



South West Milton Keynes

Construction Environmental Management Plan

Pell Frischmann

NOVEMBER 2014

**SOUTH WEST MILTON KEYNES
CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN
R53295V001/B**

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APPENDIX A: EXAMPLE MONTHLY ENVIRONMENTAL REPORT TEMPLATE

1. INTRODUCTION

1.1 BACKGROUND

Pell Frischmann has been appointed by the South West Milton Keynes Consortium to produce a preliminary Construction Environmental Management Plan (CEMP) in support of the proposed development known as South West Milton Keynes.

1.2 DOCUMENT OBJECTIVES

This document details a series of strategies, standards, best practice techniques and procedures that should be observed through the construction process. The aim of which is to ensure minimal disruption and nuisance to both local communities and the environment during construction.

Once agreed with the Local Authority, this preliminary strategy can form part of the Contract documentation for the construction phase.

This CEMP should be reviewed during the life of the project to ensure that it remains suitable to facilitate efficient and effective delivery of the project environmental commitments. Any proposed changes to the CEMP would be submitted to the Local Authority for approval, in writing, in sufficient time to allow review, comment and revision prior to the relevant construction activity commencing.

1.3 PHASE SPECIFIC CEMPS

It is anticipated that phase specific CEMPs will need to be prepared in line with the phased build-out of the development. Each phase specific CEMP will describe any environmental obligations pertaining to that phase of the Proposed Development not already covered in this CEMP.

Phase specific CEMPs will include the following general documentation:

- a management structure including an organisational chart showing staff responsible for (i) environmental work; (ii) setting out roles; and (iii) responsibilities;
- details of the Works Environmental Manager (WEM);
- an environmental audit programme;
- an Environmental Risk Register and procedures showing how environmental risks will be addressed;
- procedures for training site staff;
- procedures for programming, managing and documenting communication of environmental matters;

- procedures for handling external communications and complaints;
- procedures for monitoring and recording environmental information;
- procedures for addressing non-compliance and corrective actions; and
- procedures for managing incidents, unexpected occurrences or finds during construction.

Phase specific CEMPs will include the following documentation in respect of construction works:

- site plan showing site boundaries, position of plant and sensitive receptors;
- description of the phase specific works;
- programme of construction activities;
- proposed working hours;
- details of activities to be undertaken outside normal working hours;
- equipment and plant to be used;
- vehicular access routes and access points;
- details of site offices and compounds;
- personnel access routes; and
- location of secure storage facilities for tools and equipment

Phase specific CEMPs will include the following documentation in respect of Environmental Requirements:

- procedures for monitoring construction processes against project environmental objectives;
- appropriate action plans in the event that thresholds are breached;
- procedures for reporting spillages/pollution incidents to the relevant authorities;
- procedures for co-ordinating environmental monitoring results; and
- Environmental Risk Register relating to each specific activity.

1.4 DEVELOPMENT PROPOSALS

The application site is located to the south west of Milton Keynes and is shown on the Development Framework Plan, drawing reference SWMK03-073. A constraints plan for the proposed scheme is drawing reference SWMK03-75.

The majority of the site is situated within Aylesbury Vale District. The principle of an urban extension to the south west of Milton Keynes has emerged from a series of studies undertaken over the last twenty years which have consistently identified the site at SWMK as a suitable and sustainable location for development.

The overarching principle of the proposed development is that it should be viewed as an extension of MK, which reflects the City's design principles and standards. The description of the development for the purpose of the planning application is as follows:

Outline planning application with all matters reserved except for access for a mixed-use sustainable urban extension on approx 144Ha of land to the south west of Milton Keynes, to provide for the following:

- *up to 1,855 mixed tenure dwellings (C3);*
- *an employment area (B1);*
- *a neighbourhood centre on 0.67 Ha of land accommodating retail (A1/A2/A3/A4/A5), community (D1/D2) and residential (C3);*
- *provision of a primary school;*
- *provision of a secondary school;*
- *community and sports buildings;*
- *allotment space;*
- *ground remodelling;*
- *multi-functional green open space including: parkland, sports and recreational facilities with pavilion/changing facilities; play areas, wildlife areas, a range of strategic open spaces including a community orchard and new landscaping;*
- *a Sustainable Drainage Scheme including land for surface water attenuation measures;*
- *associated infrastructure including new junctions to the A421, Whaddon Road and Buckingham Road, primary streets, residential streets, pedestrian footpaths and cycle routes, foul water pumping stations and statutory undertakers equipment;*

- *public transport infrastructure, car and cycle parking for all uses; and*
- *undergrounding of 132Kv overhead power lines.*

1.5 CONSTRUCTION ACTIVITIES

From the proposed development description the following construction activities are anticipated:

- Development of the sports pitches will require some cut and fill operations. If geotechnically or geochemically unsuitable material is encountered, there may be a requirement to transport this material off site for disposal at a suitably licensed landfill facility.
- Elements of the Proposed Development may require a piled foundation solution.
- It is anticipated that shallow foundations would be required for the some structures.
- It is expected that concrete would be used for the construction of several elements of the development together with the laying of bricks/blocks for internal and external walls.
- Construction activities will include the provision of utilities and services, hard landscaping and highway accesses. In addition to the permanent works, temporary works will also be required on site including construction of temporary office, storage and welfare facilities.

None of the processes associated with construction of the Proposed Development are likely to pose a potential risk greater than that arising from another typical construction site of its size. However, particular attention is required with regard to the generation of dust, mud on roads, contamination of water, noise and vibration.

1.6 SUSTAINABILITY

It is proposed that sustainable principles of construction are followed during the production of a detailed implementation strategy for the scheme, which in turn would be employed on site. This should involve:

- Encouraging the use of sustainable materials in construction;
- Promoting the use of renewable resources and the creation of sustainable energy; and
- Reducing emissions of greenhouse gases.

Measures that may be adopted to encourage sustainable construction would include:

- Giving preference to the use of locally-sourced materials;
- Use of recycled materials and aggregates particularly in the construction of roads, footpaths, cycleways and hard landscaping;
- Using timber from sustainable sources, which includes verifiably sustainably-managed forests (sources registered with the Forest Stewardship Council, Pan European Forest Certification or the UK Woodland Assurance Scheme);
- Providing environmental awareness training for staff involved in construction;
- Compliance and registration with the Considerate Contractors Scheme.

2. LEGISLATION AND POLICIES

This CEMP has been produced in line with the following legislation.

Environmental Factor	Status/Legal Requirements
Wildlife Sites - SSSI	<ul style="list-style-type: none"> • Wildlife and Countryside Act 1981 (as amended) • Natural Environment and Rural Communities Act 2006
European Protected Species: Bats, Dormice,	<ul style="list-style-type: none"> • Habitat Regulations 1994 (as amended)
Other Protected Species: Nesting Birds, Reptiles, Badgers	<ul style="list-style-type: none"> • Wildlife and Countryside Act 1981 (as amended) • Badgers Act 1992
Invasive Plant Species	<ul style="list-style-type: none"> • Wildlife and Countryside Act 1981 (Schedule 9) It is an offence to cause the spread of Japanese Knotweed or Giant Hogweed
Fuel Storage and Handling	<ul style="list-style-type: none"> • Oil Storage Regulations 2002 Applicable to storage of fuels outside in containers with a capacity greater than 200 litres.
Waste	<ul style="list-style-type: none"> • Environmental Protection Act 1990 • Hazardous Waste (England and Wales) Regulations 2005
Water	<ul style="list-style-type: none"> • Water Resources Act 1991 It is an offence to pollute any controlled waters
Environmental Incidents	<ul style="list-style-type: none"> • Water Resources Act 1991 • Environmental Protection Act 1990

3. EXISTING ENVIRONMENTAL CONDITIONS

3.1 CURRENT CONDITION

The site is primarily agricultural land and is broadly subdivided by Weasel Lane into two segments; north and south. The site is typified by gently undulating fields of differing sizes the majority of which are delineated by hedgerows and isolated trees.

The application site contains two groups of existing farm buildings – at New Leys and Dagnall House off Weasel Lane.

Weasel Lane, an unclassified track and bridleway, crosses the site in a NE to SW direction. A section of the Milton Keynes Boundary Walk also crosses the eastern part of the site, in a north to south direction, which provides a link to Newton Longville.

There are a number of small ditches and isolated ponds across the site, which is associated with the current agricultural use of the site.

3.2 DESIGNATIONS

No statutory conservation designations have been identified within the proposed development area. Ecological assessment has identified the potential for the scheme to impact upon the two non-statutory sites located within the site boundary. These are a wetland and woodland within the north-western portion of the site that have been designated as part of the Milton Keynes Wildlife Corridor. These habitats have not been formally assessed against the criteria for Local Wildlife sites, but do provide linking habitat to the surrounding area.

The next nearest non-statutory site comprises railway sidings east of Salden Wood. This is a site of county level importance supporting species-rich grassland and scrub mosaic within a disused railway cutting. The ecological assessment for the scheme determined that adverse impacts to these and more distant non-statutory sites to be unlikely to occur as a result of the proposed development.

The ES reports that there are no scheduled ancient monuments, listed buildings, conservation areas, registered parks and gardens, battlefield sites or World Heritage Sites within the development site.

Four areas of late prehistoric/Roman settlement have been identified during the geophysical survey and evaluation trenching. The ES reports that these have been taken into account during the design stage of the proposed development with the intention to avoid or at least limit the impact upon these remains where possible. Potential impacts upon these remains are reported as being negligible. It is possible that unrecorded remains could be encountered during the proposed development works.

3.3 NOTABLE HABITATS AND SPECIES

A range of habitats are present within the Site that are heavily influenced by the current agricultural management of the Site. The Site is dominated by arable fields with several small fields of poor semi-improved grassland divided by hedgerows. Areas of less intensive management are limited to the verges of Weasel Lane. Mature trees are confined to boundary hedgerows, mostly in the north of the site including along Weasel Lane. A single small pond in the north was found to be overgrown with scrub and linked to a channelised brook bisecting an arable field and no aquatic vegetation was supported at this location.

Small sections of semi-natural woodland of low botanical diversity have been reported along the northern boundary. These are considered to be of Local significance. All the boundary hedgerows qualify as priority habitats under the NERC Act. Many were been assessed as 'Important' under the Wildlife and Landscape Criteria of the Hedgerow Regulations 1997.

Habitats recorded within the proposed development boundary have been found to support the following protected/notable species:

- Great Crested Newts (GCN);
- Bat;
- Reptiles;
- Birds; and
- Badgers.

3.4 WATERCOURSES AND FLOODING

Field drains and an unnamed brook, that is a tributary of the River Ouzel, are present within the proposed development site.

The majority of the Application Site is within Flood Zone 1; an area at low risk of flooding. The Environment Agency flood map EA Flood Map indicates that the north west corner of the study area is located within Flood Zone 3; an area at high risk of flooding, although the EA have no records of flooding at the study area in relation to field drains or the brook.

It is likely that the flooding to the north of the Application Site is caused by floodwater spilling on to the corner of the Application Site, as a result of the surcharging culvert under Standing Way (A421) during heavy rainfall events. An Anglian Water DG5 register also indicates that there are no records of flooding at the Application Site, and that the nearest recorded incident of sewer flooding is located approximately 500 m east of the Application Site. The Strategic Flood Risk Assessment states that there are no records of groundwater flooding in the area hence, the Site is considered to be at low risk from this source of flooding.

4. ENVIRONMENTAL MANAGEMENT DURING THE CONSTRUCTION PHASE

4.1 ROLES AND RESPONSIBILITIES

This CEMP is intended to form part of the contract between the Client and Principal Contractor, with obligations for the Principal Contractor to comply with the implementation regime. The Client is responsible for monitoring the environmental impact of the Principal Contractor's site activities, subsequently reviewing their performance with respect to the CEMP to ensure its objectives are being achieved. A copy of this CEMP will be provided to all sub-contractors such that they will also implement the mitigation procedures detailed herein; it will remain the responsibility of the Principal Contractor to ensure that sub-contractors comply with this plan.

4.1.1 The Client

It is anticipated that the Client will appoint a suitably qualified Project Environmental Manager (PEM) or equivalent to monitor the Principal Contractor's compliance with the CEMP and advise the Client on any environmental issues that arise during the construction phase.

The PEM's role will include the following tasks:

- Review and comment on the appointed Principal Contractor's detailed plan for managing and delivering the CEMP;
- Oversee the agreed programme of environmental monitoring relevant to each construction activity;
- Participate in Principal Contractor performance review meetings as required;
- Contribute to communication on environmental matters between the project stakeholders and any relevant statutory bodies;
- Carry out site environmental inspections and audits, as necessary, to review compliance with the CEMP, including adequate protection of valuable wildlife habitat and waterbodies;
- Monitor implementation of any corrective action required by the appointed Principal Contractor and communicate issues to the wider project team as necessary;
- Monitor the Principal Contractor's management of environmental complaints;
- Monitor the appointed Principal Contractor site activities to ensure that all relevant environmental legal consents, licences and exemptions are in place in advance of relevant works commencing, and that the requirements are adhered to; and

- Co-ordinate the Environmental Management Plan review process.

4.1.2 Principal Contractor

It is understood that the Project Manager for the Principal Contractor will perform the role of Works Environmental Manager (WEM). The holder of this role will be responsible for ensuring that the construction activities comply with the requirements of the CEMP and for co-ordinating and managing the Principal Contractor's environmental obligations on a day to day basis. The WEM will ensure that appropriate resources are available and any necessary environmental controls or mitigation measures are implemented as required.

The WEM's role would be likely to include the following tasks:

- Provide a detailed plan for managing the requirements of the CEMP prior to work commencing;
- Periodically review and as necessary update arrangements for delivering the CEMP;
- Act as the Principal Contractor's main point of contact in relation to environmental issues and liaison officer with the Environment Agency and other relevant statutory bodies;
- Provide environmental awareness training, including an induction for all site workers to support CEMP implementation;
- Monitor the environmental performance of sub-contractors and provide direction as necessary;
- Ensure full co-operation with the site environmental inspection and audit programme;
- Ensure that all environmental incidents and complaints, where they are directed to the appointed Principal Contractor are investigated, recorded and reported to the PEM;
- Ensure that any required corrective and preventative actions are taken in line with the relevant procedures; and
- Keep records to demonstrate implementation of the CEMP.

4.1.3 Staff and Subcontractors

Although the PEM and Principal Contractor will lead on the implementation of the CEMP, all persons working on site should take a proactive approach to environmental matters.

This positive behaviour would be encouraged through the site induction process which should aim to ensure that all staff:

- Work to agreed plans, methods and procedures to limit environmental impacts;
- Understand the importance of avoiding pollution on-site, including noise and dust, and how to respond in the event of an incident to avoid or limit environmental impact;
- Report all incidents immediately to their line manager to escalate to the WEM where appropriate;
- Be aware of any ecology and archaeology activities which need to be considered;
- Monitor the work place for potential environmental risks and alert the immediate line manager if any are observed; and
- Co-operate as required, with site inspections and audits.

4.2 MONITORING, CONTINUAL IMPROVEMENT AND REVIEW

The WEM would hold the responsibility of maintaining a register of all environmental monitoring, which should be made available for auditing and inspection by the Client and any relevant statutory bodies as required. It is proposed that monthly reports are submitted by the WEM to the PEM to provide evidence of the monitoring undertaken.

The WEM would also be responsible for providing feedback to the Principal Contractor and the Client (through the PEM) on the environmental performance of the project.

The detailed CEMP should be reviewed jointly by the PEM and WEM during the life of the project to ensure that it remains suitable to facilitate efficient and effective delivery of the project environmental commitments. Any proposed changes to the CEMP would be submitted to the Local Authority for approval in sufficient time to allow review, comment and revision prior to the relevant construction activity commencing.

The environmental review would consider past performance from inspections, audit reports and monitoring data to plan actions required to mitigate forthcoming risks and disseminate best practice.

4.3 ENVIRONMENTAL COMPLAINTS AND INCIDENTS

All complaints and incidents relating to environmental matters should be recorded and responded to in a timely manner. These would be reported to the WEM in the first instance who would manage this process and notify the PEM and any relevant statutory bodies as necessary.

As described above, the WEM would then ensure that any required corrective and preventative actions are taken in line with the relevant procedures.

4.4 PUBLIC AND COMMUNITY RELATIONS

There should be regular and proactive liaison with the Local Authority and other relevant third parties on environmental issues throughout the project implementation. This would serve to ensure that the relevant bodies are aware of when any sensitive construction activities are to take place, as well as demonstrating that the environmental management of the works is being managed effectively.

A planned Communications Programme should be put in place to assist in achieving these objectives and could include for example:

- Organised site visits for interested parties;
- Liaison with local primary and secondary schools;
- Briefings and visits for professional and technical publications; and
- Community contact points for emergencies and for general enquiries and to enable residents to feedback suggestions, concerns and the like to the WEM and the site team.

5. SITE OPERATIONS

5.1 WORKING HOURS

It is proposed that normal working hours for all construction activities could be restricted to the following:

- 07:00 to 18:30 on Mondays to Fridays
- 08:00 to 13:00 on Saturdays

Where possible earth moving, building operations and associated vehicular movements, that might be audible inside any adjacent buildings, will be avoided on Sundays or Bank/Public Holidays.

The Principal Contractor will endeavour to adhere to these working hours wherever possible. If a requirement to extend or modify these hours on a temporary or permanent basis is identified, then the Principal Contractor will notify the PEM at the earliest opportunity in order for the environmental implications to be properly considered prior to the construction activity taking place.

5.2 STORAGE AND TRANSIT OF PLANT AND MATERIALS

Materials used in the construction process such as oil, chemicals, cement, lime, cleaning materials and paint have the potential to cause serious pollution, the impact of which would be exacerbated if a pollutant is discharged into a watercourse.

A bunded storage area would be located on the site for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous construction materials. The base and bund walls should be impermeable to the material stored and be of adequate capacity. For those materials stored outside the bunded area, spill palettes should be used. The location of the main compound would be agreed between the WEM and the PEM during the review of the Principal Contractor's plan for managing the requirements of the CEMP prior to works commencing.

Spill kits should be located in storage areas along with clear written procedures on how to address a spillage if it occurs.

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

It is proposed that the main construction compound would have a paved surface to its parking, vehicle maintenance and fuel storage areas, with a closed drainage system equipped with both a silt settlement facility and an oil interceptor in line with best practice. Discharge from the settlement facility could be controlled such that all flow is attenuated and tested before its release to ensure that the water quality meets agreed criteria.

Plant and equipment would be stored in areas that are less susceptible to a potential pollution incident, or on dedicated hard standings. Special attention should be paid to the proximity of ecological buffer zones and potentially sensitive ecological features including nearby trees, hedgerows and watercourses.

No construction material, spoil or potential pollutants should be stored closer than 5 metres to any area or feature of important semi-natural habitat. The same restrictions should be applied to the location of any site compounds and the movement of heavy vehicles. Where the 5 metre buffer zone is not achievable, temporary protective fencing could be used to delineate this exclusion zone. If works required within areas of important semi-natural habitat are unavoidable, best working practices should be adopted so that the vegetation is restored as soon as possible after completion of the works.

Plant should be refuelled in the construction compound on an impermeable surface and away from any drains or watercourses. A spill kit should be available in the event of an accident and would be kept in the refuelling area.

Storage containers should be clearly marked on tanks and a notice displayed requiring that valves and trigger guns are locked when not in use.

Reasonable measures should be taken to ensure storage areas and containers are protected against vandalism and unauthorised interference and all containers should be turned off and securely locked when not in use.

All topsoil and subsoil should be handled and stored carefully in accordance with the relevant standards to minimise the potential for damage to the soil structure. A detailed method statement should be produced by the Principal Contractor clearly identifying correct stripping, soil handling, storage, placement and programming requirements to avoid compaction and moving the material in unsuitable weather conditions. This would be reviewed by the PEM.

An area close to the site gate would be designated for vehicle washing, and in order to minimise deposition of mud on the highway all construction traffic would pass through a wheel washing facility. Open top vehicles would also be sheeted when on travelling on the public highway. The use of road sweepers would be implemented if required.

All deliveries to site should be supervised by a responsible person and storage tank levels would be checked before delivery to prevent overfilling and that the produce is delivered to the correct tank.

5.3 WASTE MANAGEMENT

Waste produced on site would be subject to the Duty of Care under the Environmental Protection Act (1990). Liaison with the Environment Agency should be undertaken by the WEM to ensure that all waste and materials handled on-site

will be conducted appropriately. This could involve a site meeting with the local Agency officer, if required, before work commences.

Waste transported to and from the site would follow the Duty of Care requirements for ensuring waste is transported by registered carriers, taken to appropriately licensed sites and for completing and keeping appropriate waste transfer documentation.

The WEM would be required to maintain documented evidence that these requirements are being met, including descriptions and volumes of waste, a register of carriers, disposal sites (including transfer stations) and relevant licensing details for each waste stream. These would be made available to the PEM and any relevant statutory bodies for inspection as required.

Waste contractors that remove waste from site should be registered with the Environment Agency. The production, reuse and recycling of waste on site would be monitored and reported on a monthly basis to be able to identify trends in waste creation and to identify opportunities for reducing waste or increasing the rate of recycling where possible.

A site wide waste minimisation scheme should be implemented to encourage the reduction of waste, reuse of waste and recycling of waste. Measures which would be included in such a scheme would include:

- Reduction of materials wastage through good storage and handling;
- Use of modern methods of construction wherever possible, allowing significant reductions in waste and facilitating greater recycling;
- Entering into agreements with suppliers for recovery and disposal of their products including plasterboard off cuts, insulation off cuts and timber pallets;
- Ensuring that all suppliers of materials provide returnable or practicably recyclable packaging;
- Providing waste minimisation induction courses for all site personnel;
- Regular toolbox talks throughout the construction phase to raise awareness of the importance of minimising, segregating and recycling wastes during the construction process;
- Ensuring adequate storage facilities are provided for both raw materials and waste streams generated; and
- Ensuring adequate security measures are in place.

5.4 CONTAMINATED LAND

Where remediation is necessary, a detailed remediation scheme will be prepared, and approved in writing, by the Local Planning Authority. Any remediation scheme would aim to bring the site to a condition suitable for the intended use by removing unacceptable risks to human health, buildings and other property and the natural and historical environment (including controlled waters). The remediation scheme would include details of:

- all works to be undertaken;
- proposed remediation objectives and remediation criteria; and
- timetable of works and site management procedures.

Remediation schemes will ensure that the site does not qualify as contaminated land under Part 2A of the Environmental Protection Act 1990 in relation to the intended use of the land after remediation.

Following completion of measures identified in an approved remediation scheme a verification/validation report that demonstrates the effectiveness of the remediation carried out would be produced. This would be submitted to the Local Planning Authority.

5.5 BUFFER ZONES AND PROTECTION FENCING

As detailed within the ES, the proposed construction work will be undertaken in accordance with the biodiversity management plan.

Habitat connectivity around the site and into the surrounding land will be maintained and enhanced through the provision of buffer zones. All habitat enhancements outside of the redevelopment site (within the buffer zone areas), where practicable, will be undertaken prior to works commencing, or in the early stages of construction works. Details of buffer zones for each of the phases of development will be detailed by the scheme ecologist and included within each phase specific CEMP.

The ES details the requirement for 10m buffer zones to protect suitable reptile habitats along Weasel Lane and along field margins at the north boundary of the development site. These areas will be protected with Heras type fencing to prevent encroachment and disturbance during works. This will be detailed in full within the relevant phase specific CEMP. This work will be undertaken at an appropriate time of year under the watching brief of a suitably qualified ecologist to ensure that works may proceed without resulting in the killing / injury of common reptiles.

5.6 HABIATAT CLEARANCE AND PROTECTED SPECIES

Method Statements will be prepared for all works that may affect ecological features, including the demolition of buildings containing bats, tree removal (as appropriate), woodland and lakeside works. Specific control measures are to be incorporated into the relevant phase specific CEMPs.

A general ecological briefing will be given to construction site workers informing them of the ecological value of habitats and species present on site, protection measures put in place, safe working methods relating to ecology, and contingency plans in case of discovery of a significant species during works.

Where possible, topsoil will be stripped and appropriately stored for re-use on the site ensuring the existing wild flora seed bank is retained.

5.6.1 Great Crested Newts (GCN)

The proposed scheme will result in the loss of cultivated land within 500m of a GCN breeding pond (referred to within the ES as Pond 8). In accordance with the recommendations of the ES, no work will be undertaken within this area until terrestrial trapping has been undertaken and a detailed mitigation strategy has been developed by the scheme ecologist. The details of the mitigation strategy will be considered with the CEMP relating to this specific phase of the development site.

The ES identifies the requirement for additional aquatic surveys at Pond 9 (as referred to within the ES) where a small population of GCN have historically been recorded. No construction work for Phase 3a will commence until the findings of this survey work have been reported and a suitable mitigation strategy has been developed.

5.6.2 Reptiles

The construction work will be undertaken in accordance with the fencing/buffer zone requirements detailed with Section 5.5.

Any reptiles encountered will be moved to safety by the suitably qualified ecologist to another part of the Site with suitable reptile habitat that will remain undisturbed.

5.6.3 Birds

During the construction phase, there is the potential for breeding birds to be adversely affected as a result of the removal of some small areas of hedgerow and scrub leading to potential disturbance and loss of habitat.

Where possible, site preparation work, hedgerow removal and soil stripping will be avoided during the bird-breeding season (March – August).

No site preparation work will be undertaken within the bird breeding season, until the area has been checked for nesting birds by a suitably experienced ecologist.

Where nesting birds are confirmed an appropriate stand-off will be agreed with the scheme ecologist and maintained until all young have fledged or the nests is otherwise deemed inactive.

5.6.4 Bats

During the construction phase, no night-working will be permitted and lighting will be kept to an absolute minimum for security purposes only to limit disturbance to foraging and commuting routes.

No work will be undertaken to trees supporting bat roosting until a Natural England licence has been obtained by the scheme ecologist. This will be accompanied by a detailed method statement outlining the measures that will be undertaken to safeguard the population. Relevant measures should be incorporated into the relevant phase specific CEMP.

5.6.5 Badgers

Badgers are known to be active within the local area. The ES states that a full badger survey will be conducted prior to each stage of site clearance in the development programme. Where any existing or recently excavated setts are identified and disturbance impacts are considered significant, mitigation will be put in place for any affected setts and may be ratified under licence by Natural England. No site preparation or construction work will be undertaken until this has been completed.

The following measures shall be implemented to protect badgers and minimise impacts during construction:

- Scaffold planks should be placed in any trenches left overnight. This will allow badgers to climb out of the trench, should they accidentally fall in. Badgers habitually use the same paths and may not be aware of recent excavation work across their route.
- Large piles of loose soil should be inspected regularly to ensure that badgers are not excavating new setts. The project ecologist should be notified if any excavation is suspected. If spoil heaps are to be left for long periods, exclusion fencing should be considered.
- Noisy machinery and construction lighting will not be used after dark to reduce potential disruption to foraging activity.

5.7 ARCHAEOLOGICAL REQUIREMENTS

As stated in Section 3.3, four non-designated archaeological remains have been identified within the proposed development footprint (as shown on the constraints plan in Appendix B). In accordance with the archaeological requirements set out in the ES, no construction work shall take place in these areas without an archaeological watching brief. The elements of works requiring a watching brief are to be identified by the scheme archaeologist. These details are to be included within the relevant phase specific CEMPs.

5.8 CONSTRUCTION TRAFFIC MANAGEMENT

During the construction phase of the development, traffic will be generated by the workforce, delivery vehicles and construction plant.

Delivery vehicles will convey various materials to/from the site depending on the progress of the build. During the initial construction stages most materials will be ordered in bulk and will be delivered to site as and when required in full HGV loads. It is proposed that all deliveries be timed such that these occur outside of busy times and therefore deliveries will be after 9am and before 3:30pm. This would include concrete wagons that will complete regular deliveries of materials to site from batching plants in the local area on days when large concrete pours are taking place. Brick/blocks for internal and external walls and roofing materials will also generate delivery trips during the early construction phase.

During the later stages of the construction phase, it is expected that the supply of most materials required for the fit-out of the units such as electrical, sanitary ware, decoration etc. could be sourced from local businesses and merchants which will assist in mitigating the volumes of new trips on the wider road network, as well as contributing to the local economy. It is expected that the majority of these deliveries would be made by van or LGV which are not considered to present an impact of greater significance on the road network than a typical private car.

Best efforts will be made to ensure that construction related traffic will avoid the peak traffic times of 08:00-09:00 and 17:00-18:00, however detailed management arrangements for construction traffic will be discussed and agreed with the Local Authority prior to works commencing on site. In addition, should significant vehicle movements be required during these periods, the Local Authority will be contacted to discuss the most appropriate method to mitigate the impact.

In line with the air quality requirements a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas will be imposed. This will aid in minimising and controlling nuisance arising from construction traffic.

Transportation of large construction plant would take place by HGV low loader type vehicles and would only be required on an infrequent basis, most notably at the

beginning and end of the construction phase as site operations are wound up/down.

It is anticipated that there will be adequate space available for on-site parking for site personnel and that this should not be provided on the public highway. The Principal Contractor will also identify potential public transport options and provide details within the site compound. This will enable site workers to use public transport. The Principal Contractor will also encourage car sharing and give preferential parking to car sharers.

5.9 LIGHTING

During winter months when the hours of daylight are shorter special care will be taken to ensure that light pollution produced by the works do not impact on local residents or wildlife.

Flood lighting large areas of the construction site will be avoided wherever possible and construction activities should be programmed around daylight hours. Although a degree of artificial lighting will be required in order to ensure the safety and security of those working on site, this will be switched off at the end of the working day when no longer required.

Bat populations are present in the area surrounding the site, and these animals are particularly sensitive to increased light levels. All temporary lighting will be installed and operated in accordance with the "Bats and Lighting in the UK (Institution of Lighting Engineers, 2008) guidance where applicable. Efforts shall be made to impose reduced lighting levels along known bat navigation routes through the site, particularly near to features such as the buffer zones, woodland edge, lakes and mature trees. Lighting will also be avoided around existing bat roosts and around any bat boxes or roosts created during the scheme.

Other best practice measures that could be employed to reduce the impact of site lighting include the following:

- Employ task lighting to minimise lighting impacts on the overall site.
- Minimise glare caused by poorly directed security and flood lighting by positioning lights at less than 70 degrees and directed away from the boundary of any operational construction area. The installation of ballasts or shields on these lights could be used where appropriate.
- Minimise light spill by avoiding poorly sited lights on the boundary of the development.
- Minimise sky glow by use of modern flood lights with appropriate shields to avoid light spilling upwards.

5.10 NOISE

Measures to minimise site noise should be adopted to eliminate the potential for nuisance and disturbance to local residents and wildlife. A detailed monitoring strategy along with relevant thresholds is to be agreed with the Local Authority as part of the implementation strategy prior to works on site commencing.

The WEM would be responsible for ensuring that the construction activities comply with the agreed noise levels, and for reviewing the method statements for each activity to ensure that best practice is employed. This should include the following measures:

- Employing best practices and following the guidance of BS 5228 Code of Practice for Noise and Vibration (Parts 1 & 2) 1997;
- Careful selection of working methods and programme to minimise impacts;
- Compliance with the Construction Traffic Management Plan to minimise disruption and disturbance;
- Use of low noise piling techniques where possible (for example, using an enclosed drop hammer or using bored piling with auger or tripod);
- Training of all scaffolding personnel on the importance of handling the scaffolding to maintain minimum noise levels;
- Completion of deliveries and operations within the hours of site operation outlined in Section 6.1 of this report;
- Prohibition of delivery or removal lorries from waiting within the site with their engines running;
- Directing noise from plant e.g. exhausts or engines away from sensitive locations;
- Introduction of controls on the sequencing of works and noise protection on an activity by activity basis. Examples could include the positioning of static plant away from properties and turning off mobile plant, when not in use;
- Early completion of any earth bunding, site hoardings and any permanent noise barriers as early as practical in the construction programme;
- Avoidance of the use of percussive plant where alternative non-percussive plant is available for a given task. Compressors used should be sound reduced models fitted with proprietary acoustic enclosures. All pneumatic tools should be fitted with silencers or mufflers. All plant should be properly

and regularly maintained and sited as far from sensitive receptors as possible to help to minimise noise nuisance;

- Siting equipment behind physical barriers;
- Switching all audible warning systems to the minimum setting required by the Health and Safety Executive;
- Restriction of the use of radios, other sound systems or tannoy on site; and
- Minimisation of cutting operations or other noisy tasks through off-site fabrication wherever practicable. Localised shielding of noisy operations could be required where there may be a risk of exceeding sound levels at the agreed monitoring points.

5.11 AIR QUALITY

During the construction phase, there will be various site clearance and construction activities undertaken that all have the potential to generate dust and particulate matter, for example:

- haulage routes, vehicles and construction traffic;
- materials handling, storage, stockpiling, spillage and disposal;
- site preparation and restoration after completion;
- construction and fabrication processes; and
- internal and external finishing.

The Principal Contractor shall ensure that the Environment Agency's' Pollution Prevention Guidelines (PPGs) are followed and that all sub-contractors are aware of the following control measures, which have been adapted from the dust control measures published by the Institute of Air Quality Management:

- Implement phase specific Dust Management Plans (DMP) approved by the PEM, which documents the mitigation measures to be applied, and the procedures for their implementation and management. These DMPs should detail the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environmental manager/engineer or the site manager.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the Local Authority when asked.

- Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
- Plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Use intelligent screening where possible – e.g. locating site offices between potentially dusty activities and the receptors;
- Where appropriate erect solid screens or barriers around the site boundary;
- Keep site fencing, barriers and scaffolding clean;
- Remove materials that have the potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below;
- Depending on the duration that stockpiles will be present and their size - cover, seed, fence or water to prevent wind whipping;
- Only use registered waste carriers to take waste off-site; and
- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas to stabilise surfaces as soon as practicable. Use Hessian or mulches where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Only remove the cover in a small area during work and not all at once.

Measures Specific to Construction

- Avoid scabbling if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place; and
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

Measures Specific to Vehicle Emissions

- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;

- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of PEM and with the agreement of the Local Authority, where appropriate); and
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

Measures Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable, any material tracked out of the site;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Record all inspections of haul routes and any subsequent action in a site log book;
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned; and
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as practicable.

5.12 WATER QUALITY AND SITE RUNOFF

Materials used in the construction process such as oil, chemicals, cement, fuel, cleaning materials and paint have the potential to cause serious pollution, the impact of which would be exacerbated if a pollutant is discharged into a watercourse.

The following Environment Agency Pollution Prevention Guidance will be followed at all times:

- PPG5: Works and maintenance in or near water; and
- PPG6: Working at Construction and Demolition Sites.

There is a notable risk of pollution of sensitive sites from silty runoff, particularly from large areas of exposed ground on the construction site. Stockpiles of soil and materials shall be located in a sheltered location and as far as possible away from residential properties, water bodies, streams trees, and woodland.

In order to mitigate the risk of flooding during the construction stage, it is proposed to construct temporary attenuation ponds at the beginning of the construction

programme. These shall be designed to collect and attenuate surface water, which will mitigate the risk of flooding from the increase in surface water runoff at the Application Site. The pond will allow sediment from the construction phase to settle which will in reverse the adverse effect of the construction phase on the water quality of the surface water run-off.

The construction phase of the Proposed Development will adhere to the PPG 6 Working at Construction and Demolition Sites produced by the Environment Agency. It states that there should be plant; wheel and boot washing facilities in an area of hardstanding situated at least 10 m from any surface waters.

In accordance with PPG 6, a bunded storage area will be located on the site for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous construction materials.

Plant and equipment would be stored in areas that are less susceptible to a potential pollution incident, or on dedicated hard standings. Liaison with the Environment Agency will be undertaken to establish suitable areas.

Vehicle and construction plant should be refuelled in the construction compound on an impermeable surface and away from any drains or watercourses. A spill kit should be available in the event of an accident and would be kept in the refuelling area.

6. MONITORING PROGRAMMES

Monitoring requirements are listed below, and it will be the responsibility of the PEM to oversee the Environmental Monitoring programme. The WEM will be responsible for ensuring that monitoring is undertaken and submitting a Monthly Environmental Report to the PEM. An example of a Monthly Environmental Report format is presented in Appendix A.

6.1 CONSTRUCTION TRAFFIC

Daily: The WEM shall be responsible for ensuring that construction and delivery movements and routes are in line with the CEMP.

The WEM shall ensure that corrective action is taken in the event of any non-conformities.

6.2 LIGHTING

Daily: The WEM shall be responsible for ensuring that lighting is switched off at the end of the working day, and that sensitive ecological areas are not subject to inappropriate levels of lighting.

The WEM shall ensure that corrective action is taken in the event of any non-conformities.

6.3 NOISE

A programme of monitoring and measurement would be undertaken in accordance with the agreed implementation strategy to ensure that noise levels at nearby properties or other sensitive sites are within the limits agreed with the Local Authority.

Daily: The WEM shall be responsible for ensuring that noise control techniques are implemented.

Weekly: The WEM shall be responsible for investigating, recording and reporting noise related incidents and complaints to the PEM.

Monthly: Noise monitoring shall be conducted monthly in accordance with the PEMs requirements, to ensure that noise levels are within the acceptable thresholds. Noise monitoring results shall be submitted to the PEM in periodic reports along with results of the monitoring activities and any incident / non-conformity reports.

The WEM shall ensure that action is taken to reduce noise emissions from equipment if monitoring confirms noise levels in excess of agreed levels.

6.4 AIR QUALITY

Daily: The WEM shall be responsible for ensuring that the control of dust particles and emissions is undertaken, in line with the CEMP. This will include (i) daily dust deposition inspections; (ii) ensuring that all stockpiles of materials are suitably covered; and (iii) enforcing speed limits.

Weekly: The WEM shall be responsible for investigating, recording and reporting all environmental incidents and complaints to the PEM.

The WEM shall ensure that corrective action is taken to reduce dust and particles in the event of any non-conformities.

6.5 WATER QUALITY

Daily: The WEM shall be responsible for undertaking inspections of attenuations ponds and visual checks for levels of sediment runoff in watercourses each morning and afternoon.

Weekly: The WEM shall be responsible for investigating, recording and reporting all environmental incidents and complaints to the PEM.

Monthly: Water quality monitoring shall be conducted monthly in accordance with the PEMs requirements. Monitoring results shall be submitted to the PEM in periodic reports along with results of monitoring activities and incident and non-conformity reports.

The WEM shall ensure that action is taken in the event of an non conformities.

6.6 ECOLOGICAL SITES AND SPECIES

Daily: The WEM shall be responsible for ensuring that protective fencing is retained around ecologically sensitive areas and is in good condition.

Weekly: The WEM shall be responsible for investigating, recording and reporting all environmental incidents and complaints to the PEM.

Monthly: Monitoring surveys by the ecological specialist should be undertaken in accordance with the PEMs requirements. Results shall be submitted to the PEM in periodic reports.

The WEM shall ensure that action is taken in the event of any non-conformities.

7. SUMMARY

This document sets out the delivery of a Construction Environmental Management Plan to minimise the risk posed to the environment through construction related activities at the South West Milton Keynes site. It sets out the roles and responsibilities of the both the Client and Principal Contractor and recommends the creation of the specific positions of Project Environmental Manager and Works Environmental Manager to assist in the successful delivery of the CEMP.

This document provides a framework upon which Phase specific CEMPs should be based. This document also provides a strategy to establish relevant thresholds and operation regimes to minimise the environmental impact. These would apply to various site activities such as transportation of plant and materials, generation of noise and dust and the storage and use of hazardous materials.

Specific mitigation measures that could be employed to minimise the environmental impact are also detailed, including best practice construction techniques to limit the creation of noise and dust etc. These measures should be considered during the planning of site activities and the finalisation of the contractor's strategy for implementing the finalised CEMP.

**APPENDIX A
EXAMPLE MONTHLY ENVIROMENTAL REPORT TEMPLATE**

**SOUTH WEST MILTON KEYNES
CONSTRUCTION ENVIRONMENT MANAGEMENT PLAN
R53295V001/B**

ENVIRONMENTAL MONTHLY REPORT			
Reporting Period:	Report Nr:		
Environmental Issue:	Yes	No	N/A
1. Is the register of all environmental monitoring and inspection up to date?			
2. Are all sediment control measures in place, maintained and operating effectively: If no, please provide details			
3. Have there been any (verbal or written) complaints in relation to site activities (.e.g noise, dust, traffic, stormwater pollution)? If yes, please attach relevant documentation			
4. Have there been any incidents on site (e.g. chemical/fuel spill)? If yes, please attach relevant environmental incident report including details of corrective and preventative actions.			
5. Are there any areas of the CEMP that have not been complied with? If yes, please provide details			
6. Please document any environmental training activities that were carried out this month (i.e date, time, subject, instructor and attendees information)			
7. Other comments. Please list any other environment-related issues			
Report prepared by:			
Name:	Title:	Date:	

Note: This report will be completed at the end of each month and provided to the WEM.