Environmental Management Plan (EMP)

Project Name:	York Street, Manchester	**Contract No:**	10001594
Completed by:	D Ledwidge	**Date:**	15/06/2017

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01 DRAFT	First Draft	DL	15/06/2017
02	General update	LW	14/07/2017
03	Contents table added	LW	25/07/2017
04	Updated following MCC Planning comments. Updated to revised EMP template.	LW	08/11/2017
05	Updated site hours	LW	04/01/2018

This document forms Appendix L of the Construction Phase Plan.

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1. Introduction

This EMP has been prepared in accordance with the Kier SHEMS Environmental Management Standards and Guidance. It identifies specific environmental issues associated with York Street, Manchester, and stipulates the procedures that will be used to manage them. Relevant environmental information will be communicated as required.

All amendments to this EMP must be made by project management in consultation with the Safety, Health and Environmental Manager or Environmental Manager / Adviser and documented.

2. Environmental Aspects & Impacts

An Environmental Aspect and Impact Assessment (SHEMS-FOR-GR-040) for this project has been undertaken in accordance with the Risk and Impact Management Standard (SHEMS-STD-GR-014).

The assessment looks at each site activity against the following environmental aspects:

- Emissions to Air;
- Emission to Land;
- Emissions to Water;
- Waste Generation;
- Nuisance & Environmental Health;
- Ecology & Biodiversity;
- Cultural Heritage;
- Use of Raw Materials;
- Use of Natural Resources.

Details of the control measures identified in the assessment will be communicated to relevant subcontractors. Subcontractors must manage all risks / impacts associated with their work activity / package in accordance with this document.

Where the subcontractor identifies additional environmental risk / impacts the Project Environmental Co-ordinator (PEC) and Project Manager must be informed and the aspect and impact assessment reviewed and amended as required.

In the event subcontractors undertake works that require reference to document(s) listed in section 2.3 of the Construction Phase Plan (Part A), these will be provided / incorporated into their contract as part of the subcontract documentation.

Kier may, from time to time, externally communicate information relating to significant environmental aspects and the company's performance. Such decisions will be made by appropriate management and documented.

3. Specific Project Environmental Requirements

This section incorporates information derived from documents scheduled in 2.3 of the Construction Phase Plan.

- **Site working times;**
  Monday to Friday – 07:30 to 18:00hrs
  Saturday – 08:30 to 14:00hrs
  Sunday – no working permitted
  Bank holidays – no working permitted

  No loading or unloading shall be carried out outside of these working hours.

  Site activities to be conducted outside agreed working hours must be approved in advance by EHO Environmental Health Department.

  Wheel washing requirements:
  The wheels of contractor's vehicles leaving the site shall be cleaned and the access roads leading to the site swept daily in accordance with the management scheme. This is achieved by hiring power washers at the vehicle exit gates and operated by the Gateman or designated site operative. A road sweeper contractor has been set up to clean the surrounding roads as and when required. In general, this road sweeper will be organised daily for 2 hours from 2pm to 4pm. However, this can be increased if site and weather conditions change.

- **KPI monitoring and mitigation measures**

  Noise:
  A Construction Noise Assessment has been carried out by Acoustic Engineering Consultants and is included within Schedule III. Recommendations including screening and suitable plant and equipment will be implemented during demolition and construction works.
  Construction activities including deliveries and collections will be within the agreed working hours.
  Vehicle movements shall be kept to a minimum and speed limits enforced. No plant will be allowed to idle for long periods when not in use. Plant operators are encouraged to switch off the engine as soon as practically possible. Electric plant will be used instead of diesel or petrol engines, where feasible.
  The control of noise will also be detailed in the site induction, task specific risk assessments and method statements, briefings and toolbox talks.
  The building will be demolished from the roof level down on a floor by floor basis, ensuring demolition is completed in a controlled manner. This will minimise noise from falling material. The majority of the demolition will be undertaken with high reach machines with hydraulic crush attachment, therefore avoiding the use of heavy breakers.
  The existing building will also be enclosed within a full height sheeted scaffold to screen the adjacent properties.
  Ongoing noise monitoring will be carried out around the perimeter of the site and recorded during the demolition and construction phase.

  Vibration:
  A Construction Vibration Assessment has been carried out by Acoustic Engineering Consultants and is included within Schedule III. Based on the assessment it is highly improbable that the vibration levels would be high enough to cause cosmetic damage to the surrounding buildings.
  Vibration monitoring will be undertaken during demolition and piling activities to ensure the levels noted in the assessment are not exceeded.
  Vibration mitigation measures will also be detailed in the site induction, task specific risk assessments and method statements, briefings and toolbox talks.
  The building will be demolished from the roof level down in a controlled manner ensuring noise from falling material is minimised. The use of the hydraulic crush attachment noted above will ensure the concrete is broken into small pieces therefore reducing vibration when being lowered to the basement level.

The existing building will also be enclosed within a full perimeter sheeted scaffold to screen the adjacent properties.
Regular communications will continue with the neighbouring tenants to ensure everyone is aware of the current work activities.
CFA piling has been chosen over driven sheet piles along Milk Street to reduce potential vibration associated with impact piling.

Dust:
Construction activities that may create dust i.e. cutting, drilling, demolition etc. will be carried out in a manner which minimises the generation of dust. This is achieved by damping down work areas, using dust suppressant equipment and creating cutting zones in sheltered areas.
During demolition a Water Mist Dust Suppression system fixed at high level and moved through the existing building as demolition progresses. This will dampen down the existing structure, minimising dust release. The existing building will also be enclosed within a full height sheeted scaffold to screen the adjacent properties and assist with containing dust.
Demolition material will be removed from site using covered HGV's. These will be loaded adjacent to the basement to minimise material movements.
The control of dust will also be detailed in the site induction, task specific risk assessments and method statements, briefings and toolbox talks. Ongoing dust monitoring will be carried out around the perimeter of the site and recorded during the construction phase.

Tree protection:
Ecological survey reported no issues.

Protected species:
Ecological survey reported no issues. Therefore, no species are required to be protected.

Invasive species:
Ecological survey reported no issues.

Waste:
Remove rubbish, debris, surplus material and spoil regularly and keep the site surrounding area and Works clean and tidy at all times. Remove all rubbish, dirt and residues from voids and cavities in the construction before closing in. Ensure that non-hazardous material is disposed of at a disposal location approved by a Waste Regulation Authority. Remove all surplus hazardous materials and their containers regularly for disposal off site in a safe and competent manner, as approved by a Waste Regulation Authority and in accordance with relevant regulations. Retain waste transfer documentation on site. A waste management plan must be in place.

Power usage:
Allowance for site wide temporary electrical power for all personnel. Meter readings will be taken before and during occupation of site and recorded on SmartWaste. During initial set up, a generator will be on site, supplied by a 1000l tank. The oil storage checklist will be completed for this fuel storage unit.

Water consumption:
Water is available on site for temporary connections to the site. Meter readings will be taken before, during and after and recorded on SmartWaste

Commercial deliveries:
Restricted routes to site and time constraints (see above). The main delivery route, via Foundation Street is part of a one way system. Deliveries will be pre booked via an online booking system. This will prevent vehicles having to wait outside of the site boundary for a suitable offloading time.

- BREEAM 2011
  Target: 70.00 – Excellent
  Potential: 74.58 – Excellent

- Considerate constructors scheme
  Minimum score: 40
  Target score: 40

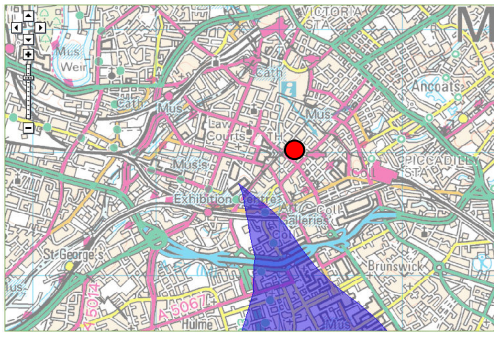
- Employment & / or training opportunities for local people
  See CSR engagement plan for targets and tracking document

- Liaison / working with schools & local community groups
  See CSR engagement plan for targets and tracking document

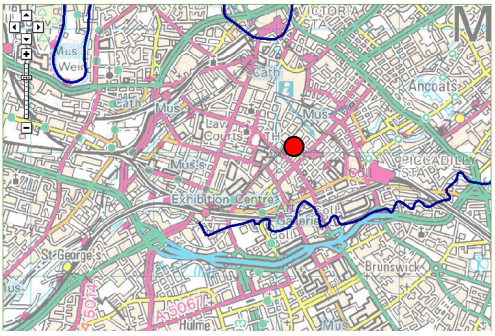
- Volunteering & charity work
  See CSR engagement plan for targets and tracking document

Water Management - Watercourses & wells

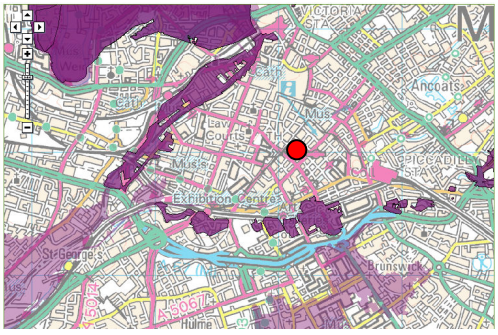
- The site is outside of Zone 3 of the groundwater source protection area (see below)



- The site is not within 10m of a main river (see below)



- The site is outside of any area where flood warnings or alerts are issued (see below)



- Protection required
  A site drainage plan/constraints plan shall be produced to identify all surfaces (blue) and foul water (red) drains to aid water management on site and to aid emergency responses. All foul water gullies identified shall be protected as required by means of witches hats, (Drain Guards) sand bags, or similar, to prevent any unauthorised discharges.

  Cleanliness of site hard standings shall be monitored by the project team, and necessary cleaning actioned.

  Any discharges to foul sewers must have formal temporary Trade Effluent Consent (TEC) off UU or written informal permission from the Client to operate under their consent. Copies of the Consents will be kept in the EMP.

  Complete permit to pump prior to any pumping/discharging activity.

  A simple 'bottle test' can be undertaken to ensure that the water clarity is fit to discharge The results will be recorded on the Dewatering Monitoring Log noting whether the water is clear, slightly cloudy or fail (i.e. can't see hand through bottle). Any other unusual observations (e.g. odour, floating matter, discoloration, etc) should also be noted. If failure is recorded pumping, stop and contact supervisor immediately. This log should be maintained in the EMP. Discharges under consent should be monitored as per the conditions of that consent.

  Concrete Washout:
  Controls for dealing with concrete wash water should be put in place before concrete mixing or deliveries start on site. These should be in line with the Kier Minimum Standard. Where possible a concrete sock will be used or a contained concrete wagon. Where this is not possible the following should be undertaken: Concrete washout facilities can be formed from a lined watertight skip or polyethylene lined pits in the ground. This is the only area on site where concrete activities are permitted to wash out, including mixers, barrows and rakes. Concrete washout facility should only be used for washing off and washing out equipment and tools used in the concreting operation and not un-used concrete. Settled concrete washout waters can be discharged to foul drains with approval from UU under consent. Wash waters will be required to be treated before a discharge can take place. Citric Acid Granules can be used to reduce the pH of the water prior to authorised discharge, or a Siltbuster washwater pHD or similar. Try to minimize the amount of water used to wash off the equipment. Where possible the container should be covered to prevent the ingress of rain water. The positioning of the washout facility should be always as far as possible away from a watercourse or drain (a minimum of 10m). It should also be placed in a suitable area such as near the exit. Un-used/excess concrete should ideally be utilised on site in other ancillary works. In order to facilitate the disposal of concrete washout it is advised that sand and cement is used to set-off any excess liquids present in the washout facility. Untreated Washout liquid should not be discharged over ground or to watercourses due to high chromium content and high PH.

- Consents required / obtained
  Environmental licencing requirements form completed and has identified:
  - Trade Effluent consent from United Utilities has been applied for
  - Planning permissions
  - Water installation
  - Listed buildings / conservation areas – Party Wall Agreement
  - Rights of way / Road closures – client obtained
  - Considerate Constructors Scheme (CCS)
  - BREEAM 2011

Waste (significant waste streams that will be generated) - refer to the SMARTWaste site waste management plan

Adequate waste bins will be placed in work areas, storage areas and temporary site compounds for the depositing of work related waste and mixed welfare wastes.

Regular inspections will be carried out to monitor housekeeping and initiate action to clear litter and debris. Personnel are encouraged to avoid littering and to clear litter where it occurs within site boundaries.

The SmartWaste system will be used to document the requirements of the SWMP, and will be updated monthly.

Burning of Waste is prohibited on Kier sites

All waste must be stored in suitable containers to prevent escaping, leaching, blowing away and scavenging. Skips should not be damaged.

Waste will be collected in unsegregated skips and transported to a licenced recycling centre where materials will be segregated to ensure maximum recycling content is achieved. Total recycling content will be recorded and displayed monthly. This service will be carried out by our preferred supplier Premier Waste Services UK, http://www.premierwasteuk.co.uk.

Canteen and Hazardous Waste will be contained in covered skips/bins

Audits will be undertaken periodically to ensure waste disposal companies are dealing with all waste materials appropriately. Evidence of this check will be held electronically in the EMP.

Within 2 months of project completion a Smartwaste review will be undertaken by the site team to assess the: confirmation that the plan has been monitored on a regular basis to ensure that work is progressing according to the plan and that the plan was updated in accordance with the SWMP regulation; a comparison of the estimated quantities of each waste type against the actual quantities of each waste type; an explanation of any deviation from the plan; and an estimate of the cost savings that have been achieved by completing and implementing the plan.

Contaminated ground, issues with groundwater & dewatering

The Ground Investigation Report (T/16/1835/GIR) produced by Tier Consult dated 24th May 2017 notes the following conclusion within section 11.5;

The results of a generic quantitative risk assessment, undertaken with current guidance and best practice, has demonstrated that no measured concentrations of concern exceed the respective screening criteria protective of human health. Furthermore, no asbestos has been reported in any of the 6 No. samples submitted for asbestos screening.

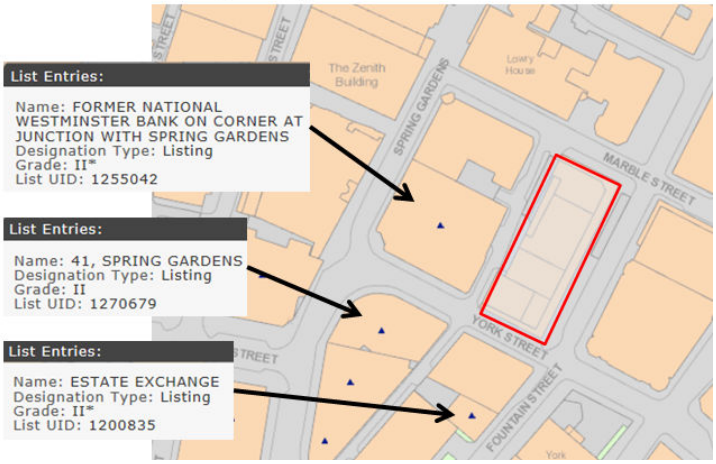
On the basis of this, it is not considered that the site presents a potentially significant risk to human health for a commercial land use.

The results of groundwater sampling and laboratory chemical analysis demonstrate that only measured concentrations of fluoranthene have been reported in excess of the respective EQS value by a single order of magnitude. Given that the exceedances are marginal, that there is an absence of any significant PAH sources in the made ground, that there is a significant distance to the nearest surface water receptor (500m), that the site is set in an urban area, that there is a discontinuous groundwater body beneath the site which will restrict lateral flow, and that there is a significant potential for dilution between the site and the nearest significant receptor, it is not considered that the site represents a potentially significant risk to controlled waters.

Standing heritage & archaeology

- Listed buildings, i.e. Consents required / obtained

Listed buildings adjacent to 11 York Street



- Archaeological investigations & sensitive areas
  The archaeological survey report states that taking the currently available evidence into consideration, the proposed development area can be assumed to have a 'low' potential for the recovery of archaeological evidence.

Materials & design

- Materials with recycled content & low embodied energy
- BREEAM: Excellent
- Use of BRE green guide to specification & a web-based resource called Greenspec.
- Early design workshops will be arranged to consider eco materials & associated construction techniques?
- Timber purchasing policy, i.e. Use of FSC, PEFC
  Timber will be in line with the timber purchasing policy and information will be uploaded onto SmartWaste

Sensitive neighbours

- Primark (Fountain Street), Browns (Milk Street), Rental Cars (Fountain Street).
- Lowry Offices Bruntwood
- Local community meetings will be held at regular intervals to keep all of the neighbours informed of construction progress and upcoming activities.

Ecology & biodiversity

- Further to Bowland Ecology's ecological survey, no designated wildlife sites will be affected by the proposed development. It is noted that no mitigation requirements, with the exception of further bat surveys, are required to be undertaken.
- Note: No hedgerow, tree or shrub shall be removed from the site between 1st March and 31st August inclusive without the prior submission of a report to be submitted to and approved in writing by the Local Planning Authority which sets out the results of a survey to assess the nesting bird activity on the site and describes a method of working to protect any nesting bird interest. Any hedgerow, tree or shrub removal shall then be carried out in accordance with the approved details.

4. General Project Environmental Requirements

4.1 Waste Management

All waste will be managed in accordance with the Waste Management Standard SHEMS-STD-GR-065 and where relevant, the Earthworks and Contaminated Land Procedure SHEMS-STD-GR-061.

York Street Project will manage waste through the implementation of a bespoke version of the Building Research Establishment (BRE) SMARTWaste tool. The project team will also use SMARTWaste Site Waste Management Plan / the Kier Resource Management Plan to identify waste streams, forecast waste volumes and identify suitable methods to eliminate, or where this is not practicable, reduce waste generated by the project.

When considering management options for identified waste streams, Kier and supply chain members will adhere to the principles outlined in the waste hierarchy below.



Kier and its sub-contractors must ensure waste is stored away from drains, boreholes, wells and controlled waters. Containers shall be in good condition and, where required, covered to prevent dust and litter being blown out. If there is any likelihood of stored waste contaminating the area surrounding the site, all necessary steps must be taken to ensure no contamination occurs. This may include the use of containment bunds with rain shelters and the use of sealed containers, i.e. clip-top drums and fluorescent tube coffins.

Before waste is treated and / or removed from York Street, all subcontractors / waste contractors must provide the project team with legible copies of the following documentation:

- Environmental permits (mobile plant licences) and exemption certificates authorising on-site crushing and screening activities;
- Waste Carriers Registration Certificates;
- Environmental Permits, (Waste Management Licences and PPC Permits);
- Notification certificate of exemption from environmental permitting.

The project team and, where applicable, subcontractors will ensure that the removal of all inert / non-hazardous waste is recorded on Waste Transfer Notes (WTNs). These documents must be kept for a minimum of two years. These documents will be stored on site and made available on request, with copies uploaded to the SMARTWaste tool.

The project team and, where applicable, subcontractors will ensure the removal of all hazardous waste is recorded on Hazardous/Special Waste Consignment Notes (H/SWCNs). These documents must be kept

for a minimum of three years. These documents will be stored on site and made available on request, with copies uploaded to the SMARTWaste tool.

Legible copies of all WTNs and H/SWCNs, recording the removal of waste from York Street must be issued to Kier. This includes waste generated on site by subcontractors.

When removing hazardous waste from York Street, a premises code must be used on all Hazardous Waste Consignment Notes.

In England the premises code is generated in accordance with section 4.4.2 of the Waste Management Standard SHEMS-STD-GR-065. The relevant code for York Street is KIER/CN/YK.

4.2 Storage of Fuel, Oils & Building Chemicals

Fuel, oil and chemicals will be managed in accordance with the Pollution Prevention Standard SHEMS-STD-GR-064 and COSHH Standard SHEMS- STD-GR-051. Please also refer to the Oil and Fuel Storage (SHEMS-MST-CIS-0045) and Chemical and Paint Storage (SHEMS-MST-CIS-0042) Minimum Standards.

Containers must be stored within a Spill Nappy (or similar), bund or any other suitable secondary containment system (SCS). All containers must be located in a safe place to minimise the risk of damage and locked-off when not in use.

For oil tanks, intermediate bulk containers and mobile bowsers the SCS must be able to hold:

- Where one container is being stored - a minimum of 110% of the total volume;
- Where more than one container is being stored - a minimum of 110% of the largest container's storage volume, or at least 25% of their total volume (whichever is greater);
- For drum storage, the interceptor tray must be able to hold at least 25% of the total storage capacity of the drums.

Bunded areas must be made impermeable to water and oil and protected from the ingress of rainwater. The base and walls must not be penetrated by any valve, pipe or opening that is used for draining the system.

4.3 Particulate Matter (Dust) & Noise

Dust and noise will be managed in accordance with the Nuisance Management Standard SHEMS-STD-GR-063 and Pollution Prevention Standard SHEMS-STD-GR-064.

4.3.1 Mobile Crushing & Screening Process

Crushing and screening will be managed in accordance with the Waste Management Standard SHEMS-STD-GR-065 and the Demolition – Mobile Crushing and/or Screening Operations Minimum Standards (SHEMS-MST-CIS-0051/SHEMS-MST-LIV-0051).

Crushing and screening of demolition material must be conducted in accordance with the plant operators' manual and, where applicable, environmental permit (mobile plant licence) / waste exemption certificate. The operator must use the Best Available Techniques (BAT) for preventing or, where this is not practicable, reducing emissions from the installation. The following items must be considered when attempting to reduce the environmental impact of this process:

- Location;
- Operation;
- Maintenance;
- On-site transfer of dusty materials;
- Condition of roadways / haulage routes;
- Stockpiling materials.

4.3.2 General Site Activities

With regard to nuisance, the methodology in which work activities are undertaken must apply Best Practicable Means (BPM) in order to minimise negative impact on local, sensitive receptors, such as schools and domestic dwellings. However, if measures to reduce excessive dust and noise are unsuccessful, work must stop and an alternative method devised before work can resume.

The following measures must be considered when attempting to reduce noise and dust:

- Use sheeted lorries and sealed / covered skips;
- Use dust extraction equipment when drilling and cutting;
- Damp down haulage roads and stockpiled materials in dry or windy weather;
- Sweep access roads regularly;
- Grass over topsoil which is being stockpiled for landscaping or off-site re-use;
- Locate plant and equipment away from sensitive receptors;
- Use screens, including earth bunds to act as acoustic barriers;
- Isolate plant and equipment when not in use;
- Fit white noise systems on vehicles to reduce noise nuisance when reversing;
- Keep engine compartment doors closed.
- Limit vehicle movements on-site, e.g. use of one-way system.

4.4 Previously Unidentified Issues

If one or more of the following is discovered, work in that location must stop immediately and the Project Environmental Co-ordinator (PEC) informed:

- Contaminated soils;
- Archaeological remains or features;
- Suspicious objects;
- Underground storage tanks;
- Invasive species, e.g. Japanese Knotweed;
- Protected species, e.g. badgers, bats, amphibians, reptiles and plant life.

4.5 Subcontractor and Supplier Environmental Reporting

Subcontractors and suppliers must adhere fully to the Responsible Procurement Policy SHEMS-POL-GR-004. Where applicable, they must also provide the following information / documentation on a weekly basis to the Kier project team:

- A record of the number of litres of fuel delivered to site, e.g. red diesel (gas oil), white diesel and petrol;
- Volume of water used on site (where separate subcontractor supplies are in use, e.g. stand pipes);
- Legible copies of all waste transfer notes (WTNs) and hazardous/special waste consignment notes (H/SWCNs);
- Legible copies of all chain of custody certificates belonging to suppliers delivering new timber to site;
- Legible copies of all timber delivery notes.

4.6 Emergency & Incident Preparedness

In order to minimise the risk of a pollution incident, subcontractors must ensure all operatives understand the environmental risks associated with their work activity and what control measures are in place to eliminate or reduce negative environmental impact.

Major Environmental Incidents shall be reported and managed in accordance with MIRP Standard SHEM-GR-STD-013.

Environmental emergency planning must be managed in accordance with the Fire Management Site Standard SHEMS-STD-GR-021 and Appendix B.6 of the Construction Phase Plan. The Major Incident Response Plan must be implemented where relevant.

Reporting and investigation of environmental incidents must be undertaken in accordance with the Incident and Near Miss Reporting Standard SHEMS-STD-GR-011.

4.7 Monitoring, Auditing & Reporting

Please refer to 4.18 of the Construction Phase Plan.

4.8 Management Structure & Responsibilities

Please refer to 4.1 and 4.2 of the Construction Phase Plan.

4.9 Training Awareness & Competence

Please refer to 4.14 of the Construction Phase Plan.

4.10 Energy and Fuel Use

By following the measures outlined below a site can reduce its fuel and energy consumption and as a consequence reduce its emissions and save money.

4.10.1 Power Planning Tool

The Kier Power Planning tool should be used to ensure that the correct sized generator is specified for the project. The tool can also be used to determine the size of the temporary electricity supply required for the project.

Over the course of a project use the tool to regularly review the size of generator required and downsize where appropriate.

The tool will also advise if a hybrid generator is appropriate for your site. A hybrid unit moderates generator use at times of low demand, such as overnight.

SHEMS-FOR-GR-037 Kier Power Planning Tool (Existing Sites)
SHEMS-FOR-GR-038 Kier Power Planning Tool (New Sites)

4.10.2 Energy Saving Measures

The site must give consideration to adopting the following energy/fuel saving measures:

- Using energy efficient fluorescent, LED or metal halide lamps for security lighting and task lighting
- Ensuring external lighting is fitted with daylight sensors to ensure that they turn off automatically between dawn and dusk.

- Using transformers fitted with a timer, or a timed distribution board, that will automatically switch off and on, at pre-set times, non-critical temporary electric supplies. DO NOT connect emergency lighting to any timed circuit as you will damage the battery back-up pack.
- Using hybrid lighting towers, which are powered by a rechargeable battery
- Ensuring temporary cabins are fitted with: low energy lighting (T5 Fluorescent or LED, timers to electric heaters, point of use water heaters door closers and passive infra-red (PIR) sensors to lighting in low use areas
- Using well maintained, low emission, fuel efficient plant
- Avoiding plant being left idling
- Ensuring tyres are inflated to the specified pressure

Schedule I - Environmental Aspect & Impact Assessment

SHEMS-FOR-GR-040

Schedule II – Site Constraints Layout Plan