2.1. The Greenwood Place and Highgate Road site occupies and area of approximately 0.49 ha in the London Borough of Camden in central London. Located to the north of Kentish Town railway station, the development area is bounded to the north by commercial properties the front onto Greenwood Place, and to the south by the Forum concert venue. The western boundary of the construction area is formed by Murphy's Yard and the London – East Coast railway line. Further community and commercial premises that front onto Highgate Road form the eastern boundary to the development site.

2.2. Within the confines of the development area there is some 430 m² of existing floor space the will be demolished. One public and adopted highway enters the development site and provided the primary vehicular access to the site, this being Greenwood Place. Pedestrian access to the development site is also gained from Greenwood Place.

2.3. The location of the development site in relation to the surrounding area is shown on Figure 1 below.

Figure 1: Site location plan



3.0 ROLES AND RESPONSIBILITIES

3.1. The line of responsibility for environmental management during the site clearance and construction phases is shown below. A description of individual environmental management responsibilities are describe in the following paragraphs.

Employer's Project Manager

3.2. The Project manager would act on behalf of the employer (Camden Borough Council), with responsibility for managing the project within the agreed environmental constraints in conjunction with all other necessary processes.

Environmental Manager

3.3. The Employer's Environmental Manager would liaise with the Contractor's Technical Manager and would be responsible for the performance of the project against statutory requirements and the agreed environmental standards specified and the agreed Construction Contract.

Contractor's Technical Manager

3.4. The Contractor's Technical Manager is a named individual from the Principal Contractor's organisation, and would have overall day-to-day responsibility for health and Safety, Environmental and Quality performance throughout the contract period. They would ensure that appropriate resources are made available, and any necessary environmental controls or mitigation measures are implemented. The Contractor's Technical Manager would report to the Contractor's board of directors.

Contractor's Environmental Manager

3.5. The Contractor's Environmental Manager would report to the Contractor's Technical Manager and would be responsible for co-ordinating and managing all the environmental activities during the site clearance and construction phase. The Environmental Manager would carry out the following duties:

- Ensuring that environmental considerations are included in risk assessments, Method Statements and work instructions;
- Carry out weekly environmental inspections of the site, initiating actions and completing a weekly environmental inspection report; and
- Act as the main point of contact between the sub-contractor and main Contractor on environmental issues.

3.6. The Main Contractor and any Sub-Contractors would be required to employ environmental specialists to support the project as required to provide the mitigation measures described in both the CEMP and in response to particular construction activities that may otherwise present an environmental risk.

3.7. Their role would be to undertake the detailed mitigation design within their specialist field, oversee its implementation, maintenance and monitoring throughout the construction period up to the end of the maintenance period. Details of the various specialists to be employed would be reviewed by the Employer's Project team at tender stage and would form a significant part of the tender evaluation process.

Training, Awareness and Competence

3.8. The raising of environmental awareness is viewed as a critical element in the appreciation and implementation of the CEMP. As a consequence, all staff would undergo environmental awareness training, initially by way of the pre-start induction process. A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities would be produced and would be contain within the CEMP.

3.9. Training for all personnel identified in the training plan would be completed before commencement of the associated construction activities. Line managers and supervisors would ensure that all personnel engaged in activities that may have an impact on the environment are competent to carry out their duties or, where necessary, arrange for suitable training to be undertaken.

Supervision of Construction Activities

3.10. All site clearance, construction and installation activities including those carried out by Sub-Contractors and suppliers would be supervised, or regular checked through the completion of site inspection by the Contractor's Environmental Manager, to ensure that the requirements identified in the risk assessment or method Statements have been implemented. The frequency and extent of this supervision would vary according to the degree of competence displayed by the workforce and the level of risk to the environment.

Inspection of Other Operational Impacts

3.11. Appointed environmental representatives would carry out weekly inspections of their respective construction areas, to verify that housekeeping or supporting controls are being implemented effectively. These inspections would utilise the site environmental standards as the minimum standards that should be achieved, with the necessary actions being recorded and raised at weekly progress meetings. Subsequent inspections would commence with a review of all outstanding actions from previous reports to verify that they have been completed. Inspection of deliverables required by the CEMP would be subject to regular independent inspections by either the Environmental manager or the relevant environmental specialist. These inspections would be used to confirm that:

- Site clearance and construction works are progressing in accordance with the agreed Method Statement;
- Agreed protection or mitigation measures are in place, prior to or during the implementation of construction activities; and
- The works have been completed in accordance with the design and commitments made during the statutory process.

Environmental Inspection and Reporting

3.12. The Contractor's Environmental Manager would carry out an assessment of the Project's environmental performance based upon reports from the environmental management representatives, the environmental specialists and from their own site inspections. This would be carried out at a frequency at no greater than monthly intervals but could be held more regularly depending upon the nature of the construction activity and the nature of the sensitivity of the site. An assessment of the performance over the month would be made and quantified. A monthly report detailing the performance for the period would be provided to the Employer's Project Manager (or their representative) and would include a summary of the environmental inspections completed, audits undertaken, complaints and incidents.

4.0 SITE CLEARANCE AND CONSTRUCTION

4.1. The key elements and stages in the demolition and construction delivery programme are as follows:

- Vacant possession of the Greenwood Centre development site;
- Full photographic survey of surrounding footpaths and roads (for entire site);
- Construction / formation of site access, hoarding and signage;
- Establishment of Contractor's site compound;
- Services disconnection;
- Erection of scaffolding and works platforms;
- Construction to sub-base of new access road;
- Demolition of Community / Day centre building;
- Groundworks;
- Substructure construction for new day/community centre;
- Vacant possession of the Greenwood Centre development site;
- Construction / formation of site access, hoarding and signage;
- Establishment of Contractor's site compound;
- Demolition of Highgate Road properties;
- Groundworks;
- Superstructure construction for residential building;

SITE CLEARANCE

4.2. The exact methodology for the site clearance works will be established and agreed with the Contractor after careful examination of the site and neighbouring properties.

4.3. The adopted site clearance methodology will be primarily based on safety, but equally to minimise the environmental impact of the works. Particular consideration will be given to the safety objectives, local residents, visitors, the general public and adjacent neighbouring properties. Particular attention will also be given to the transportation of materials to and from the site with respect to local residents and businesses.

4.4. Upon commencement of the works, the identification and isolation of local services will be undertaken. All classified and hazardous materials and substances will be doubled bagged and removed from the site in sealed skips where it will be transported off the site by road to one of a numbered licenced hazardous substance tips. Hazardous substances and materials consignment notes will record all waste before it leaves the site.

4.5. On completion of the hazardous materials removal, the hazardous materials enclosures will be cleaned and the area tested with samples taken to ensure that all hazardous materials, particles etc. have been removed. The enclosures will then be removed.

CONSTRUCTION METHODOLOGY

Site establishment and enabling works

4.6. The main Contractor will secure the site with hoarding and set up accommodation, power and signage. Movements to and from the site (e.g. deliveries, plant, waste removals etc.) must be planned to avoid congestion on the nearby roads. The Contractor will clearly identify the entrances, vehicle and pedestrian routes across the site, the location of storage and standing plant (e.g. cranes, concrete lorries, concrete pumps etc.). A working platform is likely to be required for the piling rig and cranes(s).

Substructure Construction

4.7. Piling will be carried out to the full length of the building. The contractor must be aware of the rig movements particularly when working at the site boundary or close adjacent buildings. The piled walls by the boundaries should allow excavation to form any basement areas without extensive temporary works and elsewhere there should be sufficient room to safely bank the existing ground. Following excavation the pile caps, basement slab, retaining walls will be formed. Waterproofing will be integrated as required. The columns, walls and insitu ground floor will be formed with penetrations for services.

Superstructure and roof construction

4.8. Construction of the superstructure will require a crane to lift materials and formwork to the upper floors. The crane type will be carefully selected to ensure minimal noise or nuisance to neighbouring properties and not require significant space or set up. The formwork will be set up as a working platform with edge protection. Concrete for the slabs, columns and shear walls for the upper floors will be placed with a concrete pump. Perimeter scaffold will be erected to form the external walls. Steelwork will be lifted as required to form the external walk ways and roof.

5.0 PLANNING OF CONSTRUCTION WORKS

5.1. The principal Contractor will be required to prepare and submit a detailed schedule of environmental mitigation measures for the control of site clearance and construction operations taking into account all the environmental constraints identified.

Risk Assessments

5.2. All activities undertaken on site would be subject to environmental risk assessments. Risk assessments would be undertaken by specialist staff following an appropriate procedure which would:

- Identify the significant environmental impacts that can be anticipated;
- Assess the risk from these impacts;
- Identify the control measures to be taken and re-calculate the risk; and
- Report where inappropriate level of residual risk is identified so that action can be taken through design changes, re-scheduling of work or alternative methods of working in order to reduce the risk to an acceptable level.

5.3. The results of risk assessments, and their residual risks will only be permitted for an activity if:

- The sensitivity of outcome is reduced to the lowest practical level;
- The number of risk exposures are minimised; and
- All reasonable practical mitigation measures have been taken and the residual risk rating is reduced to a minimum and considered to be acceptable.

5.4. The findings of the risk assessment and in particular the necessary controls would be explained to all operatives before the commencement of the relevant tasks using an agreed instruction format.

Method Statements

5.5. Method Statements would be completed on behalf of the main Contractor or Sub-Contractor by trained engineers or other appropriately experienced personnel, in consultation with on-site environmental staff and, where necessary, environmental specialists. Their production would include a review of the environmental risks and commitments, as identified, so that the appropriate control measures are developed and included within the construction process.

5.6. Method Statements would be reviewed by the project manager / Representative, the Main or Sub-Contractor's appointed environmental manager and, where necessary, by an appropriate environmental specialist. Approval of the method Statement will be by the Project Manager /Representative only. If required, approved Method Statements would be submitted to enforcement agencies (Environment Agency, Environmental health officer, HSE etc.) as appropriate. Method Statements would contain as a minimum:

- Location of the activity and access/egress arrangements;
- Works to be undertaken and method of construction;
- Plant and materials to be used;
- Labour and supervision requirements;
- Health, safety and environmental considerations; and
- Any permit or consent requirements.

Register of Environmental Impacts

5.7. A register of potential environmental impacts is required to be produced. This would comprise the various risks that have been identified to be associated with the site and would be regularly updated to reflect any additional risks resulting from the Contractor's selected methods of working, changing site conditions etc. Environmental impacts identified to date comprise:

- Transport and roads;
- Waste, recycling and contaminated/hazardous materials;
- Noise and vibration;
- Air Quality, dust and odour emissions;
- Drainage and waste quality;
- Ecology;
- Archaeology; and
- UXO.

Background Monitoring

5.8. Baseline monitoring shall be undertaken in order to advise appropriate standards for noise, vibration and air quality etc. The following provisional thresholds are suggested at this time.

Site Environmental Standards

Noise

5.9. Noise threshold levels at 1m from the façade of the nearest sensitive receptors should not exceed a 10 hour LAeq of 75db. The threshold level will need to be agreed with the Local Authority and will be subject to continued review should noise complaints be received notwithstanding no recorded exceedences of the initial thresholds. A trigger threshold for the site boundary shall also require agreement.

Vibration

5.10. Vibration should not exceed a peak particle velocity of 25mm per second over the frequency range of 1Hz to 80Hz on adjacent sensitive buildings in both z axis (vertical) and x and y axes (horizontal).

Air Quality – Dust

5.11. Fugitive dust will be assessed by separately monitoring the Respirable fraction of dust (PM10), Total Inhalable Dust (PM100) and potential nuisance dust deposition.

5.12. PM10 data shall be collected at the site boundary prior to commencement of works to demonstrate background concentrations and a threshold level agreed with the Local Authority to ensure deleterious impact on local air quality objectives. A provisional level of PM10 is 0.15mg/m^3 (15 minute mean).

5.13. Total inhalable Dust (PM 100) dust levels shall also be put forward for consideration and are suggested to be 10mg/m^3 over an 8 hour Weighted Average.

5.14. Monitoring results for dust deposition will be compared to the guideline values set out in 'Suggested Guidelines for Deposition Ambient Dust': Vallack HW and Shillto DE, Atmospheric Environment Vol 32 No 16, pp2732-27744,1988. Specifically, the 'complaints possible' guideline for residential areas of 150 mg m^2 - day – and 'complaints likely' guideline 200 mg m^2 -day – 1 are referenced. If results are consistently in excess of 150 mg m^2 - day – 1 this will trigger a review of procedures to further minimise dust generation. If results are consistently in excess of 200 mg m^2 - day -1 this will trigger a temporary cessation of works and redesign of mitigation measures to ensure dust is properly controlled.

5.15. Dust deposition thresholds will be reviewed following collection of baseline data prior to the commencement of works.

Air Quality – VOCs / Odours

5.16. Consideration shall be given to minimising potential generation of VOCs and odours and agreed with the Local Authority. These are likely to be based upon Workplace Exposure Limits (WELs) under the Control Of Substances hazardous to Health Regulations 2002 (as amended) (2011) and set out in EH40.

Air Quality – Asbestos

5.17. A threshold for airborne asbestos fibres of 0.01 fibres ml-1 is currently suggested, although it is recommended that this is confirmed by a specialist Asbestos Consultant and agreed with the Local Authority.

Construction phasing

5.18. The development is expected to be undertaken in three phases with the phases likely to be:

- Phase 1:
- Phase 2:
- Phase 3:

5.19. Before any work is commenced, the Contractor will submit a detailed method Statement and programme, setting out in detail and the works will be undertaken in order to minimise disturbance to existing businesses, residents and neighbours, and maintain safe access to the buildings at all times.

6.0 SITE ESTABLISHMENT

6.1. Prior to any works being undertaken and following receipt of the relevant approvals and licences, the perimeter of the site boundary will be hoarded. Entrance gates and security facilities will be installed in the hoarding at appropriate locations.

6.2. The secure hoarding will be erected around the full perimeter of the site. The hoarding will be erected to also reduce the visual impact and noise transmission of the construction activities at the ground level. The hoarding will be approximately 2.4m high, adequately lit with statutory safety signage.

6.3. All plywood hoarding will be painted and maintained in a clean and safe condition by regular cleaning and removal of graffiti and fly-posters.

6.4. The lighting of the site will be provided with sufficient illumination foe safe demolition and construction works. And also the safety and comfort of the passing public. The lighting will be installed so as to minimise nuisance to local residents and adjacent properties, and also to reduce distraction or confusion to passing traffic on the adjoining public highway.

6.5. The Contractor will set up site office and welfare facilities and temporary services.

6.6. The site establishment will include the office and welfare facilities for the site management, construction operatives, project manager and third parties. Temporary power, water, telephony/broadband and drainage supplies will be fed off of existing services until new services are available.

6.7. Access will not be permitted to the site until each operative and third party visitor has completed the site induction at which point they will be issued with a photo identification document.

6.8. Once the induction has been completed operatives will be directed to the site welfare facilities via the safe access route. Full facilities will be available to allow operatives to get changed into their work clothes ready to work. The site will allow for a co-located project office for both the Project Manager and the Contractor, which will allow for open communication and team relationship, there will be a sub-contractor office, sample and meeting rooms.

Working hours

6.9. It is proposed that the standard construction working hours will be 0800 -1800 hours Monday to Friday and 0800 -1200 on Saturday. The hours of work will of course be subject to the Planning Conditions for the development and any Section 106 Agreement and the Contractor will adhere to these conditions.

Site communications

6.10. Site communications shall be planned for by the provision of two-way radios, notice boards etc. The site communications plan will be establish these requirements.

Security

6.11. The provision of site security guards over the duration of the project to secure the site will be considered. Provision of a 24 hour contact number of local residents and neighbours for the construction works and security will also be considered.

Programme and site layouts

6.12. The Contractor will update on a regular basis the construction, procurement programmes, and site layout in advance of the work phases in order to pre-plan site logistics requirements.

Fire Plan

6.13. Hot work permits, fire safety systems, means of escape routes and other measures will be considered for the protection of neighbouring buildings and the proposed scheme during the project delivery.

Permit to Access System

6.14. The build Contractor will establish a permit to access working systems for all project phases and areas.

Health and safety

6.15. Health and Safety issues on this project are a fundamental factor in influencing the demolition, construction methods and programming/sequencing of the project and occupation, due to the size of the development and the number of vehicular movements and pedestrian movements associate with the work force. As such, a 'Construction Phase Plan' (CPP) (also known as a Construction health and Safety Plan) will be produced in association with Construction (Design and management) Regulations 2007 by the principal Contractor to outline the arrangements for managing health and safety on site during the construction work.

6.16. For each phase of works the Environmental health and Safety Plans will be developed in accordance with general provisions. Housekeeping will be given a high priority.

COSHH Control

6.17. The strategy for the control of all substances and materials coming onto the site and all work activities and processes that generate hazardous substances should be managed and controlled in accordance with COSHH requirements.

Emergency Fire and Access Procedures

6.18. The Contractor will consider providing fire drills, training and use of non-flammable fire resistant materials.

7.0 ENVIRONMENTAL CONTROL MEASURES

7.1. The following control measures have been developed as the provisional mitigation proposals and will be further developed for each stage of the works, to best reflect the actual methods of working and programming of demolition and construction activities. Construction teams will also use the control measures as guidance whilst completing risk assessments and method statements which would in turn provide the appropriate mechanism for implementation on site.

7.2. The measures described in this section will be imposed to minimise adverse environmental effects during demolition and construction works. It is recognised that this Construction Environmental Management Plan will be further developed and adapted.

Visual Intrusion

7.3. At the perimeter of the site a hoarding will be erected to reduce the visual impacts of the demolition and construction activities at ground level, as well as to secure the site. The hoarding will be approximately 2.4m high and adequately lit. All plywood hoarding will be painted and maintained in a clean condition by regular cleaning and removal of graffiti or fly-posters.

7.4. Any buildings or structures being demolished will be clad with plastic reinforcement sheeting to reduce visual impact of the demolition works at high level. All sheeting used for buildings and structure will be a grey/off white colour.

Vehicle Access

7.5. As demolition and construction work progresses, access and egress to and from the different areas of the site will be subject to change and development in line with on-going activities. This is particularly relevant during the early services diversions, demolition, ground works and substructures phases of the project.

7.6. Discussions will be held with the Local Highway Authority, Transport for London, Police and all other stakeholders with regard to access routes in advance of specific works being undertaken.

7.7. We have undertaken a review of the local road network in the vicinity of the and our findings show that:

- Greenwood Place is a narrow two-way single carriageway road fronted by commercial and community properties. Controlled parking is in place on sections of the carriageway;
- Highgate Road is a wide two-way single carriageway road. A bus lane is in place in the eastern side of the carriageway;
- Fortress Walk is a two-way single carriageway road, locate immediately opposite greenwood Place. The road runs from east to west between Highgate Road and Fortress Road;
- Burghley Road is a wide two-way single carriageway road that also provides an east – west connection between Highgate Road and Fortress Road. Traffic calming is in place and controlled parking is allowed on both sides of the carriageway.

7.8. The development area is currently accessed from Greenwood Place.

7.9. It is proposed that the site and Contractor's compound will be accessed from the western end of Greenwood Place. The site access will have secure lockable gates, hoarding, lit and have road safety signage. Security and banksmen will be located at the access. At the end of each working day the site access will closed and locked. On completion of the works the area will be reinstated.

7.10. During site clearance, demolition and construction works, the roads within the vicinity of the site are to be kept clean at all times Strict measures will be adopted to minimise this potential impact and will include the following practices:

i. Where practicable the provision of easily cleaned hard standings for vehicles (to include the areas close to the site access);
ii. The regular cleaning by brushing and water spraying of heavily used hard surface areas;
iii. The provision of wheel washing facilities or high pressure hose to ensure all vehicles leaving the site is in a satisfactory state of cleanliness;
iv. The provision of road sweepers during all material import or export;
v. Dusty material stockpiles and dust activities such as stone cutting and grinding to be sited away from the site boundary and/or effectively screened;
vi. Sheeting of vehicles transporting materials to and from the site; and
vii. Surfacing of the haul roads as soon as possible in the programme.

7.11. The Highways Act 1980 sets out the requirements relating to construction works on or near a highway and also makes it an offence to obstruct the highway. The New Roads and

Street Works Act 1991 contain updated provisions for carrying out works to highways and construction of new roads and The Town and Country Planning Act 1990 requires that a public right of way may not be obstructed or diverted without an Order permitting it.

7.12. Good construction practice states that vehicle arriving or leaving the site shall do so during normal working hours and will avoid rush hour periods. The Contractor will give careful consideration to preventing blocking of any roads to incoming traffic.

7.13. The number of lorry movements, hours of operation and any lorry holding areas will be agreed in advance with the Council and regulators. Vehicle movements will be kept to a minimum in order to cause minimum disruption to the local road network. In addition deliveries will be timed to avoid peak traffic periods.

7.14. Vehicles and other deliveries will arrive at site on a 'just-in-time basis where they will drive into the site under the control of a banksman. There shall not be permitted to arrive before the agreed site working hours and a strict policy in this regard will be enforced. An area on-site will be provided for HGVs to wait and turn in order to minimise the amount of time they spend on the local road network. It is also proposed to limit any HGVs waiting on the public highway to enter the site but if this is unavoidable, they will be required to switch off their engines and to wait in an appropriate place so as not to cause an obstruction.

Transport management During Demolition and Construction

7.15. In order to minimise disturbance to local residents and local businesses there will be no Contractor parking on site. The workforce will be required to use public transport for their journey to and from the site and make use of local bus routes and the close oriximity of Kentish Town railway and underground stations.

7.16. The transport strategy for the greenwood place development is to encourage suppliers to approach the site via the A400 Kentish Town Road turning into the B518 Highgate Road and then into the northern most end of Greenwood Place.

7.17. Deliveries will be carefully managed in order to avoid numerous lorry movements in short periods of time.

7.18. We currently estimate that the daily trips associated with construction heavy goods vehicles (HGV) will be approximately 20 per day (a trip being one inbound movement and one outbound movement from the site).

Vehicle Deliveries

7.19. 48 hour advance notification will be required for all site deliveries and waste collection. The Contractor must ensure that they are on site to receive, load and unload and check all deliveries.

Load Consolidation

7.20. Load consolidation is the requirement to substantially reduce partially loaded lorries and thereby increase vehicle utilisation by achieving higher levels of vehicle fill. The contractor will be expected (under the Local Authority requirements) to achieve the highest average vehicle utilisation within the site constraints.

7.21. Measures to achieve load consolidation include:

- Backloading – This is where suppliers pick up during the same time as they drop off supplies. In the case of the Greenwood Place development this is most relevant to the management of on-site waste;
- Dedicated deliveries – Sole suppliers of steel reinforcement cages for piles, concrete decking and formwork, steel reinforcement bars, ready mix concrete, pre-cast slabs and stairs, brick/blocks, widows and materials for inside finishes can be controlled to ensure that loads are consolidated by ensuring the largest permissible lorries and concrete mix lorries are used;
- Maximise permissible lorries and concrete mix lorries are used;
- Maximise permissible carrying capacity – consideration by the Contractor, sub-contractors and suppliers should be made to achieve deliveries on the largest possible vehicle in respect of weight and size;
- Use of more space efficient packaging and pelleting;
- Nominated day delivery system;
- Delivery collaboration;
- Reduction in 'just in time'.

Local resourcing of materials

7.22. The use of locally resourced materials to reduce transportation miles has been reviewed and the Contractor will, where financially possible, resource materials from within the Home Counties to avoid unnecessary freight usage.

Plant and Equipment

- Modern excavators equipped with the latest attachments for crushing and pulverising concrete will keep the use of impact breaking to a minimum;
- A regular serviced and modern fleet of lorries will be used for the collection of waste, transportation of plant and equipment; and
- Use of gas powered generators rather than diesel if possible and use of electric equipment and plant rather than diesel/petrol where practicable.

Site drainage

7.23. The control of surface water run-off during the construction period will be based on best practice guidance provided by the Environment Agency and CIRA (Construction industry Research and Information Association) with systems in place to ensure suitable treatment and discharge of surface water.

7.24. Surface water discharge from the Greenwood Place demolition and construction site will require discharge consent from the Environment Agency and Thames Water with specific limits on the water quality of the discharge. A discharge consent will normally specify pH 6-9, Suspended solids <200mg/l, no trace of oils or greases and no poisonous or noxious materials.

7.25. In order to comply with the conditions of any discharge licence, good practice measures will be adopted including:

- Silt busters or settlement tanks will be used to reduce silt levels from dewatering prior to discharge;
- Keeping all sources of potential pollutants (e.g. fuels, chemicals) away from drains and on drip trays;
- Regular checks of quality for dewatering will be undertaken before it is discharges to the drainage system;
- All road ways and vehicle stopping areas will be sealed;
- Undertaking of concrete washout in areas with controlled drainage only;
- Surface water run-off from all parking areas will be diverted to Class 1 oil separators with adequate capacity for the anticipated flows. These Class 1 separators will be designed to the standards outlined within the Environment Agency Pollution prevention Guidance No 3; and
- Road sweeping to control mud on roads.

Waste management

7.26. Waste will be generated during all stages of the demolition and construction works. The likely major source of waste during the demolition and construction stages are:

- Demolition spoil; hazardous materials, concrete, brick rubble, steel, wood etc.;
- Packaging; plastic, pallets, expanded foams;
- Materials, poor handling and spillage; and
- Dirty water for example from site run-off containing silts.

7.27. Section 34 of the Environmental protection Act 1990 imposes Duty of Care on any person who produces, imports, carries, keeps, treats or disposes of controlled waste. The identification and clean-up of contaminated land is governed by the Environmental Protection Act 1990 Part 11A which was enacted by Section 57 of the Environmental Act 1995. The Pollution Prevention and Control regulations 2000 are design to prevent, reduce, and eliminate pollution at source through the efficient use of natural resources.

7.28. The Contractor will be required to develop detailed proposals for the management and/or disposal of solid waste created during the demolition and construction works, and these will form part of the Waste management Plan for dealing with waste arising from the construction of the project, and included in the Site Waste Management Plan. As a minimum these would include:

- Sorting and reusing earthwork materials and general arisings to negate the export of inert material;
- Materials for re-use will be under a Material Management Plan, produced in accordance with the CLAIRE Code of Practice;
- Reduction of site generated waste through waste minimisation, segregation and recycling initiatives;
- Identification, storage and appropriate management of potentially contaminated materials;
- Any processing and/or treatment of contaminated soils on-site must be undertaken in accordance with an appropriate Mobile Treatment licence (MTL);
- Provision of suitably qualified and experienced Environmental Consultant to identify hazardous waste as defined in the Hazardous Waste (England and Wales) Regulations 2005 and European Waste Code (EWC) and classification in accordance with Environment Agency guidance 'Interpretation of the Definition and Classification of

Hazardous Waste' WWM2 (second edition v2.3) so that the materials can be appropriately managed and disposed of during works;

- Appropriate methods of waste disposal linked to a robust waste disposal audit trail;
- All topsoil and/or subsoil would be handled and stored carefully to minimise the potential for damage to the soil structure. A detailed method Statement would be produced clearly identifying correct stripping, soil handling, storage, placement and programming requirements to avoid compaction and moving the material in unsuitable weather conditions;
- Where possible construction arisings would be reused within the site as fill;
- Where practicable, all concrete and redundant road pavements would be transported to a dedicated crushing and recycling facility for re-use on the project or within the local area;
- Detailed procedures and guidance would be developed and implemented through the construction process to minimise the import of non-sustainable raw materials and for identifying opportunities for re-using or re-cycling waste;
- Disposal sites and routes will be identified by the Contractor in consultation with Council and EA. In assessing the most suitable option for disposal, the Contractor must consider the mode of waste transportation and alternatives to reduce adverse environmental impacts, transport times and licence conditions;
- The Contractor must comply with the relevant legislation, technical guidance and regulations in the identification, handling, storage, recovery and disposal of waste; and
- Site office waste should be collected in separate containers to maximise the opportunities for recycling, this would include, bottle and paper banks.

7.29. Fly-tipping will not be permitted. All waste loads must be deposited at authorised landfill sites or transfer stations. Deposition will be in accordance with the requirements of the EA and Duty of Care provisions of the Environmental protection Act 1990. All Duty of care documentation must be kept and made available for inspection upon request. A ticket system will be operated to the Council's satisfaction including a sequential numbered system to confirm that each lorry load of waste is deposited at an appropriate site.

7.30. If required by the Council the Contractor must provide lorry tickets uniquely identifying the work on site. For identification purposes, these will be fixed in a prominent position and must be legible from a distance of 20 metres on all lorries frequently serving the site.

7.31. All relevant sub-contractors will be required to investigate opportunities to minimise waste arising at source and, where waste generation is unavoidable, they will be required

to maximise the recycling and reuse potential of demolition and construction materials. Wherever feasible, such arising will be dealt with in a manner that reduces environment effects and maximises potential reuse of materials. Recycling of materials will primarily take place off-site where noise and dust are more easily managed and less likely to impact upon the occupants of surrounding properties.

7.32. A Site Waste Management Plan (SWMP) will be established in order to identify the process required. Waste could be potentially collected daily from the site by means of skips or waste vehicles. Waste transfer notes will be held by the Contractor and will fully describe the waste in terms of type, quantity and containment in accordance with relevant regulations.

7.33. Recycling of materials will primarily take place off-site where noise and dust are more easily managed and less likely to impact on the occupants of surrounding properties.

7.34. Most spills can be prevented with careful handling, storage and use of potential pollutants. Good practice measures that will be undertaken include:

- All fuels, oils and chemicals will be stored in secure, appropriate containers with labels clearly identifying the product;
- All products will be kept in secure storage with integral drip trays (e.g. COSHH cages);
- Containers with more than 200 litres of oil-based products will be provided with secondary containment (e.g. interceptor drip trays) capable of holding 110% of the volume of the container, or 25% of the combined volume of the containers, whichever is the greatest. They should also be located away from any surface water drains;
- Mobile fuel bowsers will be kept locked when not in use, and any hoses stored within the secondary containers; and
- All hoses associated with the delivery of oil or fuel will have automatic cut off devices, and will be kept in the secondary containment.

7.35. In the event that a spill occurs, the impact will be minimised by prompt and effective action. Spill kits, including granules, absorbent booms and hazardous waste bags shall be provided along with training of staff in their use. All used spill kit material will be disposed of as hazardous waste. Measures for dealing with emergency spillages will need to be included in the Contractor's method Statement.

7.36. The operation and refuelling of plant can cause contamination of ground, ground water and surface waters from leaks, drips or spills. Drip trays (interceptor drip trays) will be used under generators, pumps and other plant equipment as determined necessary to

protect ground from oil/fuel contamination. Smaller, more mobile drip trays will be used when refuelling or carrying out maintenance of large plant. Maintenance and refuelling of plant will be undertaken in designated areas, within which contingency plans will be implemented to ensure that the risk of spillage is minimised.

7.37. Interceptor drip trays will be located on flat surfaces and primed with two to four inches of clean water and drip trays will be emptied before they are moved.

Noise and Vibration

7.38. Estimates of the impact of demolition and construction noise and vibration relating to the greenwood place site would be based on the latest available information. Demolition, piling works. Excavations and construction of the frame will be the most significant construction site activities. The noisiest activities are likely to be piling, excavation and construction of the slabs, although concreting operations will also give rise to a degree of noise, the levels generated are likely to be significant. During construction above ground, there will be some noise from the formwork erection but the majority of activities and plant are considered to generate low noise levels.

7.39. Noise and vibration levels will be controlled and consent sought from LB Camden under the Control of Pollution Act 1974, Environment Protection Act 1990, local policy guidelines etc. to ensure that the Greenwood Place site is operated in a way that is not detrimental to the amenity of neighbouring properties.

7.40. Environmental monitoring measures to be adopted during demolition and construction phases are to be included in the detailed CEMP. The Contractor will engage the services of a Specialist Consultant to undertake the environment monitoring of noise and vibration.

7.41. All demolition and construction on the site will be undertaken in accordance with the Planning Conditions, Section 106 Agreements, construction site rules, agreed working hours etc.

7.42. The Considerate Contractors scheme will be adopted to supplement the procedures outlined above.

7.43. The works will adhere to the legislative requirements on noise and vibration contained within the Control of Pollution Act 1974 and the statutory nuisance provisions contained within the Environment Protection Act 1990 (s79-82). In this context compliance with BS 5228: 1997 Code of Practice on Construction and Open Sites would be required.

- The monitoring regime will be with officers of LB Camden and the appropriate threshold and action levels agreed for the noise and vibration parameters that are agreed to be measured, both pre and post construction. Monitoring locations will be established on and around the site and on delivery routes where necessary. On a regular basis the site team will produce reports and arrange meetings with LB Camden officers, Health and Safety Executive (HSE), if appropriate and other agreed stakeholders to review the reports, monitor the procedures and review the action plans;
- Weekly monitoring will be carried out both during demolition and construction activities, from previously established and agreed monitoring stations around the development, to ensure that action levels are set and agreed have not been exceeded;
- The Contractor will develop a neighbourhood comment and complaint procedure for recording and dealing with complaints from local residents and businesses;
- Detailed construction and procurement programmes will be available in advance of work commencing on site;
- Noise emission and reduction measures should be considered in advance and noise should be attenuated considerably at site in accordance with both legislation and regulations;
- Unless otherwise agreed with LB Camden, noise and vibration values will be predicted in accordance with the methods set out in the requirements of BS 5228 – Noise Control on Construction and Open Sites. in addition, the guidance and procedures given in BS 5228 Parts 1, 2 and 4 will be complied with. In the case of vibration, reference will be made to BS 7385 and BS 6472;
- In addition, specific "quiet hours of working" could be written in all contract binding agreements to be made between the development partners, Local Authority officers, the Contractor's sub-contractors, suppliers etc. in order to minimise noise and vibration levels across the site;
- Design and use of 2.4m high site hoardings and screen/noise barriers, to provide acoustic screening. The hoardings may be removed from time to time to suite the progress of works;
- All demolition and construction activities, that have the potential to generate significant amounts of noise and/or vibration, will be undertaken during day time periods;
- As a general rule, where adjacent neighbouring residents are likely to be effected by noise and vibration, it is expected that the works on demolition and construction phases shall be carried out during normal working hours:-
  0800-1800 hours Monday to Friday
  0800-1200 hours Saturday

No working on Sundays and Bank Holidays;

- Where it is necessary for work to be carried out outside normal working hours the Contractor will be required to demonstrate and justify the need to do so in advance. Full details of the proposed works shall be submitted to the local Authority in writing for approval prior to commencement;
- Provision of silent vibration free piling techniques should be utilised for driving sheet piles to the perimeter of the site boundary;
- Loading excavators are ground level will reduce movement vibration by remaining static, tipper lorries with rubber tyres will be loading from centralised rubble heaps;
- The utilisation of tipping skips lowered to ground by cranes will reduce ground effect vibration;
- Effective silencers will be fitted to the exhausts of all plant and equipment;
- Use of mains generated electricity instead of diesel generators should be considered;
- Minimise the use of vehicle reversing alarms;
- Radios and other audio equipment will be prohibited on site;
- The utilisation of a two-way radio communication system will be implemented to reduce the need for shouting; and
- All operatives' management etc. will wear personal protective equipment on site.

Air Quality, Dust and Emissions

7.44. The main regulatory controls over dust are the statutory nuisance provisions contained in the Environmental Protection Act 1990. Dust can give rise to statutory nuisance if it is considered to be prejudicial to health or a nuisance. Controls of Air Quality are covered by the provisions of the Environmental Protection Act 1995, Clean Air Act 1993, the Health and Safety at Works Act 1974, The Environmental protection Act 1990 and the UK Air Quality Strategy.

7.45. Particular care is required to maintain dust an malodour emissions at a practicable minimum when working in environmentally sensitive areas. The use of best Practicable Means (as defined in Part III of the Environmental protection Act 1990) will be employed to mitigate against dust generation. Mitigation measures will include:

- Sealing and sheeting of stockpiles;
- Sheeting of vehicles transporting materials to and from the site;
- Limiting the speed of general vehicles within the site to 10mph;
- Surfacing of haul roads and nearby public highway;

- provision and compulsory use of wheel washing facilities at access points onto the local roads (to prevent mud from getting on the public highway)
- Damping down haul roads using mobile water bowsers;
- Proactive dust suppression via water spraying downwind of activities that have the potential to generate dust i.e. braking-out and excavating;
- Visual monitoring would be carried out at sensitive locations on a daily basis;
- The utilisation of modern fuel-efficient machines will reduce the emission of exhaust gases into the atmosphere;
- All exhaust systems will be fitted with catalytic converters;
- Plant and equipment will be regularly serviced and air filters will be regularly replaced or washed; and
- The COSHH survey and report will identify any substances likely to cause offensive odours. A risk assessment will be produced and effective control measures employed to prevent the release of odours.

7.46. The use of effective dust mitigation techniques, including good site planning, minimises the potential for dust emissions and impact upon surrounding receptors.

7.47. The potential for dust to arise during the demolition, ground breaking, earth moving and excavation stages of the project is to a degree weather dependant. If carried out in dry weather, increased water spraying will be required to ensure the surface remains damp and to prevent dust generation and dispersal in wet weather greater attention will be paid to vehicle cleaning to ensure significant quantities of mud are not trafficked onto local roads, which once dry can become a significant cause of dust.

7.48. Throughout the duration of the works, care will be taken to ensure adequate control of dust from vehicles delivering and removing material to and from the site. Drop heights. When loading and unloading materials, will be minimised. All dusty loads will be sheeted appropriately. Dried must and dust carried onto roads by lorries and other machinery can be a significant cause of dust the hard surfacing of heavily used areas adjacent to public roadways will be regularly cleaned as required. A pro-active strategy will be adopted to prevent fugitive dust emissions.

7.49. Where dust id generated or trigger levels are exceeded, procedures will be reviewed to ensure effective mitigation. Such additional measures may include sheeting over of exposed ground or damping down stockpiles/working areas. To mitigate nuisance or potential health impacts to local residents and neighbours, a rigorous dust monitoring

and control programme will be employed and where required, dust generation will be reduced by spraying demolition works with water.

7.50. Dust levels within enclosed areas must be measured with appropriate equipment to compare with relevant Occupational Exposure Limits made under the Control of Substances and Hazardous to health (COSHH) regulations 2002 and published annually in EH40.

7.51. The burning of materials on site will not be permitted.

7.52. The Contractor will take all necessary precautions to prevent the occurrence of smoke emissions or fumes from site plant and fuel storage. This is to include:

- Plant should be well maintained;
- Plant should be shut down in intervening periods of work or throttled down to a minimum;
- Off-road mobile vehicles, (bulldozers, excavators) should be run on low sulphur diesel;
- Off-road mobile vehicles with compression ignition engines must comply with emission standards set in EC Directive 97/68/EC, meeting Stage II limits where possible;
- On road construction vehicles must comply with European Directive EURO Standards with regard to emission limits for pollutants and have a valid MOT to ensure compliance; and
- Road vehicles must be switched off when stationary to prevent exhaust emissions and noise.

7.53. Special precautions for airborne dust monitoring and control must be established in areas with material containing asbestos. The Contractor must comply with the Control of Asbestos Regulations 2012 and adhere to the exposure limits set out in HSE Guidance Note EH10 Asbestos Exposure Limits and Measurements of Asbestos Dust Concentrations 2011 (updated by HSG248). The Contractor is to submit a Method Statement and Risk Assessment for the controlled removal of asbestos containing materials, including details of monitoring proposals and validation. For the purpose of control and remediation, the more stringent asbestos levels of 0.01f/ml is stated within the Contract for the works.

Ecology

7.54. The protection of ecology is provided by the Wildlife and Countryside Act 1981 and the Conservation Regulations 1994. A range of ecological surveys have been undertaken to assess the effects of the demolition and construction works upon ecology and nature conservation.

7.55. The presence of protected spices on site is noted and site clearance will be undertaken at an appropriate time of year to minimise risk to them An ecological clerk of works will be appointed who will have responsibility for ensuring the site works proceed in accordance with the CEMP.

Bats

7.56. The site offers negligible potential for roosting bats.

7.57. All bat species are protected under the Conservation of habitats and Species regulations 2010, the Wildlife and Countryside Act 1981, as amended, the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006.

Resident Native Birds

7.58. Due to the lack trees and scrub within the site, there does not appear to be significant potential for the site to support breeding birds.

7.59. Breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended). Schedule 1 of the wildlife and Countryside Act 1981 provides further species protection from disturbance at or near active nest sites.

7.60. Wherever possible, vegetation clearance and building demolition should be undertaken outside of the breeding bird and nesting season. The site will be inspected by a suitable qualified ecologist prior to any works commencing, and appropriate mitigation measures will be adopted should they be necessary.

Foraging Mammals

7.61. There does not appear to be any significant potential for foraging mammals within the site

Trees

7.62. There are no Tree preservation Orders (TPOs) on any tress on the site or within the vicinity.

Archaeology and Heritage

7.63. An archaeology watching brief should be undertaken in accordance with the guidance for archaeological watching briefs published by the institute of Field Archaeologists (IFA 1999).

8.0 COMMUNICATION AND REPORTING

Communication

8.1. Internal project communication should be via two processes:

- Weekly team meetings; and
- Monthly progress meetings

Weekly Team Meetings

8.2. Weekly meetings chaired by Camden Council's Engineering Representatives would be held by each of the construction teams to review performance and co-ordinate short term planning of forth coming activities. Environmental management representatives would use these meetings to report on the findings of their inspections together with recurring issues. Actions from these meetings would be recorded via meetings would be recorded via minutes and reviewed by the Contract Manager.

Monthly Progress Meetings / Environmental Review

8.3. Environmental issues would be primarily discussed at a monthly Project Environmental review, chaired by the Contract Manager and attended by the Contractor's Environmental Manager, Camden Council's Environmental manager, relevant sub-contractors and environmental representatives from statutory consultees. The Project Environmental Review would:

- Consider past performance from inspections, audit reports and monitoring data;
- Plan actions required to mitigate forthcoming risks; and
- Disseminate best practice.

8.4. The results of the Environmental monitoring shall be made available to the Local Authority Environmental regulators.

Communication with the public

8.5. The area in the vicinity of the Greenwood Place development site consists of mixed residential and commercial uses. Therefore the nature of works being undertaken and the arrangements for deliveries require the impact on the neighbours and local residents will need to stringently managed.

8.6. It is our aim to reduce this impact through the use of clear information and reporting methods. Exemplary external housekeeping and satisfactory responses to any queries raised. We propose developing and issuing a newsletter to local neighbours and local residents. The newsletter will provide useful information about the Considerate Contractors approach and contact details for both the Contractor and construction team should any concerns need to be raised. The Contractor contact details will be clearly displayed at the site entrance and security areas.

8.7. A project Community liaison Plan would be established to provide a framework for managing communications with local neighbours and interested parties and agreed with the Local Authority.

8.8. During the works there will be regular communications with neighbouring properties local businesses and local residents. A monthly newsletter will be sent to the surrounding neighbours to keep all parties informed about progress to date and forthcoming works.

8.9. The ultimate aim of the document is to be informative to the local neighbours and residents, and to make the Contractor approachable when they need to engage with the local community.

8.10. A complaints register will be established to provide a permanent record of the performance of the project. Any complaint from residents, local neighbours or other parties will be treated seriously, and the complaint logged and the cause investigated. The outcome should allow procedures to be implemented with the aim of avoiding any reoccurrence.

Resident Liaison officer

8.11. The works may cause some inconvenience to local residents and neighbouring properties. The contractor will therefore develop a philosophy of minimising any inconvenience to local residents and neighbouring properties.

8.12. This philosophy recognises the need for detailed liaison between the contractor and neighbouring properties. To meet this requirement it is proposed that the contractor develops a management function of Resident Liaison officer. The proposal therefore is to make the contractor responsible foe liaison to ensure that smooth communications are maintained throughout the project with local residents, neighbouring properties and the Local Authority.

8.13. Measures will be implemented to ensure that a coherent management plan is developed for the project that will include the following:

a) The project tem will work closely with all project stakeholders and local residents to address the following:

- The project parameters;
- Lines of communication;
- Timescales and methods;
- Areas of operation;
- Security;
- Site cleanliness;
- Significant activities; and
- Positively address any questions or concerns expressed by residents and neighbours regarding the site and works.

b) Prior to contract commencement prepare and implement in association with the residents, Camden Council and their representatives, a procedures plan for co-operation between all parties concerned;

c) Establish a project information centre. The information centre would also act as the point of focus for residents and local neighbours, where visual displays and regular bulletins will be used to illustrate the intent of the project.

d) Maintain regular meetings with local residents and neighbours, especially during the pre-lead period to explain how works are to be carried out;

e) Notification to local residents of impending works;

f) Liaison between local residents and the contractor of specialist deliveries and functions;

g) Maintain liaison at all times between residents and the Contrator regarding matters of concern, ensuring that a satisfactory outcome is achieved; and
h) Inform the status of progress reports of the works to local residents and local neighbours.

8.14. Experience has shown that friction between the Contractor can be avoided by continuing the process of consultation and dialogue and giving adequate prior notice of any significant operations and phasing of the works and not ignore the needs of local residents and neighbours.

Audit and Review of Performance

8.15. The contractor will be required to demonstrate and appropriate method of auditing the CEMP process via an internal or external auditing procedure. Provision of evidence that an agreed auditing procedure has taken place will be requirement of regular meetings between the Contract manager and Camden Council's Project Manager.

Control of Non-Conformance

8.16. Non-conforming products or processes would initiate a Non-Conformance report, which would identify the nature of the problem, the proposed corrective action, action taken to prevent recurrence of the problem and the verification that the agreed action has been carried out.

Documentation and reporting Arrangements

8.17. To be confirmed following discussions with Camden Borough Council.

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