



**John Cradock Ltd**

**Construction  
Environmental  
Management Plan**



Date: 13/11/2015

Contracts Manager: V. Smyth

Site Agent: T. Keenan

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**Construction  
Environmental  
Management  
Plan: Limerick  
Smarter Travel  
Contract 2.1 – UL  
to Rhebogue#**

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Limerick City & County  
Council

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(EHS Manager)

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<b>Limerick Smarter Travel Contract 2.1 – UL to Rhebogue</b>	
<b>TITLE:</b>	<b>CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN</b>

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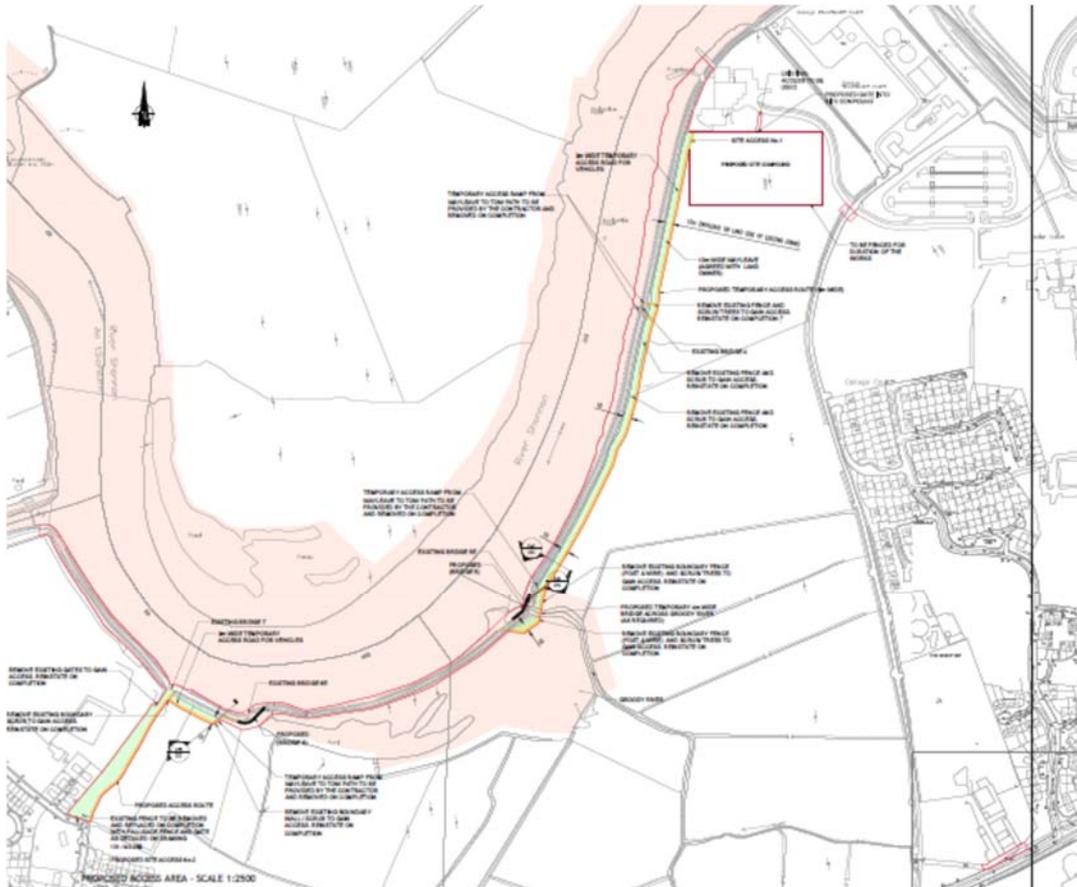
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## Section 1 Introduction

### 1.1 Introduction

The site is located on the banks of the River Shannon between the University of Limerick and Rhebogue, Limerick.



## **1.2 Description of the Works**

The site is located on the banks of the River Shannon between the University of Limerick and Rhebogue, Limerick. The works proposed under the contract include, but is not limited to, the following elements of construction:

- Construction of a bitmac path (2-3m wide) including kerbing and associated works
- Construction of 4nr pedestrian bridges (2nr new, 1nr widened and 1nr reconstructed)
- Refurbishment of 2nr existing stone pedestrian bridges
- Supply, erection and connection of public lighting including ductwork
- Supply and erection of signage
- Supply and erection of fencing and gates
- Construction of temporary access and reinstatement of same
- All ancillary works associated with the above



### 1.3 Environmental Policy



**Environmental Policy**

Protecting our shared environment is of fundamental importance to John Cradock Ltd., as it is to our employees and clients. The company is aware that our activities have an environmental impact and is committed to minimising this impact, through accountability, policies and effective management. To support this common goal, we will:

- comply with applicable local and state environmental regulations and legislation
- continually improve the environmental performance of activities and processes
- protect the surrounding communities and ecosystems by working with local Heritage and Environmental groups in all locations where we carry out work

We will work to achieve these commitments by:

- requiring environmental awareness training of all our employees through designated Toolbox talks and invite employee consultation in environmental matters
- considering carefully the environmental impacts of all methods of construction before commencing any project
- considering the environmental impact of all business decisions
- evaluating products and processes from the point of view of chemical risk and endeavouring to find better alternatives based on pollution prevention in the first instance
- working with our clients, suppliers, sub-contractors and the surrounding community on environmental issues and minimise in as far as practicable noise pollution, traffic nuisance, and general disturbance to the locality during construction activities
- minimising waste generation as far as is practicable, to re-use and recycle and minimise waste by evaluating operations and ensuring they are as efficient as possible
- reducing the visual impact of our operations by good maintenance and housekeeping during construction and thorough cleaning on completion of projects
- reducing the environmental impact of materials and plant by storing material correctly and planning plant movements carefully to minimise transportation required
- providing the necessary resources to allow our environmental goals be met

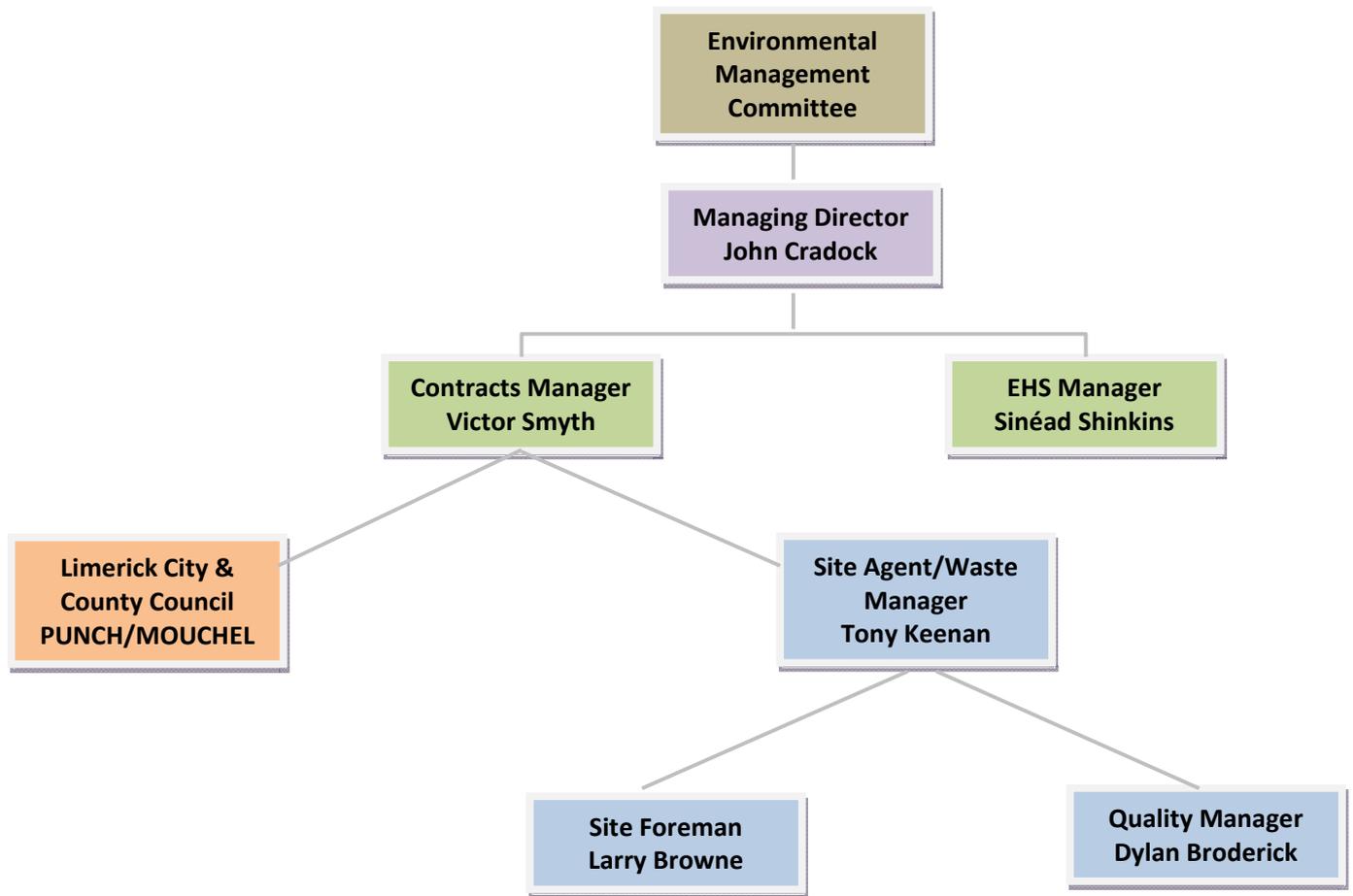
We will make every effort to ensure that environmental performance is an integral part of John Cradock Ltd's performance and of the performance of all our employees. To this end, we will measure and periodically report on our progress in realising these commitments.

Signed

  
John Cradock (Managing Director)

### 1.4 Project Organisational Structure

Management is committed to the implementation of this CEMP and JCL will provide all support and resources necessary to ensure that the plan can be implemented fully and effectively. Below please find the organisational chart for the implementation of the CEMP for the proposed works for the Limerick Smarter Travel Contract 2.1 – UL to Rhebogue:





- The Managing Director has overall responsibility for the implementation of the CEMP and the construction of the works in a safe and effective manner.
- The Contracts Manager has the responsibility for the day to day management of the engineering staff and for ensuring that the contract requirements are met.
- The Site Agent has the responsibility of the day to day implementation, operation and maintenance of the CEMP on site.
- The Environmental Manager has the responsibility for the development and maintenance of the CEMP and monitoring compliance of the same with the JCL EMS.
- The Quality Manager has responsibility for the Quality Plan and auditing the CQMP which is outside of the scope of the CEMP.
- The Site Foreman is responsible for the effective day to day operations on site and reports to the Site Agent.

JCL is committed to allocating all resources required to enable the CEMP to be implemented in full during the construction works for the Limerick Smarter Travel Contract 2.1 project. All JCL staffs have the appropriate training and qualifications for the roles they undertake. Records of training in relation to the JCL EMS are maintained on the JCLNet system and are updated regularly. All equipment used on site is certified, serviced and calibrated when required. Records of calibration and servicing are maintained and updated on the JCLNet system.

Responsibilities of Project Staff:

The Managing Director will:

- a) Ensure that an effective Environmental Management Plan (hereafter referred to as the EMP) and Waste Management Plan (hereafter referred to as the WMP) exists within the Company.
- b) Ensure that adequate resources are available for implementation of the provisions of this EMP and WMP.
- c) Make the EMP a priority and show good example by having it high on the agenda at all management and staff meetings.
- d) Make all provisions for the EMP at planning, estimating and tender stages.
- e) Obtain, where necessary, the services of a competent person to advise on environmental aspects, if such expertise is not available in company.
- f) Ensure that there are adequate provisions for the management of environmental aspects on site.

The Contracts Manager will:

- a) Acquire a full and accurate knowledge and understanding of the EMP and ensure that all employees, self-employed and sub-contractors are made aware of their responsibilities under it. A competent person (normally the site agent) will be appointed to oversee and implement the system/plan on projects.
- b) Ensure that the site specific EMP and WMP for the project is completed, updated as required and ensure that its terms are complied with so far as reasonably practicable.
- c) Ensure that a copy of the site specific EMP and WMP are on site and are available to all who may be affected by the company's activities.
- d) Ensure that any improvement measures noted on the monthly environmental inspections on site are implemented as necessary.
- e) Ensure that any identified training requirements are implemented.
- f) Ensure that an adequate supply of equipment for the environmental control measures is available on site.
- g) Ensure the repair of any reported defects in plant or equipment. A competent person on site will be appointed to keep plant in good working order.

The Site Agent/Waste Manager will:

- a) Understand the terms of the EMP and WMP and will ensure that all employees, self-employed and sub-contractors are made aware of their responsibilities under it.
- b) Know and understand the terms of the EMP for the project, and implement the control measures set out in it.
- c) Maintain a tidy workplace and arrange for regular clean-ups.
- d) Ensure that all access routes, walkways and doorways are maintained clean and free of trip hazards.
- e) Ensure that personal protective equipment such as hard hats, gloves, goggles, earmuffs and dust masks are available to employees as is necessary and ensure all sub-contractors personnel are issued with the same by their employer.
- f) Report any defects in equipment, plant or machinery to the Contracts Manager and organise for their repair.
- g) Ensure safe disposal of all waste material.
- h) Ensure all environmental accidents/incidents are prevented where possible. Where an accident/incident occurs, details of the same will be recorded.
- i) Assist the Contracts Manager in the thorough investigation of any serious environmental accident/incident.
- j) Ensure that unauthorised access by the public is considered and that works or equipment is made as safe as reasonably practicable.
- k) Maintain all site records including waste disposed of off-site, stone imported and sub-soil removed off site.

- l) Ensure that Method Statements are prepared for any hazardous work and the precautionary environmental control measures clearly relayed to the workers involved.
- m) Detail the waste arising throughout the construction phases, the classification of each waste type, waste collection permits for all waste contractors who collect waste from the site and the COR/permit or license for the receiving waste facility for all waste removed and disposed of off-site.

The EHS Manager will:

- a) Ensure that EMP requirements are established, implemented and maintained in accordance with the ISO 14001 standard for the contract.
- b) Report on the performance of the EMP to the JCL Environmental Management Committee for review and as a basis for the improvement of the EMP.
- c) Co-ordinate the provision of Environmental Training Programmes to ensure that all staff are aware of their responsibilities within the EMP.
- d) Control contractors used at site to ensure that they are aware of their environmental responsibilities.
- e) Liaise with and update legal and other requirements.
- f) Control operation over the solid waste disposal.
- g) Co-ordinate the provision for Emergency Planning in consultation with external agencies.
- h) Advise the company on legislative requirements and codes of practice, in the industry.
- i) Review the company documentation and procedures and advise on any updating required.
- j) Complete regular environmental audits on site to ensure compliance with the EMP.
- k) Go through inspection report with Site Agent and Site Foreman, to ensure that there is a clear understanding of any items requiring attention.
- l) Obtain the Site Agents signature, issue him/her with the top copy, and forward a copy to the Managing Director.
- m) Investigate any serious accident/incident, without delay in conjunction with the Site Agent and complete an accident report for the Environmental Management Committee.



## 1.5 Key Contacts

JCL Contracts

Manager:

Victor Smyth 086-2643014  
([victorsmyth@johncradock.ie](mailto:victorsmyth@johncradock.ie))

JCL Site Agent:

Tony Keenan 086-3857135  
([tonykeenan@johncradock.ie](mailto:tonykeenan@johncradock.ie))

JCL EHS

Manager:

Sinéad Shinkins 086-8195115  
([sineadshinkins@johncradock.ie](mailto:sineadshinkins@johncradock.ie))

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## Section 2 Environmental Management System

The aim of the JCL EMS is to promote a responsible and proactive approach to the management of the system in accordance with the company Environmental Policy outlined in Section 1.3 above. JCL is committed to continual improvement delivered using the JCL Environmental Management System (EMS) based on the ISO 14001 standard. The Environment Management System is applicable to all the process of the organisation performed on site for the Limerick Smarter Travel Contract 2.1 project.

This system:

1. Identifies the Environmental Management processes/procedures and their application throughout the organisation.
2. Determines the criteria and methods needed to ensure that the operation and control of these procedures is effective.
3. Ensures the availability of resources to support, monitor, measure and analyse the procedures.
4. Allows for implementation of actions to encourage continuous improvement.

The scope of this Construction Environmental Management Plan is the construction of a bitmac footpath and cycle track, construction of 4nr pedestrian bridges (2nr new, 1nr widened and 1nr reconstructed) and the refurbishment of 2nr masonry pedestrian bridges. Please note that the Health and Safety aspects are covered under separate plans.

Environmental Management documents shall be developed in accordance with the Contract. This EMP forms the primary document in the EMS for the proposed works for the Limerick Smarter Travel Contract 2.1 project. Other documents to be used on site as part of the EMS will be:

- Site specific waste management plan
- Dust minimisation plan
- Noise minimisation plan
- JCL environmental internal audit
- Environmental NCR's

EMS reports and records for the contract shall be maintained by the Environmental Manager. Copies of EMS documents will be maintained in the site office and uploaded onto the JCL SharePoint system.



## **2.1 Normative References**

The implementation of this plan is carried out with reference to:

- Contract Works Requirements
- JCL Environmental Management System
- ISO 14001
- Construction standards
- Applicable Irish Legislation governing Contracts, Construction, Employment, Environmental, and Health and Safety Legislation
- CIRIA Guidelines

## **2.2 Terms and Conditions**

Following terms are used in this manual:

Abbreviations are used for easy understanding and familiarisations with terms used in specific industry segments.

- The Company = John Cradock Ltd (JCL)
- The Client = Limerick City and County Councils
- QMS = Quality Management System
- EMS = Environmental Management System
- H&S = Health and Safety Management System
- OHS = Occupation Health and Safety
- EM = Environmental Manager
- EMC = Environmental Management Committee
- CAPA = Corrective and Preventive Actions
- IA = Internal Audits
- CD = Control of Documents
- CR = Control of Records
- IEC = Internal and External Communication

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### 2.3 Objectives of the JCL EMS

As part of our commitment to ISO 14001, JCL will ensure that we are attempting to reduce our significant aspects by setting our objectives and targets in relation to the aspects identified. The standard environmental management objectives for the project are to:

- consider carefully the environmental impacts of all methods of construction before commencing any project
- consider the environmental impact of all business decisions
- evaluate products and processes from the point of view of chemical risk and endeavoring to find better alternatives based on pollution prevention in the first instance
- work with our clients, suppliers and sub-contractors on environmental issues and minimise in as far as is practicable noise pollution, traffic nuisance, and general disturbance to the locality during construction activities
- minimise waste generation as far as is practicable, to re-use and recycle and minimise waste by evaluating operations and ensuring they are as efficient as possible
- reduce the visual impact of our operations by good maintenance and housekeeping during construction and thorough cleaning on completion of projects
- reduce the environmental impact of materials and plant by storing materials correctly and planning plant movements carefully to minimise transportation required
- providing the necessary resources to allow our environmental goals to be met



**Section 3 Waste Management**

Below please find a brief description of the waste management procedures which will be adopted on site.

**3.1 Introduction**

The purpose of this EMP is to identify the activities on the above contract that will generate waste and to outline how the waste will be dealt with. This report is produced in line with a Voluntary Construction Industry Initiative aimed at promoting Construction and Demolition Prevention, Reduction, Reuse of Material and recycling.

The project has been analysed against the waste hierarchy as shown below:

Strategy	Ranking :
– Prevention	Most Favoured Option
– Minimisation	
– Re-use	
– Recycling	
– Energy recovery	
– Disposal	Least Favoured Option

**3.2 Waste Classification**

All material designated for offsite disposal will be classified as inert, non-hazardous, or hazardous, in accordance with Council Decision 2003/33/EC and Directive 1999/31/EC. All materials which cannot be reused on site will be removed to the Greenstar facility.

Segregation on site:

Material will be segregated onsite for the appropriate waste stream and disposal destination. Materials including timber, plastics and metal that will be encountered will be segregated and placed in the appropriate temporary storage skips until there are viable loads for removal offsite to the Mr Binman licensed waste facility.

Classification for Recycling/Disposal:

Any areas of mixed waste deemed unsuitable for onsite segregation will be loaded into trucks for off-site transport to an appropriate licensed waste facility. JCL will ensure that all inert, non-hazardous and hazardous material are properly segregated and loaded into trucks.

All waste materials that will be required to be transported off site for disposal shall be undertaken in compliance with all Waste Management Regulations. Transportation of waste will be by appropriately licensed and approved hauliers Mr Binman. JCL shall ensure that all necessary documentation requirements are fulfilled prior to transfer of material off site. A chain of custody documentation will be completed to record the movement of material from site to the designated facility.

### 3.3 Activities Generating Waste on Site

1. Waste soils generated from the construction works
2. Timber waste will be generated from the construction works.
3. Steel / metal waste will be generated from the construction works.
4. Fuels.
5. Waste stone and mortar from demolition of Bridge 4

### 3.4 Waste Management Measures to be Adopted

**Waste subsoil from excavations:**

Waste subsoil from excavations will be stockpiled and will be removed by a licensed haulier to a licensed facility. Copies of the license for the haulier will be kept on site for the duration of the contract. This EMP will be revised to include details of the same when a licensed haulier and facility have been finalized.

**Timber waste generated by demolition activities on site.**

The strategy to be adopted in this case will be recycling waste timber not suitable for re-use. An area on site will be designated for the collection of timber waste. JCL will provide a skip to recycle any waste timbers generated on site. Skips for the recyclable materials will be supplied by Mr Binman and removed off site as required to their recycling facility.

**Steel / metal waste generated by demolition activities on site.**

The strategy to be adopted in this case will be recycling. An area on site will be designated for the collection of steel/metal waste when required on site. At intervals throughout the contract this material will be removed as required to United Metals Ltd at their facility in Limerick.

**Fuels**

Fuel tanks will be located in appropriate bunds to control spillages. All plant, fuel lines, pumps and drip trays will be checked on a daily basis. Machines will be refilled at specified filling points where measures will be implemented to prevent diesel or oil leakages entering the ground. Diesel spill kits will be available at these refueling points. Any machinery/hoses with oil/fuel leaks will be withdrawn from use, moved to a contained area and repaired without delay. The drip trays will be inspected as stated above and soakage sand will be removed and replaced as required. Any hydrocarbon contaminated soakage sand will be removed from the site and disposed of appropriately.

**Waste stonework and mortar from demolition of Bridge no. 4**

The strategy to be adopted in this case will be recycling. Where possible stonework will be salvaged for re-use on site. Waste stonework not suitable for re-use will be classified as C&D waste and stockpiled along with waste mortar and removed off site by Mr Binman.

**3.5 Emergency Procedures****3.5.1 Nature of incidences that can create emergency**

- Fire or smoke detected at the diesel storage tank.
- Fire or smoke detected in or around the works area.
- Spillage of fuel from fuel tanks or from pipelines carrying the fuel.

**3.5.2 Communication of an emergency**

In case an emergency situation is detected in any area of working on site or in the office, the following methods of communication must be adopted:

- The concerned person who has observed the emergency must immediately report the same to the JCL site agent.
- The site agent must assess the gravity of the emergency and if they feel that the area needs to be vacated immediately, the alarm should be raised.
- On raising the alarm all employees, workers, staff, management should assemble at pre-designated point (identified at “Assembly Point” boards or markings).
- In other cases, site management should investigate the nature, kind and the seriousness of the emergency.
- In case the emergency is of a rare or serious nature, then, communication to concerned employees in the section must be immediately informed.



3.5.3 Actions to be taken:

1. Inform appropriate government/non-government authority as per legal requirement.
2. Contact nearest hospital/medical facility/emergency service providers and arrange for treatment of persons injured.
3. Internal team must come into action without any formal announcement or order and start evacuation and other activities as per plan.

3.5.4 Emergency Numbers:

JCL Contracts

Manager: Victor Smyth 086-2643014

JCL Site Agent: Tony Keenan 086-3857135

JCL EHS

Manager: Sinéad Shinkins 086-8195115

Hospital: Limerick Regional Hospital 999 or 112

Ambulance: Limerick Regional Hospital 999 or 112

Fire Brigade: Mulgrave Street 999 OR 112

Garda: Henry Street 061-212416

HSA: James Joyce St, Dublin 1 1890289389

GNI: Gas mains 1850205050

EPA: Environmental Complaints 1850365121

ESB: Underground/overhead services 1850372999

Limerick City &

County Council: Environmental Department 061-407100

Inland Fisheries Irl: Clonmel Office 052-6180055

Mr Binman: Skip Hire 1890929240

United Metals Ltd: Metal Recycling 061-603848

### 3.6 Waste Management Control

The waste management plan will be implemented during the works outlining the procedures for waste handling, recycling, reuse, disposal and waste permits as required. Housekeeping on site and in the site office and welfare facilities will be monitored continuously throughout the contract to ensure that they are maintained in a tidy condition and that litter is cleaned up daily, particularly around site skips.

### 3.7 Hazardous Materials Handling & Storage:

There will be a requirement to use the following hazardous substances on site at various stages of the contract:

- fuel oil
- diesel
- hydraulic oil
- shuttering oil

The following control measures will be implemented on site for hazardous materials used:

1. Hazardous materials will be kept in lockable stores on site and will be clearly labeled.
2. Spill kits will be available at these locations.
3. Operatives will only bring to the works area those materials which they need and all hazardous materials will be returned to the lockable stores at the end of each working day.
4. Diesels will be stored in bunded storage tanks and spill trays will be used for generators and pumps as required.
5. Fuels and lubricants shall be carefully handled to avoid spillages.
6. Waste oils and hydraulic fluids shall be collected in leak proof containers and transported off site for disposal or recycling.

Delivering fuel to the site:

1. Delivery of fuel to the site will be by approved tanks or mobile re-fuelling tanks.
2. Delivery may be into on-site mobile re-fuelling tanks or directly into the equipment.
3. Supply tanks shall be operated by a competent person.

Dispensing fuel:

1. All dispensing or transferring of fuel will be attended for the duration of the operation. The attendant must be aware of proper fuel handling procedures to minimize the risk of a spill and shall continuously scan the area adjacent to the fuelling operation for possible leaks or spills.
2. The transferring and dispensing of fuel will be done with pumping equipment, an approved hose, and top-fill nozzle.

3. Ensure that 1nr site-appropriate spill containment kit is readily available.
4. When unreeling the fuel transfer hose and nozzle, the nozzle must be in the upright position. The nozzle shall be kept clear of the ground when returned to the reel or storage position.
5. Verify that there is a proper connection between the fuel fill hose and the fill pipe of the supply tank, mobile bowser, or the equipment being filled. Verify that the fill valve is open.
6. The transfer of fuel must be stopped prior to overflowing, leaving room for expansion.
7. Mobile bowzers and fuel tanks on vehicles and equipment are not to be overfilled.
8. The operation of moving equipment in the immediate area of a fueling operation shall be suspended.
9. Welding and/or burning operations within 3 metres must be stopped while fueling is in progress.
10. Maintain regular inspections of fuel systems and their components. Check for leakage, deterioration, or damage.
11. Smoking will be prohibited in the immediate area of the designated re-fueling point.
12. Fire extinguishers will be available near the designated re-fueling point in the event of a fire.
13. Combustible materials such as lubricants and greasy or oily rags will be kept separate from the designated re-fuelling point.

### 3.8 Odour:

It is not expected that significant quantities of material with the potential to generate odours will be encountered during the construction works however; general odour control measures will be implemented during the works. These will include exposure of waste material to the atmosphere for minimal time. Trucks transporting material to and from the site will be covered if necessary with a suitable tarpaulin which will minimise any odour dispersion. The expected nature and volumes of odour generating material does not warrant an odour suppression unit on-site.

### 3.9 Noise:

While increased levels of background noise are unavoidable during any construction works project, measures will be implemented to reduce the number of noise generating activities occurring concurrently.



3.10 Dust:

Control measures will be implemented to minimize dust generation and dispersion to ensure dust deposition does not occur beyond the site boundary. Stockpiles will be managed as outlined above to prevent any dust generation. Trucks transporting material from the site will be covered with a suitable tarpaulin if necessary which will minimize any dust dispersion during offsite transportation.

3.11 Traffic:

JCL will manage all site traffic for the duration of the works and in particular during the transport of material for disposal offsite and transport onsite of materials. All traffic management plans must be approved by Limerick City & County Council, PUNCH/MOUCHEL and University of Limerick in advance of the works commencing. Details of the proposed traffic management for site access and egress are included in the Traffic Management Plan.

3.12 Road Maintenance:

All approach roads to the site will be kept free from any deposits as a result of site works. Any material deposited on the road will be cleaned immediately. All vehicles leaving the site will be free of loose material on the wheels and undercarriage. Vehicles and trucks transporting material from the site will be covered with a suitable tarpaulin to prevent loss of loose material and dust.

3.13 Litter:

Waste generated at the site will be placed in appropriate receptacles which will be covered to prevent dispersion of material and littering. Regular walkovers of the site will be completed and any litter found will be immediately collected and placed in the appropriate skip/containers.

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## Section 4 Operational Control

### 4.1 Noise Control

The primary sources of noise and vibration associated with the works have been identified as follows:

- Construction works for the refurbishment, widening, reconstruction and construction of the proposed pedestrian bridges
- Engine noise from plant and machinery

In accordance with BS5228 (2009) 'Code of Practice for Noise and Vibration Control on Construction and Open Sites: Part 1: Noise', JCL shall implement the following good work practices to reduce noise and vibration at sensitive receptors during the construction of the project:

1. All vehicles and mechanical equipment shall be maintained in good and efficient working order. Daily inspection sheets for plant will be completed on site by the relevant plant operators and where maintenance/repairs are noted the site agent will arrange for the same without delay.
2. All compressors shall be "sound reduced" models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers.
3. Machines in intermittent use shall be shut down in the intervening periods between works or throttled down to a minimum. Generators, or any other plant, shall not be left running /operational after hours unless in an emergency, and agreed with the Employer's Representative.
4. Static machines shall be sited as far away as practicable from inhabited buildings.
5. Good relations with people living and working in the vicinity of the demolition works are important. People who are likely to be affected by the noise shall be informed, by letter drop or other appropriate means, of any works to be carried out outside normal working hours.
6. JCL shall organise their operations with regard to the positioning of plant and the location of haul routes etc., so that it minimises construction noise to adjacent properties.
7. Noisy works will only be completed during the normal working hours specified in the contract documents.
8. Plant emitting noise strongly in one direction will be orientated on site so that noise will be directed away from sensitive noise receptors.
9. A copy of the EPA 'Guidance Note for Noise: License Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)' will be available on site for the duration of the works and will be referred to as required during the works.

Complaints Procedure:

Where complaints are raised in relation to environmental issues such as noise on site, JCL will immediately raise a non-conformance report to rectify the issue and close it out. The following procedure will be implemented for the closing out NCR's raised on site:

1. JCL will verbally inform PUNCH/MOUCHEL of the incident on site immediately.
2. JCL will raise an NCR for the complaint noted. On the NCR JCL will make note of the root cause of the complaint, the corrective actions implemented as agreed on site and the preventative actions which will be present from that date.
3. The NCR will be closed out by the Environmental Manager when they have verified that the action plan as outlined in the NCR has been completed on site.
4. JCL will then forward a copy of the completed NCR to PUNCH/MOUCHEL.

#### 4.2 Air Pollution & Dust

Whilst construction activities are likely to produce some level of dust, these activities will mainly be confined to particles of dust greater than 10 microns. Particles of dust greater than 10 microns are considered a nuisance but do not have potential to cause significant health impacts. A dust minimisation plan will be developed by JCL which will serve to minimise any impacts on sensitive receptors and designated areas. The following control measures will be implemented on site as a minimum to control dusts on site:

1. JCL shall ensure that adequate provision is made to damp down areas where activities are likely to create dust. Measures shall include the spraying by pressure hoses to suppress dust and also the provision of suction road sweepers as required.
2. Where stock piles are stored on site, they will be located in sheltered areas away from the watercourse. Stockpiles will be covered where required until such time as they are removed off site for disposal.
3. Plant shall be sited to minimise dust emission to adjoining areas.
4. JCL shall take all measures necessary to prevent spillage onto public roads adjoining the site and all roads forming part of the Site.
5. Public roads outside the site will be inspected regularly, at least daily, for cleanliness and cleaned as necessary.
6. In the event of mud or site material being deposited on a public road surface, JCL shall take all necessary steps to ensure the roads are cleaned immediately using road sweepers without adversely affecting public traffic.
7. JCL will ensure that exhaust emissions are minimized by ensuring that plant and machinery are maintained in good working order and regularly serviced to ensure efficient running.

8. Road sweepers will be employed as required to reduce the drag out of muck onto public roads.
9. During dry weather, JCL will ensure that dusts are dampened down to suppress dust in and around the site.
10. All trucks containing soil or similar fine material shall cover the load with tarpaulin or similar material.
11. All on-site vehicles will be restricted to a speed limit of 20km/hr.

#### 4.3 Waste Management Control

The waste management plan as outlined above will be implemented during the works outlining the procedures for waste handling, recycling, reuse, disposal and waste permits as required. Housekeeping on site and in the site office and welfare facilities will be monitored continuously throughout the contract to ensure that they are maintained in a tidy condition and that litter is cleaned up daily, particularly around site skips.

#### 4.4 Hazardous Materials Handling & Storage:

There will be a requirement to use the following hazardous substances on site at various stages of the contract:

- fuel oil
- diesel
- hydraulic oil
- shuttering oil

The following control measures will be implemented on site for hazardous materials used:

7. Hazardous materials will be kept in lockable stores on site and will be clearly labeled.
8. Spill kits will be available at these locations.
9. Operatives will only bring to the works area those materials which they need and all hazardous materials will be returned to the lockable stores at the end of each working day.
10. Diesels will be stored in bunded storage tanks and spill trays will be used for generators and pumps as required.
11. Fuels and lubricants shall be carefully handled to avoid spillages.
12. Waste oils and hydraulic fluids shall be collected in leak proof containers and transported off site for disposal or recycling.

Hazardous waste will be recovered/recycled wherever possible and failing this, it will be disposed of appropriately.

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## Section 5 Auditing

### 5.1 Environmental Audits

Audits directed towards the elimination of possible hazards are basic to environmental protection and are the responsibility of all company employees. The major responsibility is assigned to Management Personnel and is general in nature, covering all activities and all possible hazards. Any operatives found to be exposed to risk during such audits are informed immediately of such risks. This clarifies points, provides immediate opportunity to rectify unsafe conditions or practices and difficulties are ironed out.

Environmental audits will be carried out at a minimum of every 4 weeks by the Environmental Manager, Sinéad Shinkins, or more frequently as required by the Client. A copy of these audits will be made available to the PUNCH/MOUCHEL and Limerick City and County Council. During the audit, emphasis will be placed on the following environmental aspects:

- noise
- dusts
- vibration
- storage of fuels and chemicals and availability of spill kits and spill trays
- housekeeping
- compliance of sub-contractors with JCL EMS

Following completion of the audit, it is signed by the site management and the EHS Manager. A copy is forwarded to the Managing Director for their review and signature. All environmental issues raised during the audits are actioned on site by the site agent/site engineer as instructed by the EHS Manager. Items for immediate attention must be attended to immediately. All other items must be attended to without unreasonable delay but in any case within seven days. Written confirmation that the actions have been completed is done by the site agent, uploaded to the JCL Intranet website and checked by the EHS Manager. A copy of the audit is included below.



<b>JCL</b>	<b>SITE ENVIRONMENTAL AUDIT</b>	Contract no.: Date: Audit nr:
Location:		Contract no:
Weather conditions:		Date:
Site Agent/Engineer:		Time:
Contracts Manager:		Inspected by:

Penalty Category  
**A: No penalties deducted (no issues noted)**  
**B: 1 penalty deducted (documentation/liaison/housekeeping)**  
**C: 2 penalty deducted (watercourses/waste/fuel/contaminated lands)**  
**D: Recurring item (double penalty deducted)**

(Note: total % for safety on site marked out of relevant sections only below)

Remedial action Category  
**1: Requires immediate action**  
**2: Requires action within 24 hours**  
**3: Required action within 7 days**  
**4: Recurring action**

The following headings have been provided as guidance, while not exhaustive, these represent high priority areas for management of the JCL EMS on site

Compliance on Site/Penalty deducted	A	B	C	D	Penalty	Action	Compliance on Site/Penalty deducted	A	B	C	D	Penalty	Action
<b>1 Materials &amp; Waste Management</b>							<b>2 Chemical/Fuel Storage</b>						
(a) Poor housekeeping							(a) Bunded storage tanks for fuel						
(b) Recycling facilities for site office							(b) Chemicals labelled						
(c) Recycling/segregation of waste							(c) Dedicated storage container for chemicals						
(d) Waste permit required							(d) Spill kits on site						
(e) Waste handling procedures implemented							(e) Chemicals returned to locked storage						
<b>3 Watercourses</b>							<b>4 Contaminated land</b>						
(a) Concrete wash out areas							(a) Stock piles identified						
(b) Entry of silt to watercourses							(b) Stock piles secured & weather proofed						
(c) Drip trays for pumps, large generators, other plant							(c) Disposal in accordance with Waste Management Act 1996 to 2005						
(d) Wheel wash facility							(d) Disposal to licensed facility						
(e) Settlement areas for pumping							(e) Documentation re disposal maintained						
(f) Correct diversion/relocation of existing drains/watercourses							(f) Approved methodology for removal implemented						
<b>5 Noise &amp; Vibration</b>							<b>6 Air Pollution</b>						
(a) Compliance with operating limits							(a) Plant in good & efficient order						
(b) Plant in good & efficient order							(b) Burning of materials not permitted						
(c) Plant shut when not in use							(c) Dust reduced on haul roads						
(d) Monitoring at sensitive locations							(d) Speed limit on haul roads enforced						
(e)							(e) Public roads kept clean						
<b>7 Housekeeping</b>							<b>8 Habitats</b>						
(a) Vermin control in place							(a) Liaison with third parties						
(b) Litter cleaned up regularly							(b) SAC/SPA identified						
(c) Dust reduced on access roads							(c) EIS/EIA reviewed & controls implemented						
(d) Dust & drag out on public roads							(d) Vegetation removed during 'blackout' period						
(e) Site offices, canteens, compounds maintained in a tidy condition							(e) Recommendations from 3rd parties implemented on site						
<b>13 Sub-contractor</b>							<b>14 Documentation</b>						
(a) Compliance with ISO 14001 EMS							(a) Environmental Plan in place						
(b) Plant in good & efficient condition							(b) Previous NCR's closed out						
(c) Secure storage for chemicals & fuels							(c) Audit actions completed						
(d) Spill kits & drip trays available							(d) EMS Emergency Procedures displayed						
(e) Discharge to watercourses							(e) Environmental TBT completed						



<b>JCL</b>	<b>SITE ENVIRONMENTAL AUDIT</b>	Contract no.: Date: Inspected by:								
General Comments/Clarifications: <div style="border: 1px solid black; height: 500px; margin-top: 5px;"></div>										
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Signed: _____ <div style="text-align: center; margin-top: 5px;">EHS Manager</div>		Signed: _____ <div style="text-align: center; margin-top: 5px;">Managing Director</div>								
Signed: _____ <div style="text-align: center; margin-top: 5px;">Site Management</div>										

## 5.2 Environmental NCR's

Where an environmental issue on site is raised by the Resident Engineer, Client, Consulting Engineer, state body or member of the public the site agent will investigate the issue on site without delay and will rectify the issue immediately. Sinéad Shinkins, Environmental Manager, will be informed immediately along with the relevant Contracts Manager for the site of the issue raised. An Environmental Non-Conformance Report (NCR) is then filled out by the site agent/site engineer following completion of the corrective action and forwarded to Sinéad Shinkins for completion.

Section 1 of the NCR outlines the environmental issue noted on site and names the initiator of the complaint. Section 2, which is completed by the site agent/site engineer, outlines the Actions to be completed (CAPA Plan):

1. Root Cause Analysis (How did the incident/issue happen)
2. Corrective Action (Fix now)
3. Preventative Action (Prevent recurrence)

Section 3 outlines the Verification of the Implementation of the Action Plan (CAPA). This is completed by Sinéad Shinkins following a site visit and confirmation by the site agent/site engineer that the CAPA Plan has been followed through. The NCR is then closed out by the Environmental Management Committee during a Directors meeting and Sinéad Shinkins will confirm in writing to the initiator of the complaint that all issues noted have been resolved. A copy of the NCR is included below.



<b>JCL</b>		<b>ENVIRONMENTAL NON CONFORMANCE REPORT</b>	
Form No.:	Location:	NCR No.:	
JCL-EMS-06-Rev 0	Initiator:	Date:	
Section 1 - Environmental Issues Noted			
Environmental Risk Identified			
Section 2 - Actions			
Root Cause Analysis (How/why did this happen?):			
Corrective Action (Fix Now:)			
Preventative Action (Prevent Recurrence):			
Acceptance of CAPA Plan		Due for Completion	
Section 3 - Verification of Implementation of Action Plan			
NCR Close Out byEMC		Date	

#### 5.4 Environmental Incidents

In the event of an environmental incident, immediate response is required to prevent or minimize the impact this event will have on the environment and the welfare of employees and the public. All personnel shall observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material, including the use of PPE. Where conditions warrant, emergency spill containment supplies will be available for immediate use.

The following procedures will be implemented in the event of an incident of an environmentally damaging material:

1. All personnel in the immediate area of the release/spill shall be alerted to the hazardous material and the nature of the immediate danger to themselves and the environment.
2. If safe to do so, every effort shall be made to contain the materials within berms, by absorbent materials, or through other appropriate means until proper handling by disposal personnel may be mobilized to site. Particular attention needs to be taken to avoid contamination of surface water, storm sewers, groundwater, plants and animals.
3. All non-essential personnel shall be removed and kept back from the area until such time as the remediation of the area has been completed.

## Section 6 Aquatic Ecology

### 6.1 Protection of the Watercourse

The two main receptors identified in Volume A2: Civil Engineering Specification are the River Shannon and River Groody. There are no significant impacts expected from the proposed works. However to ensure protection of the River Shannon and River Groody the following mitigation measures will be adopted:

- Designated re-fuelling points will be established on site in the compound area away from the watercourse and all machines will re-fuel at this point only. Diesel spill kits will be provided at this location for the duration of the works.
- Storage of fuel, and servicing and refueling of equipment or machinery will be at least 15m away from the watercourse.
- Chemicals used on site will be returned to the site compound and secured in a lockable container overnight away from the edge of the watercourse.
- Drip trays will be utilized on site for pumps situated within 25m of the watercourse and spill kits will be available at these locations for the duration of the contract.
- Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, JCL will remove the plant from operations for repairs.
- Stockpiles will be located away from the watercourses at a sheltered location. These stockpiles will be monitored during dry weather conditions to prevent dusts entering the watercourses.
- Sand bags should be used around any surface water gullies/drains not already blocked on site.
- Weather conditions will be taken into account when planning construction activities to minimise risk of run off from the site.
- There will be no concrete wash water generated on site.
- For the duration of the works JCL will be in possession of and be familiar with the contents of the ‘Control of water pollution from Construction Sites – Guidance for consultants and Contractors’ published by the Construction Industry Research and Information Association.
- JCL will endeavor to avoid using heavy plant within the SAC.
- Heavy civils works within the SAC will be suspended during heavy periods of rain.
- JCL will take particular care in disposing of water from excavations, washing, flushing or testing to ensure that no damage is caused to existing watercourses by erosion, siltation or contamination.

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## **Section 7      Trimming, Removal and Planting of Trees and Plants**

- Existing tree branches will required to be trimmed back and scrub along the towpath will require removal to accommodate the works. The trimming will be limited to the areas outlined on the contract drawings.
- Where low branches interfere with the walkway/cycleway route, these shall be cleanly cut back to the main stem/trunk of the tree.
- Where possible the amount of tree trimming will be limited in areas of SAC, particularly along the River Shannon banks.
- All branches removed as part of the works shall be disposed of within the woodland adjacent to the walkway to enhance biodiversity. No woody material shall be removed from the site.
- Mature trees to be felled during the construction works will be minimized as far as possible. However, the removal of some young trees and non-native species will be required in some areas.
- Trees which were removed may be replaced. However the replacement of trees is not included in the scope of this contract.

## **Section 8      Non-native Species Management**

Himalayan balsam and giant hogweed have been identified along the riverbank, adjacent to the existing path and along the route of the proposed temporary access route.

Control Measures:

The contractor is required to implement measures to prevent the introduction or spread of invasive species. The contract has identified a number of invasive species on the site but locations/quantities are not comprehensively identified.

Following a site meeting with NPWS on site, the following mitigation measures were agreed for the control of non-native species on site:

Himalayan balsam:

- Minimise stripping of ground as far as possible.
- Stripped material will be retained and re-used.
- Risk of spread is greatest in summer months and stripping of material will be avoided in June/July.

Giant hogweed:

The greatest risk of spread of Giant Hogweed is when seeds are dropping from the plants. The plant dies off in the winter months and this is the best time to control the spread of the plant.

- The Giant Hogweed is located along areas of the haul road. During the winter season when the plant has died off, the stems will be cut down and placed locally along the haul road on the existing ground in controlled stockpiles.
- If required excavated material from the haul road will be banded adjacent to the haul road and replaced on removal.
- Material from infected areas will be kept on site to avoid spread.

Japanese Knotweed:

Eradication of the Japanese knotweed is by combined digging and spraying or sing the cut and inject method in late October or November. However, the outcrop identified on site during the site visit does not interfere with the site operations and therefore JCL intend to erect fencing to prevent interference and potential spread.

## **Section 10 Protection of Bats**

No bat roosts were confirmed within the confines of the proposed development during the current surveys, but bats could occasionally use the site for roosting, especially during the summer and autumn when bats are most active.

JCL will implement the following mitigation measures to ensure the protection of any bats that may be present on site:

- Tree felling will be completed during late autumn/winter.
- A close up inspection of all trees will be undertaken immediately prior to felling taking place.
- Where large trees that have fallen across the haul road routes, inspection will also be carried out. Particular interest will be placed on trees that are to be felled with heavy ivy present, either standing or on the ground.
- A close up inspection of all bridges will be undertaken prior to any alterations, particularly at bridges 4, 5 and 6 which are most likely to be used by roosting bats.
- Any bat roosts found in pre-construction surveys will require a derogation license if they are to be interfered with in any way.
- JCL will maintain ongoing liaison with National Parks and Wildlife Services (NPWS) in relation to the same.

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## **Section 11 Protection of Lamprey**

To prevent impacts on water quality arising from construction the following mitigation measures will be implemented on site to protect lamprey:

- Where possible tracked mini diggers will be used in lieu of heavy excavators.
- Works will be suspended during heavy rain fall.
- Storage of fuel, and servicing or refueling of equipment or machinery, will take place a minimum of 15m from any watercourse.
- Storage of construction materials is limited to the construction compound.
- Construction works will be undertaken in accordance with the construction environmental management plan.
- When constructing the temporary bridge pier in the River Groody, soil/silt removed for this pier will be checked by an ecologist for young lamprey.

## **Section 12 Management Review**

Management Review of the CEMP will be completed during Environmental Committee meetings attended by the members of the Environmental Management Committee. During this review the following items will be discussed:

- Results of internal audits and evaluations of compliance with legal requirements and with other requirements to which organisation subscribes
- Communication from external interested parties, including complaints
- The EMS performance of the organisation
- The extent to which objectives and targets have been met
- Status of incident investigation, corrective and preventive actions
- Follow-up actions from previous management reviews
- Changing circumstances, including developments in legal and other requirements related to organisations EMS
- Recommendation for improvement

The site specific Environmental Management Plan will be reviewed by the Environmental Manager on a six monthly basis to ensure that it continues to be adequate and effective and changes implemented as required. Any changes will be made by the Environmental Manager and the revised CEMP will be circulated to the site agent.