Principal Contractor: Buckingham Group Contracting Ltd	**Environmental Management Plan** **Works during design and construction stages**
Prepared by: Jack Mathison Role: Supervisor Date: 02/07/19	**EXTENSION TO FIRST TEAM BUILDING & CONSTRUCTION OF ELITE WOMENS AND GIRLS CENTRE**
Internally approved by: Keith Wilson Role: Senior Project Manager Date: 02/07/19 Signature:	
Client approved by: Role: Date: Signature:	Version: 003

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ENVIRONMENT MANAGEMENT PLAN READ AND UNDERSTOOD BY:

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1.0 Introduction

This Project Environmental Management Plan (EMP) has been prepared to set out how Buckingham Group Contracting Ltd (BGCL) will deliver all the environmental requirements of the project. The plan demonstrates how environmental issues will be handled in accordance with relevant legislation and regulations, and in line with ISO14001:2015.

BGCL will act in accordance with the clients Environmental Policy and contributing to meeting their environmental obligations and commitments.

The Environmental Management System (EMS) is made up of this plan and the BGCL Environmental Procedures, along with the Method statements (MS). These set out the policies and environmental controls required to ensure that the adverse environmental impacts are eliminated or minimised and opportunities for environmental enhancement are maximised. The environmental procedures and MS provide a mechanism for ensuring policies in this plan can be achieved. They highlight the key activity related risks, detail control measures, and make reference to all associated registers and forms where required.

BGCL has a duty to bring all environmental Risks and Opportunities to the attention of their personnel and subcontractors, as applicable to their works. BGCL shall also ensure that these requirements are complied with.

The responsibility for the implementation of this EMP is the Project Manager.

This EMP should be read in conjunction with the following:

- Project Programme
- Construction Phase Plan
- Method Statements
- Site Waste Management

Scope of project

The project consists of the re-location of the existing covered football pitch to allow an extension to the rear of the existing two storey First Team Building. In conjunction with this other pitches and Training Grids are to be re-configured within the confines of the existing site boundary together with the formation of two further pitches (Pitch Nos 16 and 17) which are to be created within an enlarged boundary within the South East corner of the site. In addition, a new single storey Elite Women and Girls Centre is also to be construction, and this again is within the confines of the existing boundary.
Both of the new buildings will be steel framed with light weight cladding, flat roofs and lightweight concrete floors. The ground slab within the First Team Building will also house a newly constructed Hydrotherapy Pool and associated equipment

Environmental Policy

All project personnel will adopt and comply with the BGCL Environmental Policy (Appendix C), Sustainability Policy and client policies. All subcontractors will be required to work within its requirements. Copies of the policies are displayed on office notice boards and are briefed to all staff as part of their induction.

Legislation, Regulation and Other Requirements

All works shall be carried out in accordance with the relevant environmental legislation and other regulatory requirements, and best practice. A register of current legislative, regulatory and other policy requirements for BGCL projects is provided in the BGCL Integrated Business Management System. The Legislation Register is updated on an annual basis or as necessary when new legislation is enacted.

Management Review
The Project will review the content of this EMP on a six monthly basis or when something significant changes the impact of works. Where significant environmental legislation is enacted this EMP shall also be reviewed in order to fully reflect new environmental obligations. Changes may also be made in response to the review of the project environmental policy and the client's contract requirement.

Method Statements
In order to communicate the environmental requirements of this EMP, specific environmental actions and requirements will be included in MS. These requirements will be specific to the task being undertaken and specific to the environmental issues of that location.

Additional environmental information may be provided through on site briefings or through Toolbox Talks. These briefings will be recorded.

2.0 General Environmental Requirements

2.1 Register of Risks and Opportunities
The designer and construction team shall undertake and document an Environment Risk and Opportunity Assessment (EROA). The EROA shall identify and assess the significant environment risks and opportunities associated with this project and suggested mitigation/action. This assessment is included in Appendix A: Risks and Opportunities. The environmental aspects are discussed in more detail in section 3.

Initial environmental information was obtained from:

- Site investigation report

The following aspects have been identified as potentially significant with regard to the main works:

- Air quality,
- Archaeology and cultural heritage,
- Contaminated land,
- Ecology,
- Energy,
- Herbicide/pesticide application,
- Landscape,
- Lighting,
- Materials use,
- Noise and vibration,
- Public highways,
- Waste,
- Water protection and consumption.

2.2 Requirements and Consents
At various planning stages during the project it may be necessary to apply for permissions or consents from statutory bodies to complete packages of work. This may be from Local Authority, Natural England/Defra, English Heritage, the Environment Agency or other statutory bodies. These will be kept as part of a Consents Register (Appendix C). All consents identified for the project will be documented in this section.

Further consultation and site investigations will continue throughout the Development Project. These may lead to additional consents being identified. At present the following consents have been identified:

- Traffic Management and access- as per TMP.

- Noise and Vibration- section 61 (a series of agreements to simplify the management of different works has been implemented)
- Tree Preservation Orders- None Identified at Present
- Traffic Management and access- consent has been sought from LCC to alter highways and public rights of way
- Hazardous Waste Producer Registration- may be required
- Protected species licenses

All consents will be applied for in a timely manner, in order to provide adequate information to the statutory authority, consult thoroughly and permit them to process the applications in time for when they are required. Copies of consents will be held within the project filing system. In the case of ecological licences, the period of time required to implement mitigation measures prior to commencement of operations and implications upon them by seasonal restrictions, will be taken into account when planning application for consents.

2. 3 Environmental Objectives and Targets

Project specific environmental objectives and targets have been developed in line with BGCL and client requirements. These consider legal obligations, other requirements and the project significant aspects and impacts. The objectives and targets also consider technological options, company financial, operational and business requirements, in addition to views of interested parties. Initial SMART objectives and targets for this project are detailed in Appendix B. As the project progresses performance against objectives and targets shall be reviewed as appropriate.

To support this requirement information on KPI`s and progress for meeting the project Objectives and Targets will be presented to the Monthly Progress Meeting.

If specific Environmental or Sustainability award schemes such as the Considerate Contractors Scheme (CCS), BREEAM or the Civil Engineers Environment and Quality Award Scheme (CEEQUAL) are being applied for specific targets relating to these measures will be set and an action plan completed.

2.4 Roles & Responsibilities

An overview of the roles for each individual with environmental responsibilities is presented below.

The Project Manager

The Project Manager is responsible for:

- Implementation of this EMP
- Considering how the planning of the works could minimise the environmental impact.
- Including sufficient resources in the planning and estimating of the works to meet the requirements of the EMP.
- Communicating the relevant parts of the EMP as appropriate to the personnel involved and subcontractors.
- In the event of an incident/emergency which may impact on the environment, directing the immediate action to minimise the consequences in conjunction with the HSQE team. Also ensuring this is reported on the HSEQ reporting tool.
- Ensuring that any required consents /permissions / licences are in place prior to the commencement of any physical works in the specific project location.
- Ensuring that any communications or complaints from outside bodies or members of the public are dealt with swiftly and appropriately.
- Ensuring that all project personnel are briefed /trained as appropriate (toolbox talks/briefings).

BGCL Project Personnel (including sub-contractors and labour)

Project Personnel are responsible for:

- Undertaking work in accordance with the EMP and MSs
- Identifying and reporting any problems or complaints to the Project Manager.
- Identifying and reporting any new or unexpected environmental issues to the Project Manager.

HSEQ Manager
The HSEQ Manager is responsible for:

- Verifying and auditing the implementation of this EMP in accordance with the EMS
- In the event of an incident/emergency which may have an impact on the environment, directing the immediate action to minimise the impact with the Project Manager
- Ensuring an appropriate contractor (e.g. Spill Response Contractor) is employed where an environmental incident requires additional expertise, containment or remediation
- Investigating and reporting of significant environmental incidents and close calls
- Ensuring the provision of training, briefing and toolbox talks for improving environmental performance, awareness and continuous improvement

Environmental Manager
The Project Environmental Manager is responsible for:

- Assisting in the project application of the BGCL management systems
- Monitoring compliance with the EMP
- Advising the project to ensure that all identified significant sites are adequately protected
- Identifying any potential impact that may become apparent during the course of the project

2.5 Competence, Training & Awareness

BGCL considers that competence of all personnel is of key importance to a successful operation. BGCL operates a competence management system that identifies the skills and training required for all activities that are undertaken and ensures that competence standards are maintained through staff dialogue and Continual Professional Development. All competency records for BGCL personnel are held centrally by the personnel department.

Training needs will be continuously monitored to ensure staff are competent and fully aware of environmental issues they may affect. Training shall be in the form of briefing sessions and toolbox talks.

All personnel including subcontractors shall be made aware of the following:

i) The importance of conformance with BGCL and client environmental policies.
ii) BGCL Design and Construction Environmental Management Plan
iii) The significant environmental risks of their work activities and mitigation
iv) Roles and responsibilities to conform to environmental policies and procedures.
v) The consequences of departure from specified operating conditions, MSs and emergency procedures

The following Environmental Toolbox Talks will be delivered over the duration of the project:

- Appropriate topics will be delivered as ToolBox Talks in line with construction activities at the time.

2.6 Internal Communication

There are a variety of methods used to control internal communications on environmental issues within BGCL. These can include e-mails, notice boards, briefs, letters, memos, verbal briefs and meetings.

Briefings will be undertaken to ensure that all site personnel are aware of the Environmental issues affecting their work. This includes:

- All staff working on the project shall receive an Induction which covers all relevant environmental issues and mitigation
- The BGCL Environmental/Sustainability/Energy Policy shall be displayed in all Site Cabins and site offices.

- Waste Management – Key personnel will be briefed on how to store & dispose of site waste, including segregation of waste types at point of storage.
- All staff working on the sites will receive a briefing regarding noise and vibration controls
- All staff working on the sites will receive a briefing regarding protected species
- Alerts and environmental information shall be briefed out and displayed on notice boards.
- MS will also detail environmental issues and mitigation.
- The client will be notified of any hazards that have been identified.

The Project Manager shall ensure that any complaint/accident/incident/close calls with actual/potential to harm or damage the environment shall be reported to the BGCL HSEQ Manager and client team.

2.7 External Communications

External consultation with statutory bodies and interested parties (such as resident's associations, local authorities and Wildlife Groups) will be agreed with the client as necessary prior to starting works and for the duration of the scheme.

The project will carry out letter drops in advance of any works being carried out (if required). This will detail the nature and purpose of particularly disruptive operations, including details of proposed start and completion dates and a summary of the work schedule.

BGCL will notify the client regarding communications or complaints received from external bodies or the general public. A complaint's register of all actions taken regarding any complaint will be maintained and this will be reviewed by the Project Manager.

Complaints will be entered onto the HSEQ reporting tool in order for the actions arising to be tracked. BGCL will endeavour to assist the client in resolving any complaints in relation to the project.

2.8 Records and documents

All documents related to this EMP will be maintained in project filing system and updated as appropriate. Documents associated with the environmental management of the scheme may include:

- Risk Register
- Audit Register & NCR reports/actions
- Environmental inspection forms
- Soil/ballast/water test results
- Waste Management and Duty of care documents
- Pollution Incident Records
- Minutes of Meetings
- Training Records
- Map of the project sites with environmental issues marked clearly
- Asbestos records
- Invasive species records
- Ecology records

In addition, all survey reports and monitoring data will be kept with the records.

Environmental issues are included in checklists for site inspections. Daily site surveillance and weekly Inspections shall be undertaken by the Project Manager or nominated personnel. Monitoring of key risks will be undertaken (e.g. noise, dust, vibration) where sensitive receptors are identified. This will be agreed with the client and statutory authorities as required.

Procedures for non-compliance/conformance, corrective and preventive actions are documented in the BGCL IBMS. BGCL Quality Procedures NCR forms will be used during internal and external audits.

3.0 Environmental Impact Areas

Sustainable development needs to be considered in the design and construction of the project and this needs to be implemented as part of the Scheme. There will be consideration of the environmental impacts on the local, regional, national and global environment. Below is a description of whether individual environment risk and opportunity areas will be impacted on as a result of the works and how they will be managed.

3.1 Air Quality

Design

Pollution to air will be considered during the design phase and planned in order to reduce or eliminate the amount of air pollution and dust which will be produced. Best practicable means will be followed to minimise emissions to air. If this cannot be minimised, the design will minimise the impact on receptor sites from this work. This will be reflected in the drawings and in this EMP. Management will be achieved through:

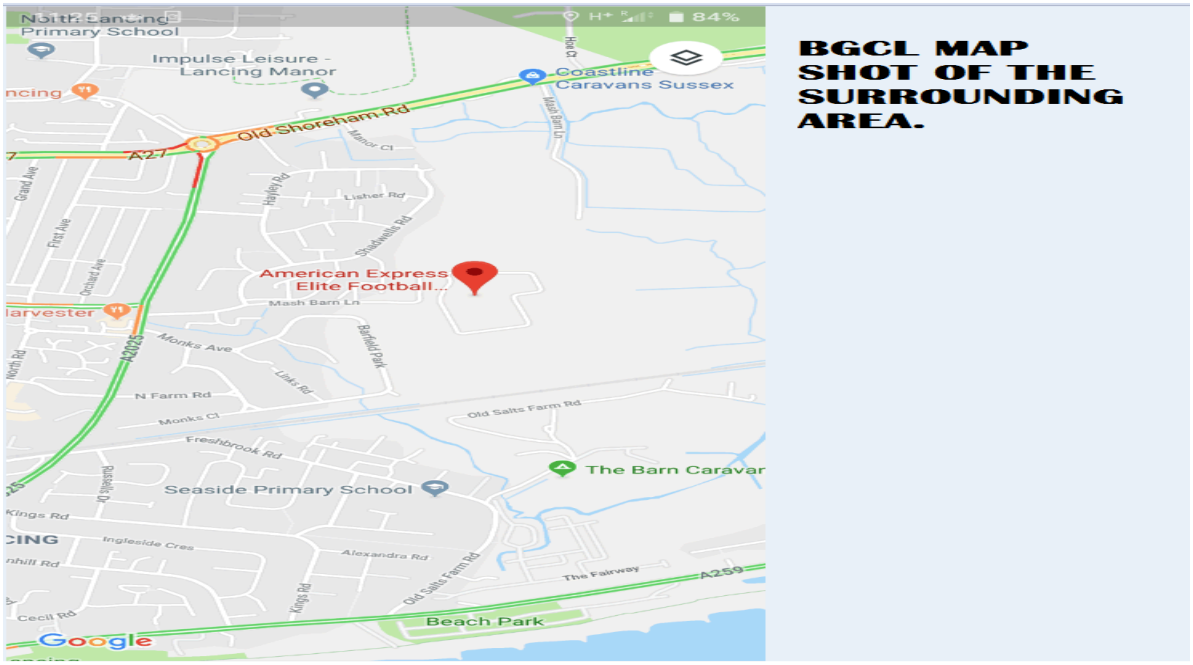
- Specification of methodology to reduce the amount of dust and air pollution produced.
- Consideration will be made to using prefabricated materials where possible so that localised air pollution is minimised.
- Specifying the use of electric power rather than generators.
- Specification of dust control measures

Construction

Air pollution, arising from odour, fumes and smoke, may arise from activities associated with the extension to the first team building and construction of the elite women and girls centre including:

- Use of vehicles
- Use of plant (fixed and mobile)
- Use of volatile substances such as solvents and fuels
- Dust from dry conditions and stockpiled materials
- Dust from material deliveries
- Dust/air pollution as a result of site operations and activities

There are a number of sensitive receptors in the vicinity of the above activities, including dwellings, schools, commercial premises, homes for the elderly and offices. We will ensure that the A27 is consider as a sensitive receptor in terms of dust/airborne contaminant management from a traffic in/out point of view.



Pollution to air will be managed in order to reduce impacts to a minimum, and to eliminate where practicable. The site management will be responsible for taking steps to eliminate or reduce to a practical minimum the release of substances to air. The nature of work, weather conditions, topography and prevailing wind direction will be taken into account when determining the level of dust control required. Management will be achieved through:

- Prohibition of fires on site.
- Fuels, oils and volatile organic compounds will be stored in secure, sealed, labelled containers.
- Following the design methodology to reduce air emissions i.e. using prefabricated materials where possible so that localised air pollution is minimised.
- Vehicles and plant will be switched off when not in use
- Ensure vehicles and plant are not over loaded to prevent labouring
- Covering loads entering and leaving site to prevent material escaping
- Speed limits on haul road
- During dry spells stockpiled materials and roads will be damped down if they are likely to create air born dust.

Where possible, the water for damping down will be obtained from settlement areas or abstraction in order to reduce the amount of water resources used on site and contribute to the sustainable objectives of the project. Consideration will be made to using hard surfacing areas within sites where there are regular traffic movements.

Where the activity cannot be minimised the project will reduce the impact on receptor sites through:

- Erecting barriers around the site
- Keeping dust/air pollution generating activities away from receptors

Dust monitoring will be agreed with the Client where there are specific sensitive receptors that could be impacted upon by the works.

3.2 Archaeology and Cultural Heritage

Design

Client information will be reviewed including existing archaeological documentation and any reports generated by previous archaeological investigations.

If there is a lack of information, sites of potential archaeological or cultural heritage will be surveyed to gather more information on the site. The requirement to obtain consent from a regulating authority will be assessed and if required the consent obtaining process will commence. Mitigation for the construction phase of the project will be submitted for approval. The designer will work closely with the Client, local authority and any Archaeologist employed by them.

The Design Manager will ensure archaeological issues are taken into account during the design stage and agreed with the client. If the design of the project is changed for any reason and consequently could have additional archaeological implications, the client will be informed as soon as is practicable and an archaeologist consulted.

In the first instance the design of the works will minimise the disturbance of any artefacts or structures. This will be achieved through:

- Making allowances in the work programme for the recording of archaeological finds.
- Making available suitable equipment to assist the archaeologist
- Designing activities away from high risk areas.
- Avoidance of particularly sensitive areas where practicable
- Considerate positioning of new structures
- Local/similar materials used in the construction of new structures
- Use of sympathetic techniques and materials in the renovation or securing of structures

Following this the designer will specify protection measures in the design documentation to ensure that there is no accidental damage to any artefacts or structures. This will be achieved by:

- Providing suitable plant and competent and experienced operators to assist in archaeological excavations
- Specifying areas to be fenced off and signing areas of potential risk

Construction

Specific known issues from the design stage are listed above. If there are risks associated with the construction works, these works will not commence until an authorised person has agreed the MS. The construction team will work closely with client team and local authority. Consent should be obtained prior to construction phase so mitigation for the construction phase of the project will be submitted for approval.

The construction of the works will minimise the disturbance of any artefacts or structures. Consent conditions will be followed and the correct control and protection measures will be put in place.

Protection measures will be specified in the construction MS to ensure that there is no accidental damage to any artefacts or structures.

If any unexpected archaeological finds are discovered during site investigations BGCL will stop work immediately and inform the client and the regulating authority. The remains will be protected to prevent damage until an agreement is reached as to how best to proceed. Work will only recommence when authorisation is given by the appropriate statutory body.

3.3 Contaminated Land

Design

Places of contaminated land will be identified through client tender documentation and surveys completed prior to the design phase, historical information taken from archives showing what the land has previously been used for and ground investigation.

If any contaminated ground is found to be present on a works site, the designer will assess the risk in relation to:

- Mobilising any contaminants as a result of the works
- Potential receptors in the local vicinity which may be impacted upon as a result.

The specific contamination issues if any for the extension to the first team building & construction of elite women and girls centre will be found in the site investigation report.

The designer will attempt to avoid any areas of contaminated ground through innovative design and minimise the risk of mobilising any pollutants. This will be specified in the drawings and a specific land remediation plan will be developed.

If contaminated ground cannot be avoided the designer shall attempt find a way to remediate the waste on site or specify the removal of the material to a recycling facility. If detailed ground investigation has been carried out and pockets of contamination are present, the design should reflect the need to careful excavation to allow segregation of contaminated land from uncontaminated waste. This will reduce the cost of disposal which should be avoided.

Construction
If pockets of contamination are present and identified through design, during excavation the contaminated land will be segregated to reduce the amount of contaminated ground that needs to be treated.

Any treatment as specified by the design EMP will be followed. No waste must go to landfill unless the waste hierarchy has been followed and there is no sustainable alternative. Any contaminated waste produced as a result of this works will be listed in the Site Waste Management Plan.

If unexpected contaminated land is found when carrying out works e.g. buried asbestos, works will cease until an assessment has been made and the hazard is removed.

3.4 Ecology

3.4.1 Protected Species

Design
BGCL will engage an ecologist to carry out a desk top phase 1 habitat survey and subsequent protected species survey to ensure that all risks are identified before work commences. Once the risks are known then specific surveys (Phase 2 surveys) to assess presence or absence of protected species can be undertaken and works will be planned to effectively minimise adverse ecological impacts. The design team will also look at the appropriate Local Biodiversity Action Plan priority habitats and species and consider this when considering enhancement of the local area.

The main protected species issues associated with extension to the first team building & construction of elite women and girls centre are:

- Vegetation clearance leading to issues such as disturbing nesting birds and bats

Construction

All staff will be advised during induction to be mindful of all environmental issues and report any concerns to site management. If such protected species are found on or near the site, work in that area of the site will stop and specific recommendations will be made following consultation with HSEQ.

If further specific surveys or monitoring (watching brief) are required, the project manager will consult an ecologist who will liaise with the regulatory authorities in the region. Discussion of operations with an ecologist will take place adequately in advance of programmed works in order to:

- Try and avoid any impact in the first instance by considering other methodology
- Determine the best approach to reduce adverse impacts and seek opportunities for environmental enhancement
- Develop mitigation measures and obtain consent or a specific license for the regulatory body.
- Schedule works so as to avoid particularly sensitive times of the year
- Limit land take of green belt land and removal of habitat i.e. removal of vegetation
- Obtain licences in a timely manner from the regulator (Where specific licences are needed, the time taken for

consultation and processing must be included and the licence seasons and other limiting factors in obtaining them included).

- Ensure time is allocated for appropriate monitoring prior to license application

Recommendations from surveys should be carried out before work commences on site to prevent any delay. All conditions of licenses will be adhered to at all times.

Details of agreed mitigation work and conditions of licences will be incorporated into MS in order to closely control potentially damaging operations on site. A watching brief by a suitably qualified ecologist may be required immediately prior to the clearance of sites determined to be suitable for protected species.

Following agreed mitigation monitoring of ecological mitigation measures may take place for an agreed period of time in order to assess the success of the mitigation work. Where possible, this information will be shared with statutory bodies and other third parties to contribute to ecological management understanding and improve future mitigation strategies. The client will be kept informed as to the progress of surveys and any licences applications. All licences/assents will be included on the project Consents Register.

Where there is any disturbance or unexpected discovery of ecological interests these will be reported to the client and HSEQ department immediately to ensure no harm is caused. Works will only recommence when authorised to do so by all parties.

3.4.2 Invasive and Pest Species

Design

If any Schedule 9 listed species as listed in the Wildlife and Countryside Act 1981 (as amended) are present in the initial ecological surveys or hazard directory the design will reflect how works must be completed to avoid spreading any weeds.

Where management of invasive or injurious weeds is required, control measures to avoid these plants will be employed firstly, followed by effective management to ensure the weeds are not spread. Appropriate management strategies and management plan will be formulated. The designers will specify which method will be used and discuss with industry specialists. These may include:

- Cutting and spraying with a non-persistent herbicide,
- Cutting and burying of waste on site in a geotextile membrane
- Excavation and removal to suitably licensed landfill site (expensive and least preferred option)

Construction

If any indications of invasive or pest species are found on the site, work in that area of the site will stop and specific recommendations will be made following consultation with HSEQ.

An Invasive Weed Management Plan will be developed to ensure that the weeds are not spread. The strategy, agreed on a site to site basis, will be included in relevant MS and adhered to as the mode of operation for management operations. These will complement any management regimes already initiated by the client. Specific strategies on this project include:

- Cutting and spraying with a non-persistent herbicide,
- Cutting and burying of waste on site in a geotextile membrane
- Excavation and removal to suitably licensed landfill site (expensive and least preferred option)

Specific mitigation used will be:

- Use of appropriate pesticides where necessary,
- Segregation of weeds using fencing and signage
- Cleaning of tools, plant, skips, boots.

3.4.3 Landscaping and Vegetation

Design

Natural features will be retained where possible, however if features that are kept are likely to suffer damage, e.g. trees, they will be removed. The local authority and project ecologist will advise on replanting any features lost at the end of the project and enhancing existing natural features at the same time.

BGCL design team will contact relevant local authorities or use online systems, to determine if any of the trees to be affected have Tree Preservation Orders (TPO's) applicable to them. Where possible these will be left and working practises will be in line with BS5837 "Guide for trees in relation to construction".

If these trees need to be removed or pruned, then the design team will instruct the construction team to apply for consent from the local authority. The client will also be informed of this decision. The design team will discuss the possibility to replace or enhance what has been lost off site. Where TPO's do exist, application for consent to prune or remove them will be made if required. Additional permission will also be sought from Client.

Any planning permission that is required will require the consent of the local planning team. The visual impact of the works will be considered and this will shape what the finished product looks like. Social factors will be considered in line with the sustainability policy.

Opportunities to enhancement the environment such as planting of landscape schemes will be investigated, e.g. local planting of native species which will attract a wide variety of native wildlife. The project will take all practicable measures to control the visual impact of the works and to preserve and reinstate any damage to landscape:

Construction

Site hoardings will be maintained in a satisfactory condition and to a standard acceptable to the local authority and client. Site hoardings and fencing may be used as dust/ acoustic/ visual screens for worksites. These will be frequently maintained in order to ensure efficiency and visual impact.

The BGCL Project Management Team shall minimise all environmental impacts. Land take, construction activities, materials and waste storage shall all only take place within the boundaries of the work sites. None of these activities shall take place outside the work sites except where there is prior consent from the relevant authorities, for example work to highways. Recognition shall be taken of adjacent sites and businesses that may impact on site from outside its boundary.

The construction team will review designer's recommendations as listed above and comply with any consents obtained (e.g. TPO removal, conservation area consent). If large scale removal of vegetation is being carried out, then the local authority and the clients Community Relations Representative will be contacted to ensure that the loss of vegetation cannot be avoided

A qualified Tree Surgeon will carry out any surgery to a tree subject to a TPO. Trees that are not subject to TPO and are not on the client land will not be trimmed or removed until the local authority or private owner of the tree has been contacted in writing and has given permission for the work.

Cuttings or logs from work to trees will be used wherever possible on site, and subject to the appropriate exemptions from the Environment Agency. Opportunities to create valuable habitat using these cuttings will be considered, for example, encouraging stag beetles and providing hibernacula for amphibians and reptiles. These will be listed in Appendix A – Risk and Opportunity Register.

3.5 Energy and embedded carbon

Design

As part of BGCL Sustainability Policy, ISO 50001 certification and the BGCL Energy Policy, the whole lifecycle of the project will be considered (construction, operation, decommissioning and demolition). This is important when selecting the correct design solution for the works and thinking about the works once work is completed.

The design phase to look for opportunities to reduce the embodied carbon through material selection, construction energy and subsequent operation.

Carbons saving initiatives included in the design for this project are:

- Planned use of energy efficient appliance in final design
- Reduction in the amount of plant required
- Low energy materials – e.g. cement replacements such as PFA and GGBS.
- Longer life structures: Foundation and Steelwork design optimised for minimum materials content. Galvanising thickness to be considered

Construction

BGCL will comply with the client's sustainability policy and BGCL ISO 50001 certification to set and achieve targets in relation to carbon usage. Energy consumption and CO2 emissions will be reduced as much as possible and innovative solutions will be developed to ensure this is achieved.

The design suggestions (above) will be assessed at the start of the works phase and providing they are viable; they will be introduced. These will be included in Appendix A: Risk and Opportunity Register.

An energy management plan will be completed for the project and energy audits will be undertaken on site. Specific measures to be introduced to ensure that carbon emissions and energy usage is reduced on this project are:

- Use of eco-cabins
- Cabins hooked up to the electricity mains rather than a diesel generator
- Small tools to be powered through battery / mains power
- Green travel policy
- Efficient plant and equipment (regularly maintained)
- Generator to be suitably sized

3.6 Lighting

Design

The design will follow best practise when stating the position for permanent operational lighting installed in the area. Lighting will be placed so that it does not intrude or is directed into adjacent buildings, particularly private dwellings or ecological receptors. The design process will consider:

- The impact of lighting in relation to navigational lighting.
- Lux levels of lighting to provide adequate lighting but also reduce energy/minimise light trespass/sky glow.
- Energy efficiency
- Sustainable forms of power for lighting.

Construction

The temporary lighting erected will take due regard to all sensitive receptors and prevent interference with rail, air and road traffic. The lights will not shine directly into or onto properties, nor will it cause confusion to operators or drivers of any vehicle. Lighting levels must be sufficient for works without causing unnecessary light pollution or nuisance.

The positioning and design of temporary lighting to be installed during the construction work will be considered in relation to:

- Minimum requirements for transport users
- Safe operation of the railway and roads
- Requirements for least disturbance to bat foraging flight lines (insects and bats sensitive to light)
- Energy efficiency, ease of maintenance and disposal of light units (LED to be considered)

Lighting columns powered off the mains will be used as a first priority but if not then either hybrid powered lighting columns or string (generator powered) lights will be used. Security lighting will be as low as reasonable during night time periods. All lighting shall be switched off when not in use.

3.7 Materials and storage

Design

In line with the BGCL Sustainability Policy and client requirements the use of materials from non-sustainable sources will be minimised. Materials from sustainable sources or materials with a recycled content will be specified by designers.

The solution for this project has reduced materials consumption by reuse of fencing materials from previous projects, recycled aggregates and asking our supply chains to remove packaging when possible. Primary materials have been minimised by value engineering.

In addition, global ecological issues will be taken into account during the design phase where timbers from high conservation value forests will be avoided through specifying timber species that can be obtained with FSC certification.

BGCL will procure almost 100% BES 6001 certified ready mixed concrete and aggregates will be procured form BES 6001 sources where possible.

Construction

A SWMP has been developed to reduce the amount of waste produce and develop ideas to reuse this waste.
Wastage of materials has been reduced through:

- • Prefabrication of structures
- • Storing materials to prevent wastage

FSC timber or equivalent will be used. No stratospheric ozone depleting substances will be used or materials of a hazardous nature unless necessary. The whole life cycle of materials will be considered including what happens to the material at the end of the project.

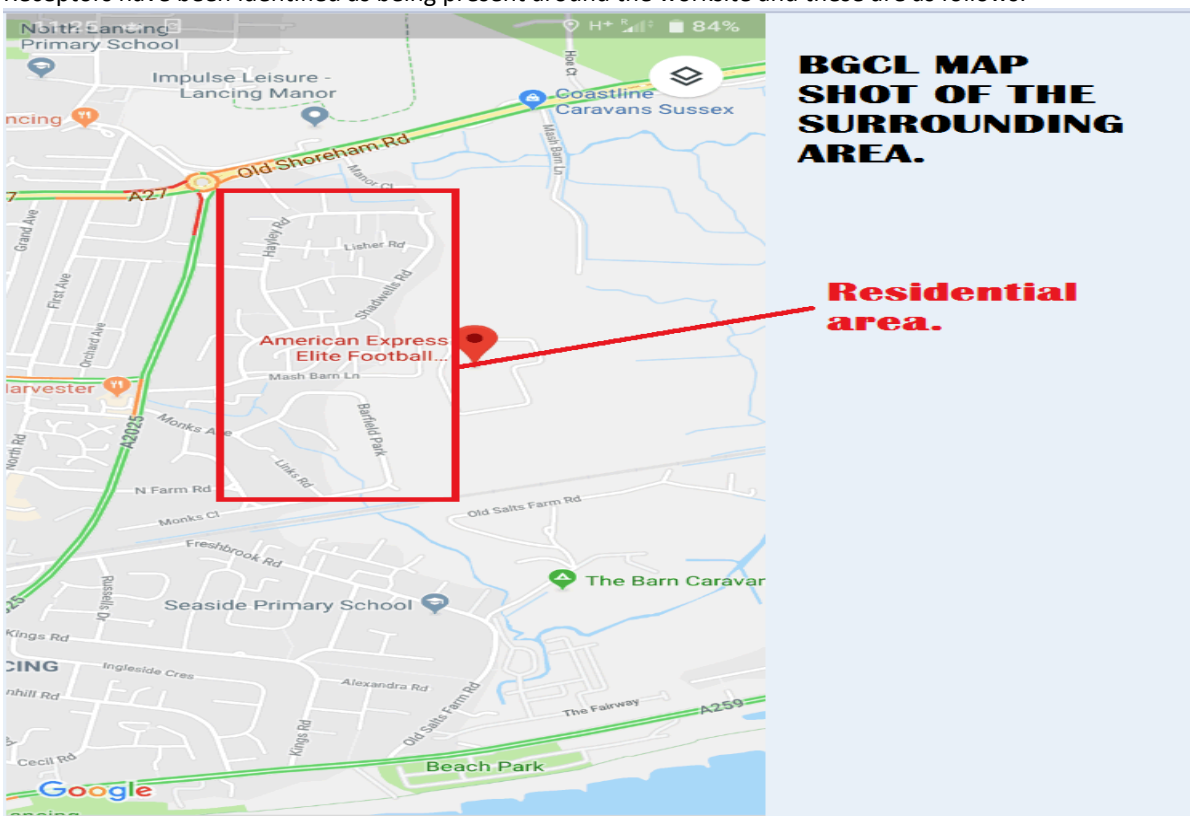
BGCL will unload/store materials in a compound next to the site offices and distribute to site via forklift when able or take to an allocated area within the construction site hoarding and unload/store during the construction phase.
Note: see appendix F

Small plant will be used in the construction and placed on drip tray's whether in use or storage. All large plant will be checked daily at the start and end of every shift by the operative and any leaks contained and reported.

3.8 Noise and Vibration

Design

Receptors have been identified as being present around the worksite and these are as follows:



- Housing/residential area
- Local businesses

During the design phase of works, predicted noise levels will be used to determine design modifications required for lessening the noise and vibration impacts on sensitive receptors during the construction and operational phase of the extension to first team building & construction of elite women and girls centre. The noise of the new infrastructure has been considered and the noise on the surrounding community following the construction works is decreased.

Construction

Construction activities are likely to give rise to increased noise and vibration. The main activities that are associated with this particular project will be:

- Breaking out of hard materials
- Diamond drilling
- Compaction of materials

A list of receptors that are likely to be impacted on as a result of works are listed above.

Noise strategies will be formulated with respect to the nature, duration and time of works and the proximity of sensitive receptors. Best practicable means and industry best practice will be employed in order to reduce impacts.

Buckingham shall ensure that those site activities likely to generate noise and/or vibration will be assessed to evaluate the potential impact to sensitive receptors. Where possible, Best Practicable Means will be adopted to limit noise and vibration levels as far as reasonably practicable.

Where possible all works will be conducted during the hours of 08:00 and 18:00 (normal hours). If works are out of normal working hours, the project will liaise regularly with the Local Authority and ensure that works are subject to

section 61 agreements where appropriate. Where changes are made to the scheduling of works, machinery or methods employed, local authority will be informed and consideration will be made for the need for a variation or dispensation to the section 61. This should be submitted to the local authority at least 28 days before the project commences. Once obtained a copy with be provided to the client.

BGCL shall carry out background noise surveys prior to commencing noisy work and may monitor sensitive receptors to ensure that the prevention measures employed perform satisfactorily.

If construction noise cannot be reduced then the effect of this noise will be mitigated, reducing the impact on the receptors by:

- Restricted working hours
- Use of noise screens and blankets
- Employ a noise monitoring programme

Noise monitoring will be carried out to ensure that noise levels as predicted in the section 61 consent are not exceeded during the works. If these levels are exceeded, then further noise mitigation will be required. Noise monitoring results will be kept in the project filing system and be available to the local authority and client on request.

BGCL will generally comply with the recommendations of BS 5228 – 1, Clause 9.3 to minimise noise levels during the execution of the works.
Noise levels from the works shall not exceed the statutory requirements imposed by the Noise at Work Regulations 2005.
Wherever possible plant and equipment will be fitted with effective silencers as recommended by the manufacturers and all plant will be well maintained and serviced. Machinery and equipment will not be left idling.

Wherever possible vibration damped equipment will be used.
It is currently foreseen that the use of vibration generating equipment/tools will be kept to a minimum.
BGCL will undertake to carry out HAVS monitoring as and when required.

3.9 Waste

Design

BGCL will comply with the client requirements and will produce a Site Waste Management Plan (SWMP) for the design stage of this work. BGCL will achieve the target for waste (Appendix B) and will actively seek ways to reduce the volume of waste produced.

The designers will produce information for the SWMP that identifies:

- The wastes and their quantity that will be generated by the project
- Opportunities to minimise waste being produced in the first instance e.g. pre-fabricated structures
- Opportunities for sustainable use of materials such as demolition waste, for example through reuse, elsewhere on the project in the first instance, and/or recycling. The waste hierarchy will be considered.
- Opportunities for onsite treatment of waste (under an Environmental Permit/Exemption or through industry codes of practise i.e. CLAIRE': Definition of waste' for excavated materials.)
- Waste testing that has been completed and the nature of the waste that is likely to be produced. If the waste is hazardous in nature the designer will detail how this is to be stored.

It is the designer's policy to minimise the amount of waste generated and sent to landfill. This will be achieved through careful selection of methodology and classification/testing of wastes and identifying any possible uses for it. Where possible, topsoil and subsoil will be separated, stockpiled and stored in line with best practice for use elsewhere on the project. This is detailed in the designer SWMP.

Actions as identified in the design stage will be passed onto the construction team through the handover of the SWMP document for construction use and notifying the Employees Representative. This will ensure that actions developed in the design stage can be included in the main SWMP and decisions made at this stage can be executed.

Construction
BGCL will comply with the client requirements and all other waste legislation as described in BGCL Company Legislation register. This aims to actively seek ways to reduce the volume of waste produced. This will be recorded in the SWMP that will follow on from the design phase.

The construction team will check the details in the designers SWMP and ensure the SWMP identifies opportunities to minimise waste being produced in the first instance e.g. pre-fabricated structures.

Stages	Include
Prevention:	Using less material in design and manufacture. Keeping products for longer; re-use. Using less hazardous materials
Preparing for re-use:	Checking, cleaning, repairing, refurbishing, whole items or spare parts, segregation of waste
Recycling:	Turning waste into a new substance or product. Includes composting
Other recovery:	Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis and materials from waste; some backfilling
Disposal:	Landfill and incineration without energy recovery

The main issue regarding waste on this project will be:

- Packaging, which will be managed with our sub-contractors

Sustainable options for waste minimisation/reuse will be investigated, where appropriate, in order to minimise the amount of waste leaving the site and going to landfill. Where possible, procurement of non-virgin alternatives will be pursued in order to ensure that a viable market for recycled products exists. If during excavations waste material is considered to be contaminated then testing will be undertaken and if found to be above trigger levels the waste will be deemed as hazardous and disposed at a licensed facility, using a licensed contractor.

In line with BGCL duty of care all Waste Transfer Notes, Hazardous Waste Consignment Notes, Waste Carriers Licenses and Environmental permits will be obtained prior to leaving site. These will be checked on the EA's public registers and wagons will be followed dependant on the risk involved.

Waste production will be monitored and records kept to check waste management against client targets. These will be reported to the client on a periodic basis. The SWMP will be updated on a frequent basis in line with the amount of waste being produced.

Any waste spoil produced from the construction site will be taken to an area allocated by the client. Note: See appendix G

3.10 Water

3.10.1 Minimising water use

Design
BGCL are committed to reducing the amount of indirect and direct water use on construction projects and for the operational use of water. BGCL sustainability Policy sets targets for the reduction of this water usage.

BGCL will attempt to specify measures to reduce operational water usage once the construction phase has been completed.

Construction

During construction BGCL will reduce the amount of potable water used on site and will develop ideas to use non-potable water instead. Ideas to be used on this project are:

- Push taps in staff welfare areas
- Abstracted water for use in dampening down dust
- Surface water to be directed to and held within settlement areas for reuse in damping of stockpiles/haul roads.

Water usage will be measured on site via a water meter and reported to the client through Environmental KPI's. This will be through using water meters in cabins and totalling up bowsered water brought onto site.

3.10.2 Minimising the impact on sensitive receptors

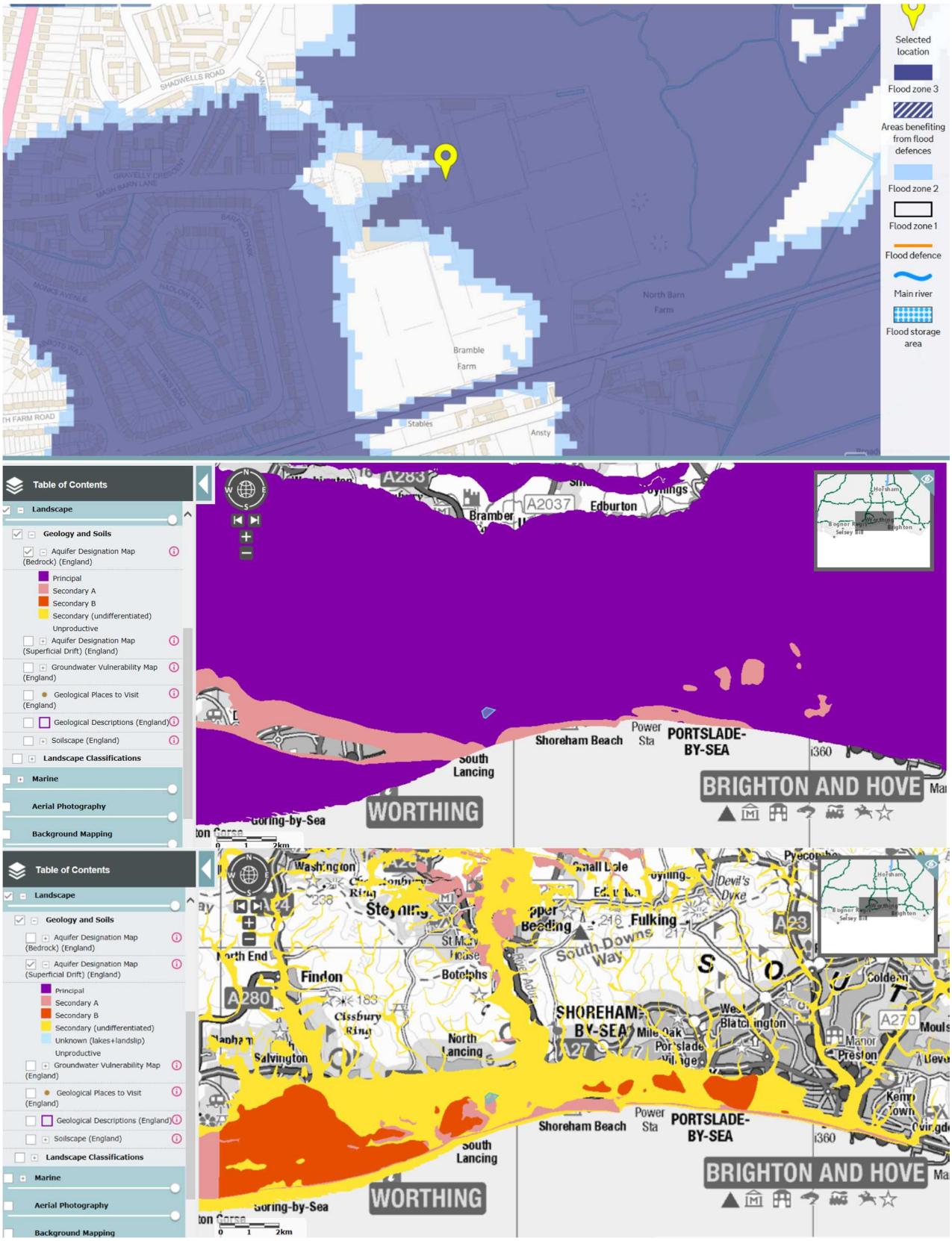
The design stage of the project will identify areas where the impact of the project on drains, springs and watercourses can be minimised through good environmental design practices. Best practise guidance such as the Environment Agency Pollution Prevention Guidelines (PPG6) will be consulted and specified. Design opportunities will include:

- The implementation of Sustainable Urban Drainage where practicable
- Drainage Measures designed in order to minimise flooding as predicted by climate change
- Determination of any potential ingress of water, e.g. if work is to take place within a flood plain
- Consideration of pollution pathways to watercourses, aquifers and mitigation to prevent this from occurring
- Oil separators will be installed in long-term usage sites, and oil collected will be disposed of, off site using a suitably licensed waste contractor

Activities that may have hydrological and aquatic consequences are:

- Piling or deep excavations in areas

The ground is predominately chalk sitting on a grade 1 aquifer. This means extra care must be taken at all times to prevent fuel and oil spills. No washing of vehicles or plant will be allowed on site, unless in specifically designated areas where the run-off water is running to a foul water drain.
On the project Buckingham Group Contracting Ltd will ensure that all hazardous substances i.e. fuels, oils and greases, will be stored in accordance with the COSHH regulations 2002 and The Control of Pollution (Oil Storage) Regulations 2004. This will prevent any contaminates from reaching groundwater or a watercourse if a spillage or leakage occurs.
The site will have 24hr security present to prevent the likelihood of any vandalism or damage to plant or tools on site.


Selected location
Flood zone 3
Areas benefiting from flood defences
Flood zone 2
Flood zone 1
Flood defence
Main river
Flood storage area
North Barn Farm
Bramble Farm
Stables
Ansty
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Groundwater Vulnerability Map (England)
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Background Mapping
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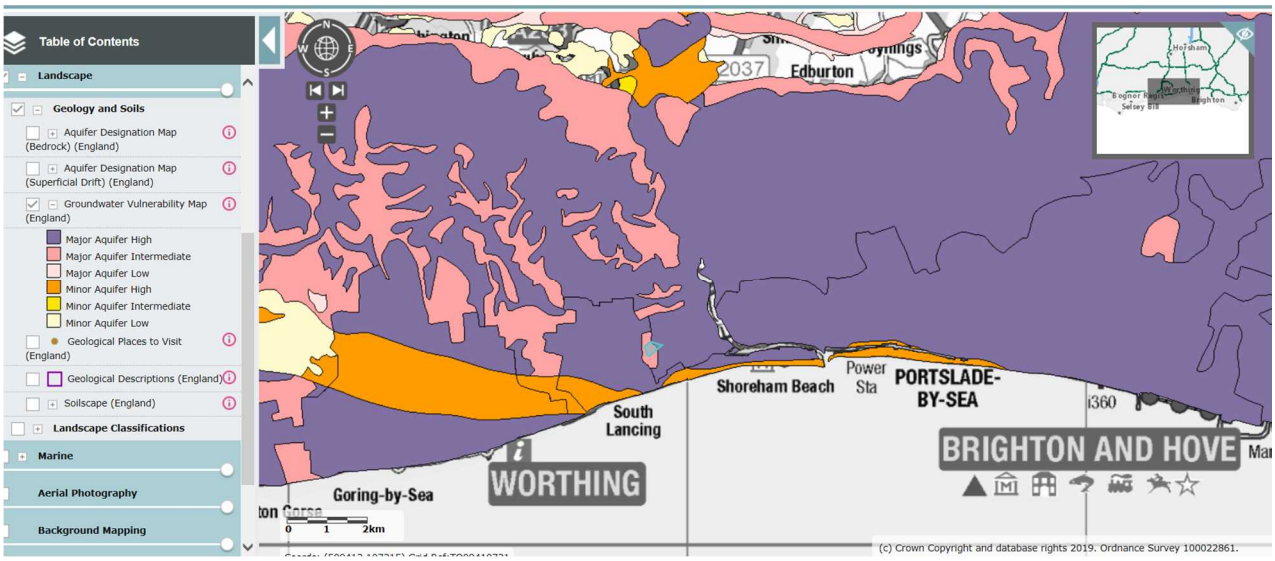
Geological Places to Visit (England)
Geological Descriptions (England)
Soilscape (England)
Landscape Classifications
Marine
Aerial Photography
Background Mapping
Washington
Steyning
Fulking
Findon
Botolphs
North Lancing
Salvington
SHOREHAM-BY-SEA
Shoreham Beach
Power Sta
PORTSLADE-BY-SEA
South Lancing
WORTHING
BRIGHTON AND HOVE
Goring-by-Sea



Consultation will take place with the Environment Agency regarding working in contaminated areas where contaminants could be mobilised and where potentially intrusive operations, such as piling, may be taking place. Where specific strategies to avoid pollution/contamination are required, these will be agreed with the Environment Agency before starting such operations and documented in the MS

The requirement for consents (e.g. discharge consent, flood defence consent) will be discussed with the EA at the same time and these will be applied for well in advance to construction works. These will be recorded in the consents register.

Construction

Specific receptors near the worksite are listed above.

Protection measures as specified above will be implemented prior to the construction phase to ensure that these are protected prior to works starting. Best practise guidance such as the Environment Agency Pollution Prevention Guidelines will be consulted and followed for construction and this includes:

- The use of Sustainable Urban Drainage
- Settlement tanks or lagoons, Drain covers
- Use of absorbent booms on watercourses
- All fuels and oils shall be stored in compliance with the Control of Pollution (Oil Storage) Regulations 2001:
- Fuel shall be stored in dedicated bunded, impervious storage areas away from drains and watercourses
- Fuel tanks shall be stored within a bund capable of holding 110% of their capacity
- Small mobile plant shall be stored on drip trays
- Refuelling shall be carried out only by competent persons and in line with refuelling procedures

Consents considered for the project are:

- Abstraction of water from watercourses over a certain threshold
- Discharge of water.

Fuel/ oil storage will be retained within a designated, secured lockable area of the site (as referred to on site layout). The area will be excavated to approximately 400mm, lined with a membrane and filled with a granular material/. Storage of subcontractor's fuel browser's will be double bunded and retained in this area – **NO** refuelling will be carried out on site unless in an approved control manner.

Should gas canisters be required, then they shall to be secured in a lockable vented area.

All fuels, lubricants and other potentially harmful liquids shall be stored within this area either in bunded tanks, on drip trays or with residue collection sumps with a minimum capacity of 110% of the contents of the vessel.

Suitable spill kits will be stored close to areas of highest risk for spillage, for example next to fuel storage areas. Also, spill kits will be kept in all site vans, mobile plant etc. and the site manager and site supervisors will periodically carryout toolbox talks/ site briefings. All static plant shall have a drip tray provided. Plant will have daily checks for leaks and drips.

Bunding will be regularly inspected and emptied as required. Inspections and emptying shall be recorded in the site's diary.

All mobile plant shall be equipped with appropriate spill kit equipment – granules
Where grips/drains cross road and pedestrian routes, pipes will be installed to ensure integrity of the drainage system.

Suitable spill kits will be stored close to areas of highest risk for spillage, for example next to fuel storage areas. Before any product approved for use in or near water is used, the Contractor shall consult with the Environment Agency and water abstractors shall be notified. The Environment Agency form (AqHerb01) shall be used to facilitate this requirement.

The BGCL foreman will monitor the condition of the plant and equipment. Details of service and calibration will be recorded on the plant & equipment register.

All spills will be reported to the project management. All refuelling activities are to be carried out only in designated bunded areas.

All refuelling of large plant will be carried out in designated refuelling areas by fully trained and briefed operatives. These areas will be bunded and sealed to prevent any leakage into the ground. The area will be monitored daily and small spills will be cleaned and removed from site. Double bunded fuel bowsers will be used to store fuel for plant and these will remain in the bunded area at all times.
Refuelling of small hand held tools will always take place either within the bunded area or within a drip tray.

3.11 Public Highways

The Traffic Management Plan for the Scheme details the way in which traffic (including cyclists and pedestrians) will be managed for the duration of the construction phase of the project. This is produced in accordance with Traffic Signs Manual-Chapter 8. Traffic both on the site and off site will be managed in order to minimise the impact to the project and surrounding area. When temporary road or footpath closures are required, discussions will take place with the local authority. If any disruption to a trunk road becomes apparent, discussions will also take place with the Highways Authority. No alterations to the normal flows of traffic on the highway will be made until full written consent has been obtained.

The requirements of the Traffic Management Plan will be summarised in the site induction and may be forwarded to any subcontractors and suppliers visiting the site by road vehicle.

General issues to be considered include:

- Road/rights of way closures
- Switching off vehicle engines when not in use
- Controls on parking close to the site

- Provision of adequate on-site parking
- Use of wheel-washer when required
- Ensuring most appropriate routes to site are used by site personnel and suppliers
- Preparation of access routes
- Suitable surfacing for the project site, i.e. tarmac
- Adherence to site speed limits
- Dampening down of site surfaces in dry weather conditions
- Cleaning mud from public highways with road sweepers near site entrances/egresses
- Encourage site personnel to use public transport (or share vehicles) when travelling to site
- Consideration of emissions from construction site transport (e.g. reducing lorry movements)

BGCL Group will ensure that the routes used by traffic generated by the project, will be suitable. Restrictions however may be made to vehicles of certain size at particular times of the day in in areas which are particularly sensitive.

Where possible, traffic will be directed in a 'one way' system on site minimising the turning of vehicles. Where the vehicle must perform a reversing manoeuvre a banksman must be in attendance.

3.12 Vehicle types, frequencies and anticipated numbers.

During the first 6 months of construction we anticipate the following delivered to site:

6 no of 8yard enclosed general waste skip
3 no of both timber and plastic 20yard open skip
No more than 50, 20 tonne loads of aggregate (gross weight 32 tonne)
30 no of concrete trucks (32 tonne)
1 no 13 tonne excavator
1 no 8 tonne excavator
1 no 5 tonne excavator
1 no 9 tonne dumper
1 no 6 tonne dumper
1 no 10 tonne operating weight telehandler
1 no 40 tonne operating weight crane to be used on 6 no visits

On a daily basis, we anticipate 20 – 30 cars and vans for Staff and Operatives. Plus, another 5 unspecified deliveries & visitors. The majority of our construction staff and worker will be on site for Site Inductions & Safety Briefings before 7.30am. Most will be leaving site after 6pm again after completion of end of shift like Diaries & Washing/Changing. Hence the peak traffic periods will naturally be avoided where every possible for construction Staff & Operatives. It is BGCL's intention to advise both our suppliers & subcontractors alike, to avoid the congested times of day along the A27 when placing orders for deliveries to site.

With reference to the TMP contained herein Appendix A- BGCL will provide sufficient carparking for 55 cars to cater for Staff/Visitors/Operative & Those who in week Car share.

4.0 Incident Response Plan

An emergency situation may occur where there is any uncontrolled, unplanned accident or unlawful release of a substance into the environment, or likelihood of such a release into the environment that could result in environmental damage. Employees and subcontractors will be trained so that they are aware of possible emergency situations and their consequences. Plans and procedures will be developed to take account of all potential impacts, as documented in the Risks and Opportunity Register, and understand the steps they must take if any such situations occur during site surveys/ investigations, construction and testing activities.

BGCL will produce an Incident Response Plan (IRP) See Appendix E detailing:

- The projects significant risks
- Control mitigation to be implemented to reduce the risk of an incident based on best practise
- Procedural flowchart to follow in the event of an incident
- Responsibilities of people on site in responding to an incident
- Contact details of stakeholders to the incident

The IRP will be briefed to all operatives working on the project and will be made available to all statutory bodies on request. Control measures will be communicated to all personnel through the induction, MS and Toolbox Talks. If specific training is required, this will be carried out by the HSEQ representative on site.

As well as major spillages the IRP will detail the procedure for responding to other environmental incidents including:

- Ecological disturbance: Unexpected ecological protected species, invasive weeds damage to protected sites, damage to trees
- Archaeological finds/cultural heritage – Unexpected archaeological finds, damage to listed structures/monuments, damage to an urban conservation area
- Hazardous/contaminated materials/waste: The discovery of asbestos, arsenic and other hazardous materials, breaches in waste legal duty of care.
- Complaints: Complaints from public nuisance, breaches in consents

4.1 Reporting

The project management will inform the client of a pollution incident as soon as practicable following the incident. BGCL have access to registered Spill Response Companies, who can respond to any major incidents where the control and remediation is beyond the sites capabilities.

Adler and Allan 0800 592827

4.1.1 External Reporting

When there is a spill over the threshold limits or where there may be discharges to sensitive receptors the relevant statutory body will be contacted and the event reported. The relevant statutory bodies related to this project are:

- Environment Agency **0800 80 70 60 (**24-hour hotline)

Reference numbers will be recorded and entered into BGCL investigation report. If other incidents are recorded, then the relevant statutory bodies will be notified.

The client will be notified as soon as reasonably practical.

BGCL will report:

- Name of person reporting with contact number and contract number
- Exact location of incident
- Details of how incident occurred
- Time and Date of incident

- Substance and quantity spilled
- Source of incident: i.e. Details of Machine type, owner and serial number
- Whether a conservation site, watercourse has been affected.
- What initial actions have been undertaken to reduce the impact
- Cause of the incident
- Incident Classification

4.1.2 Internal Reporting

BGCL will report all incidents, close calls and complaints internally so that remedial actions can be documented and closed out. This enables all people in the business to see the incident and sets time periods for these incidents to be closed. These will be reported on the HSEQ reporting online tool.

Any major incidents will be subject to a principle investigation by the central environment team.

4.2 Investigation

Where major incidents occur, they may be subject to the BGCL Principle Investigation Process. This process should identify the principal causes of any accident/incident and determine corrective and preventative actions required to prevent further occurrence in the future.

All actions will be communicated to the client. If the client or third party would like to carry out their own investigation into these incidents, then BGCL will assist in their investigation in an un-obstructive way.

Appendix A - Risks and Opportunity Register

R/O	Activity	Issue	Requirement	Affected	Mitigation	Residual Risk			Future actions	OWNER
						L	S	R		
R	Earth works Foundation works Cutting grinding	**Noise, dust** and **Vibration Impact** to local residents and businesses Noise abatement notice to be served Increased cost and time delays	Legal requirement Code of construction practise CR-E BGCL SP EMR	Community BGCL Client Subcontractor Local Authority	• Design phase specify methodology to reduce noise. • Design works to take place during traffic hours • Follow Best Practise Guidelines for reducing on site noise and vibration as per BS5228 • Obtain Section 61 consent • Letter drop to residents/businesses at least 7 days before works commences • Monitor to ensure levels are not exceeded	**2**	**4**	**8**	Obtain S61 consent from the local authority	Contractor
R	Piling foundations Earth works Drainage works	Creating pollution pathways for contamination through piling into sensitive ground water	Legal EMR Code of construction practise CR-E BGCL SP	Environment Agency Local Community Contractor Client Subcontractor	• Consider which piling method is suitable based on where the gantry foundations locations are. • Design works outside of groundwater protection zones. • Comply with Pollution prevention guidelines to store materials outside of foundation areas i.e. fuel • Obtain advice from the Environment Agency • Monitoring of water quality	**2**	**4**	**8**	Consent from the EA	Contractor/ Designer
R	Earth works Use of construction materials Concrete flooring	Waste production Depletion of landfill space	Legal EMR CCP CR-E BGCL SP	Environment Agency Landfill Contractor Client Subcontractor Operatives	• Ensure that if waste is produced there is a plan in place to manage it. • SWMP implemented, monitored and reviewed • Personnel to be briefed on waste management • Waste will be managed in line with industry best practise and BGCL's duty of care	**1**	**4**	**4**	Follow management strategy in SWMP	Contractor
R	Structure erection	Visual impact to community	Design Client Planning	Community Client	• Follow requirements as set by client following the selection of the best option • Consult Local authority	**1**	**4**	**4**	Follow consent requirements	Designer
R	Foundation construction	Disturbance of protected species	Legal BGCL SP Client Policy	Ecosystem BAP Protected species Natural England	• Survey areas and follow recommendations • Mitigate impact and obtain licenses if required from Natural England • Implement license conditions • Stop works if species sighted	**1**	**5**	**5**	Ecology Surveys & Licensing	Designer

R	Foundation works	Working on a listed structure	English heritage Legal CR-E BGCL-SP Client Policy	Heritage Community	• Review design with English heritage • Obtain consent and comply at all times • Brief all personnel on requirements • Joint site inspections with English Heritage and local authority	**1**	**5**	**5**		Designer
R	Demolition	Working with hazardous waste	Legal CR-E BGCL-SP Client	Landfill site BGCL Client	• Large amount of hazardous materials containing asbestos to be produced. • This will result in a large amount of waste going to landfill due to the limitation of disposal.	**3**	**4**	**12**		Contractor
R	Energy usage (Scope 1 & 2)	Consumption of non-renewable resources Decline in air quality Emission of greenhouse gases Global warming	CRC BGCL-SP CR-E	BGCL Commercial	• No 'standby' policy • Toolbox talks • Meters installed to measure electric use • Energy audits to check people are not wasting energy • Power office from mains rather than generators	**1**	**5**	**5**	Follow BGCL SP guidelines	Contractor
R	Energy usage (Scope 3)	Consumption of non-renewable resources Decline in air quality Emission of greenhouse gases Global warming	Legal – CRC BGCL – SP Client Policy	Environment	• Use concrete mix containing recycled content • Obtain materials from local sources • Reduce the use of virgin materials in materials i.e. concrete • Use local waste hauliers • Measure carbon in materials	**1**	**4**	**4**	Obtain information on scope 3 emissions from suppliers	Design Procurement
R	Energy usage from plant and equipment	Consumption of non-renewable resources Decline in air quality Emission of greenhouse gases Global warming	CR-E BGCL SP Legal Code of Construction practise	Community Environment Local authority	• Use of well maintained, suitable plant • Locate plant away from sensitive receptors • Shut down plant when not in use • Toolbox talks & site inductions • Provide screening/containment around stationary equipment • Use of high output machine	**1**	**5**	**5**	Poster campaign Toolbox talks	Contractor

R	Plant operation Uncontrolled spillage	Damage to environment Pollution to watercourse Contamination to land Consumption of fuel Waste to landfill	Legal CR-E BGCL SP Client Policy Environment Agency	Community Environment Groundwater/ water courses Client BGCL	• Follow incident response plan • Use PPG guidelines from EA for management of fuel • Maintain plant • Designated refuelling area in the site compound. • Training – Spill response • Plant nappies placed under static plant • Suitable spill kits on site	**1**	**5**	**5**		Contractor
R	Travel and deliveries to site	Use of fuel Air pollution Traffic congestion	CR-E Community relations	Community Client	• Produce and implement traffic management plan to reduce impact on infrastructure and environment • Plant delivery times • Advertise any road closures	**1**	**3**	**3**	Traffic management plan, letter drops	Contractor
R	Public nuisance from night working – light	Light pollution affection ecology and community	CR-E Code of Construction practise	Community Client Policy Ecology	• Activities to be carried out during traffic/daylight hours • Low level task lighting used to sufficiently light work area only, directed away from sensitive receptors • Select suitable light fittings to avoid glare • Construction of hoardings/screens etc. • Letter drop to local residents	**1**	**4**	**4**		Design Contractor
R	Footpath Closures	Disruption to community if not published and managed correctly	CR-E Legal	Community Client Policy	• Implement traffic management plan • Communicate to stakeholders	**1**	**4**	**4**	Traffic Management Plan	Contractor
R	Water consumption	Use of non-renewable resources	CR-E BGCL SP	Community BGCL	• Maintenance of taps & pipes • Eco-cabins • Training & supervision • Install water meters • Minimise use of concrete through high output machine	**1**	**5**	**5**	Develop sustainability management plan	Contractor
R	Use of timber during construction	Use of non-renewable resources	CR-E BGCL-SP	Developing countries Ecosystems	• Use sustainable sources of materials in line with BGCL policy • Use of alternatives for shuttering i.e. eco-sheet.	**1**	**4**	**4**		

Opportunities to look at reducing cost, environment impact, H&S issues etc. e.g. reuse of material, minimising vegetation removal, use of recycled materials, using local supply

R/O	Activity	Issue	Requirement	Affected	Opportunity description	Opportunity score			Future actions	OWNER
						L	E	O		
O	Piling Foundations	Reduce impact on the local community	Legal BGCL SP Client Policy	Community BGCL Client	• Design the piling, looking at innovative solutions to get the job done by incorporating some sustainability good practise to reduce noise, vibration, cost	4	3	12	Look at industry best practise	Designer
O	Working in areas with ecological value	Enhancement of the surrounding environment	BGCL SP Client Policy	Community Local ecosystem	• Options will be looked at for enhancing existing resources and improving what is there. This should be discussed with the project ecologist.	4	4	16	Local Biodiversity Action Plans,	Contractor
					• Contractor could potentially remove invasive weeds present and replant native species	3	3	9		
O	Working in areas with ecological value	Reducing impact on surrounding land	BGCL SP Client Policy	Community Local Ecosystems	• All compounds and satellite compounds will be located on existing made ground rather than Greenfield sites	4	5	20		Contractor
O	Site Accommodation	Reduce carbon usage	BGCL SP Client Policy	BGCL - CRC Client Environment	• Opportunity to reduce energy consumption from using eco-cabins • Use welfare facilities which are connected to the mains rather than diesel power generation	3	4	12	Cost comparison of eco-cabins	Contractor
O	Site Accommodation	Reduce direct water usage	BGCL SP Client Policy	BGCL Client Policy Environment	• Use eco-cabins with rainwater harvesting and water efficient facilities	3	4	12	Cost comparison of eco-cabins	Contractor
O	Sustainable Materials	Recycled content in concrete foundations	BGCL SP Client Policy	BGCL Client Policy Natural resource availability Landfill space	• Concrete can be obtained which contains a recycled content of materials such as PFA, GGBS or recycled aggregate • Specify in drawings	3	4	12		Designer, Materials Manager
O	Sustainable Materials	Climate change mitigation	BGCL SP Client Policy	BGCL Client Policy Natural resource availability Landfill space	• Foundation and steelwork design optimised for minimum materials content. • Galvanising thickness of steelwork to be considered	2	3	6		Designer

Appendix B - Environmental Objectives and Targets

1	Overall Objective	Detail	Target Measure
	To manage and minimise our waste production in order to deliver a sustainable environment Waste reduction for the project	• Training of staff on waste segregation and reuse • Designing out waste workshop • Identify where prefabricated materials can be procured in order to minimise waste procured on site	Figures to be collated and monitored for site through use of Waste Management Plan. Data to be normalised by Project spend or hours worked
	Responsibility	**Support from**	**By When**
	PM	Soil sampling of the surplus waste to establish its suitability for reuse Organise crusher for onsite use Training via environment manager/HSEQ advisor	Especially within the advanced phase at this time but throughout Project. Figures for other sites held at Stowe for comparison.

2	Overall Objective	Detail	Target Measure
	Minimise Pollution incidents	• By good proactive management of pollution prevention measures. • Works to be kept 10m from receptors e.g. rivers, drains • Training/instruction of staff in pollution prevention. • Adequate mitigation measures for dewatering of excavations • Plan to minimise pollution should the area flood - EERP	• Zero reportable incidents Monitoring onsite mitigation and monitor best practice Stick within allocated working hours.
	Responsibility	**Support from**	**By When**
	PM	HSEQ Manager Liaison with EA / Local authority / Natural England	In place from contract start then ongoing throughout project.

3	Overall Objective	Detail	Target Measure
	Minimise ecological issues	• Continual monitoring and audits of site to agreed plan • Manage invasive weeds on site • Minimise the amount of habitat to be lost	• Zero breaches of protected species licenses • Zero damage to retained vegetation/trees/hedgerow
	Responsibility	**Support from**	**By When**
	PM, HSEQ Advisor	Ecologist and Environment Manager	From Contract Start and Ongoing throughout project

4	Overall Objective	Detail	Target Measure

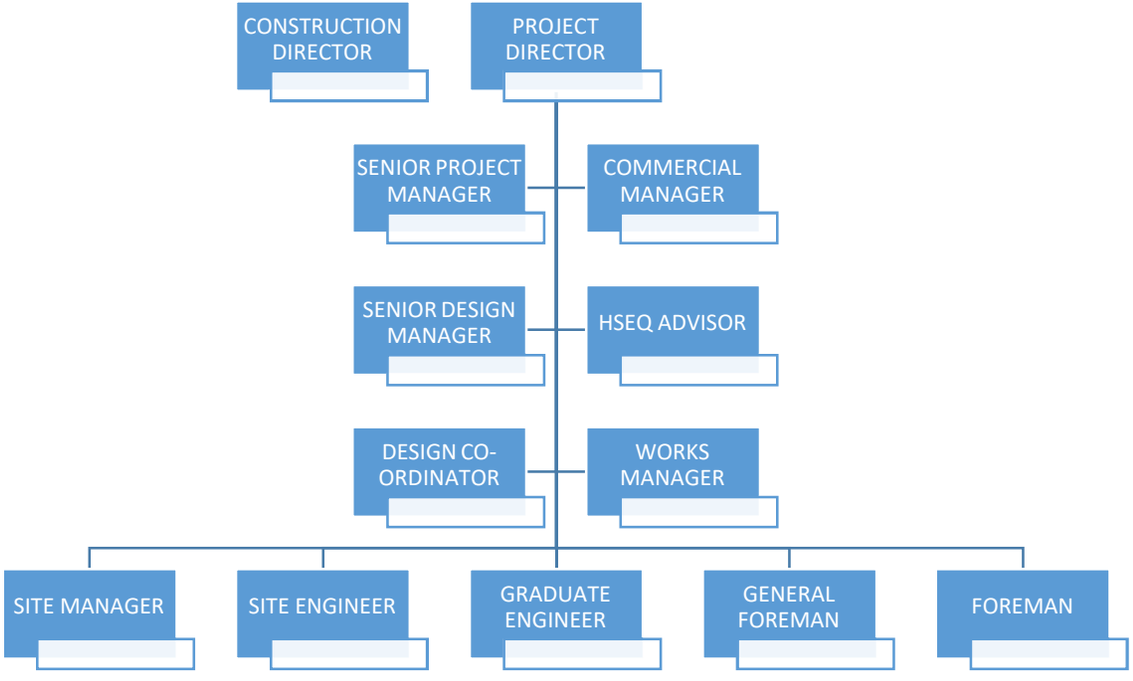
	Minimise complaints due to nuisance	• Works are to be undertaken during daytime hours • Local residents are to be informed of the works. • Air quality monitoring and dust suppression to reduce dust • Measures to minimise nuisance and traffic disturbance	• Complaints to be responded to within 24 hours • Complaints to be closed within 1 week (if received)
	Responsibility	**Support from**	**By When**
	PM. Project Director	HSEQ staff, specialist monitoring services where needed.	In place by; from Contract start then ongoing.

5	**Overall Objective**	**Detail**	**Target Measure**
	Set water reduction strategy	• Minimise water usage on site (direct use 1). • Water reduction measures on site • Look at water harvesting being built into the design for depot. • Wheel wash which utilises recycled water	• Baseline for the project for 3 months • 10% water reduction for second year
	Responsibility	**Support from**	**By When**
	PM. Project Director,	Design team, procurement	Duration of project

Appendix C - Consents & Permissions

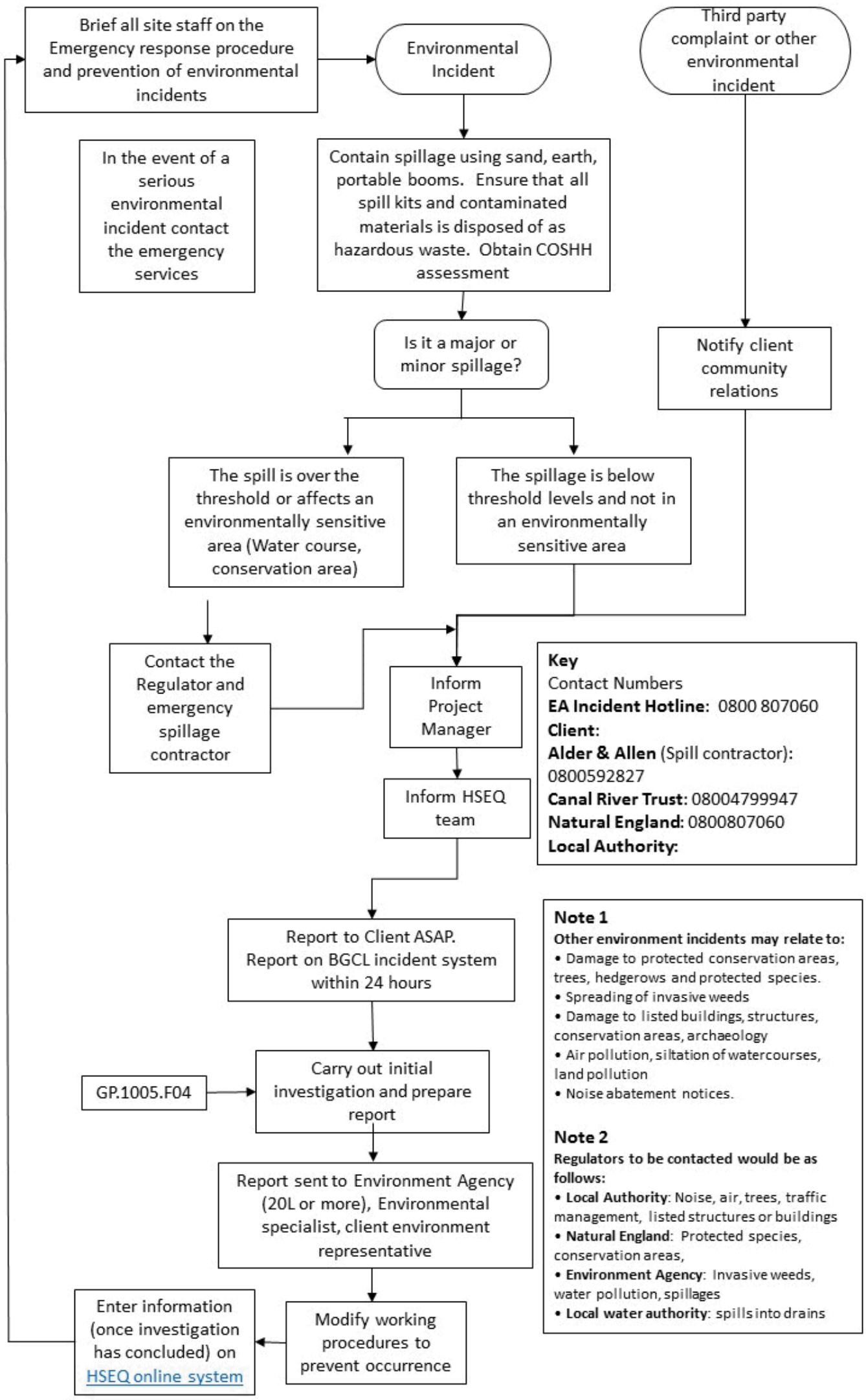
Consent	Legislation	Regulator	Timescale to obtain	Responsible

Appendix D – Organisation Chart

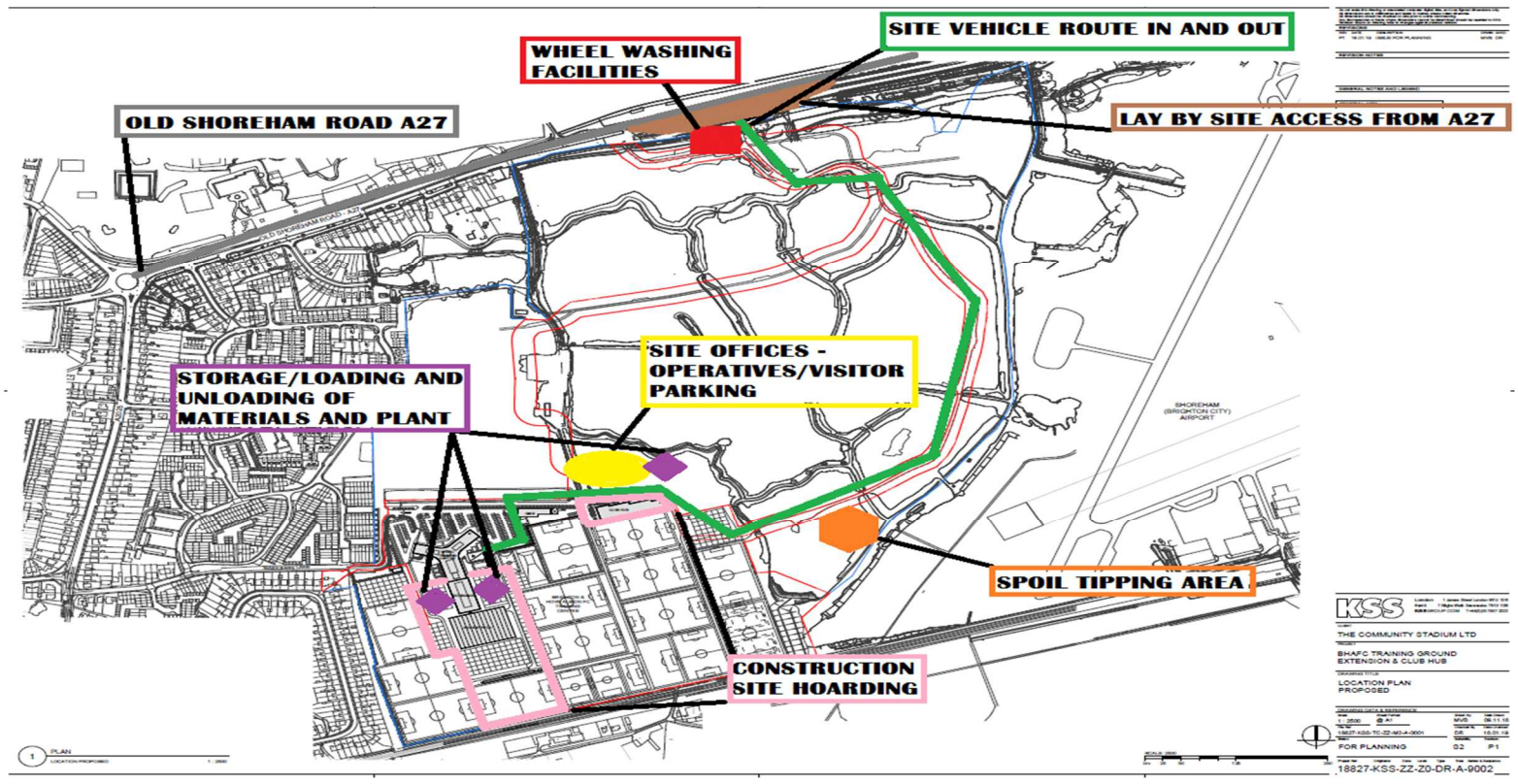


Appendix E – Emergency Response Plan

Emergency Spillage Procedure



Appendix – F



Appendix - G

