CONSTRUCTION & ENVIRONMENTAL

MANAGEMENT PLAN

for

4 Semi-detached dwellings

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Section 1 - Introduction

1.0 ENVIRONMENTAL POLICY STATEMENT

The applicant Gerard O'Connor recognises that this project, although not directly harmful to the environment, encompasses activities which if factored up to an industry wide scale could have a detrimental effect on the immediate, local and global environment. By adopting a 'sustainable or green' approach where practicable and possible, we proposed to assist in reducing the harmful environmental effects of construction activities and in time, reverse undesirable effects.

Our objectives are therefore:

- Ensure the protection of the environment is a priority.
- To reduce or eliminate emissions of exhausts, noise, dust, smell or smoke.
- To prevent any potential contamination of land and water.
- Promote the use of sustainable, recycled or renewable resources.
- Adopt a reduce, re-use and recycle approach to all our undertakings.
- To minimise waste and energy consumption.
- To assess purchases by value rather than cost and so continually improve our environmental performance.
- All Directors and Managers to set a personal examples of 'best practice'.

This will be achieved by:

- Complying with Environmental Legislation, Limits, Authorisations and Good Practice.
- Setting systems in place to manage and monitor operations, and then set targets and objectives for improvement.
- Allocating suitable resources to manage and advance concepts.
- The Safety Department will oversee and integrate environmental matters.
- Training relevant personnel in environmental awareness and legal requirements.
- Promoting, encouraging and strengthening an environmentally responsive attitude by all employees and suppliers.
- Keeping alert to changes within the working environment from others and ourselves.
- Senior Managers (within their respective work environments) setting relative and relevant guidelines for that particular sphere of operations.
- Setting up in-house recycling (paper, oil etc.) to demonstrate Company commitment and encourage individuals to contribute and suggest other schemes.
- Reporting, monitoring and investigating environmental incidents.
- Protecting locations where environmentally sensitive species or remains exist and taking note of breeding or migrating seasons.
- Promote social inclusion initiatives and sustainable development of resources.

2.0 Structure & Responsibilities

The management structure detailing responsibilities for implementing the EMP/CMP is identified within the Contractors Project Health and Safety Plan. Specific responsibilities are as follows:-

2.1 Managing Director

- To ensure that a comprehensive Environmental Policy Statement is prepared effectively implemented and reviewed at least on an annual basis.
- Empower all Staff / Operatives at every level of the Company to discharge their duties in an Environmentally sound manner.
- Ensure all required resources are provided to ensure full compliance with all Environmental requirements.

2.2 Construction Director

- Ensure appropriate implementation of the environmental management plan / CMP.
- Ensuring all necessary resources are available for its implementation.
- Ensure any environmental mitigation measures are carried out.

2.3 Environmental Management Team / Contract Managers

- Maintaining this procedure.
- Reviewing the use of this procedure for correct application.
- Ensure any environmental mitigation measures are carried out.

2.4 Project Managers

- Ensuring that the requirements of this procedure are implemented in relation to contract management routines.
- Provide all resources are available for the implementation of this procedure on the site.
- Conducting and coordinating all environmental audits on site.
- Promoting environmental awareness through the site.
- Respond to all environmental complaints associated with the site.
- Conduct regular site inspections to ensure compliance with the EMP/CMP.
- Ensure any environmental mitigation measures are carried out.

2.5 Project Engineers

- Monitor all construction activity on the site and shall ensure that the appropriate control measures are implemented and are being effective.
- Document all environmental issues on the site.
- Update and maintain the environmental management files.
- Identify all potential environmental impacts associated with site activities.
- Evaluate the all potential environmental risks in line with the documented procedure.
- Implement pollution control measures in line with the documented procedure to evaluate and reduce the risks wherever possible.
- Conduct environmental training for the site personnel.
- Conduct regular site inspection to ensure compliance with the EMP/CMP.
- Ensure any environmental mitigation measures are carried out.

2.6 *Construction Manager*

- Monitor all construction activity on the site and shall ensure that the appropriate pollution control measures are implemented and are being effective.

- Identify all potential environmental impact associated with site activities.
- Assess all potential environmental risk associated with site activities.
- Implement pollution control measures to reduce the risk and re-calculate the risk.
- Conducting environmental training for the site workers.
- Conduct regular site inspections to ensure compliance with the EMP/CMP.
- Ensure any environmental mitigation measures are carried out.

2.7 *Site Operatives*

- Conduct their activities in line with the environmental, health and safety training and instructions received.
- Conduct their work activities as stated in specific method statements.
- Take reasonable care not to cause any environmental harm.
- Take reasonable care to ensure that, their activities are safe and would not cause any issues to their fellow workers or the general public.
- Ensure any environmental mitigation measures are carried out.

3.0 Environmental Objectives and Targets

3.1 Site procedures will be adopted to ensure the following objectives and targets are achieved:-

(i) The registered waste company to be used by the contractors' waste management contractor will be recorded along with a copy of its license to receive the waste, both for the general waste and only asbestos waste.

(ii) A record of the waste management contractor's license to act as a waste haulier will be kept.

(iii) Copies of all the "duty of care" waste transfer notes will be kept in the relevant file.

(iv) To minimise the noise pollution to the neighbours of the site, any works of a long nature involving noise will only be carried out at a reasonable time i.e. between 08.00 and 17.00.

(v) Where operations involve the production of noise after those times, then all steps practicable will be taken to reduce the noise levels, i.e. using sound attenuation screens.

(vi) Where noise may cause a nuisance to local residents then consideration will be given to contacting the local authority to discuss the best practice to be adopted i.e. provision of information regarding the tasks to residents.

(vii) Where this is not possible then the duration of the operation will be kept to a minimum.

(viii) If any complaints are forthcoming then a review will be carried out, and if practicable steps taken to reduce the noise levels/duration's.

(ix) To prevent oil spillage, all oils will be stored in proprietary containers on a watertight base with a bund wall.

(x) All static plant and machinery i.e. compressors/generators etc. will be stationed over drip trays to contain any oil spillage.

SECTION 2 - Operational Controls

1.0 General Management

It is essential that the environmental implications of construction site activities are suitably addressed to ensure that operations are conducted in an environmentally sound manner and in compliance with relevant legislation, regulations and any relevant standards. We shall ensure any environmental mitigation measures are carried out.

The following issues should be addressed as an essential element of environmental management.

1.1 Air

- Air pollution in the form of dust, gas, smoke or smog will travel a considerable distance where winds prevail and will pose a health risk to persons who inadvertently inhale such pollution.
- Dust should be controlled at source by damping down with water and any burning of waste only carried and where there is no other safe and practical means of disposing of the matter.
- The use of plant should be strictly controlled to ensure exhaust emissions are directed clear from confined areas.

1.2 Noise

- All available techniques should be used to minimise as far as necessary, the level of noise to which operatives and the neighbourhood will be exposed. Measures to be taken will include hours of work restrictions, control of noise at source by substitution for quieter equipment, enclosure of machines/sites by plywood hoardings or earth bunds and effective maintenance of plant.

1.3 Vibration

- Vibration from hand power tools or by heavier plant can be classed as a source of pollution and can have adverse effect on structures and buildings. Attention should be given the correct selection of plant in conjunction with the location of the operations to ensure adjacent structure stability.

1.4 Waste Disposal

- Disposal of either contaminated 'controlled' waste or other waste must be carried out via a licensed waste contractor, whose responsibility it is to find a suitable disposal site for the waste in question. 'Duty of Care' transfer note system will also be utilised to control/record all disposal removals.

1.5 Water Pollution

- Where works on or near a sewer pose a major threat of watercourse pollution 7 days prior notice should be given to the Local Authority & Irish Water before any works starts.
- Construction methods must be suitably controlled at all times to prevent water pollution.
- Concrete works; concrete washing out to be prevented from entering and flowing into drains and watercourses.
- Wheel washers; facilities constructed with no overflow and effluent contained for proper disposal.
- Pumping; prior to discharge consent to be obtained from appropriate authority to ensure it is not polluting and may require settlement tanks and silt traps, no discharge is to take place from temporary toilets without prior consent and consultation from the appropriate authority.
- All spillages into watercourses or sewers must be notified to the relevant authority.

1.6 Storage

- All fuel/chemicals must be sited on an impervious base sealed within a bund and situated remote from watercourses or drains. Regular maintenance of the facilities must be carried out and where residue removal is required a competent waste operator for safe disposal should be utilized.

1.7 Spillages

- Where a spillage has occurred it is essential the area is contained immediately to prevent flowing into any adjacent drains, watercourses etc. Spillage containment kits may be required to be made available for immediate use with additional licensed waste disposal contractor readily available to enable suitable spillage control to be implemented.

1.8 Further Guidance

- We have happy to engage with the planning authority in relation to the construction management phase. Further information can be obtained from the Environmental Protection Agency (EPA), Waste Management Act, Protection of environment Act and the HSA.

2.0 Waste Management Plan

2.1 Controlled Waste

- This includes all waste arising from works, including spoil, timber, waste concrete, aggregates, etc. Waste generated on site shall be managed in accordance with all applicable waste regulations. Correct handling, storage and disposal of waste are vital to avoid environmental pollution and public complains. Source of waste generation on site includes; waste from site offices, canteen, metal works, joinery works, masonry, excavations, packaging, pallets, etc.

Potential Impacts

The potential for impacts to occur due to improper management of waste includes following:

- Land pollution through ground infiltration.
- Resource depletion.
- Pollution through fly tipping.
- Surface and ground water pollution by leachate.
- Increase BOD in water bodies.
- Encroachment of vermin.
- Aesthetics damage.
- Public Nuisance (odour & smell).

Control / Mitigation measures

The potential environmental impact associated with waste generated on site would be curbed by adopting the following control measures;

- Providing a designated place for waste skips away from water course, drains and water bodies and sensitive areas.

- Covering waste skips where possible to avoid water accumulation and also prevent dust and litters being blown out.
- Regular inspection and maintenance of waste bins and waste areas to prevent waste accumulation
- Regular inspection of the waste skip to ensure their structural integrity
- Faults should be reported to the project manager and action taken as soon as possible
- Encourage waste minimization initiatives among site operatives
- Segregate waste where possible
- Minimize waste from packaging materials through agreement with suppliers and manufactures
- As much as possible prevent double handling of the waste on site
- Reuse excavated soil generated from the site.
- Engage in recycling of metals and other recyclable waste

2.2 Special Waste

- This is any waste subject to the Waste Management Act, and includes solvents, oils, asbestos, contaminated soils and other potentially toxic or environmentally harmful materials.
- Special waste generated on site would be managed in accordance with all applicable waste regulation. Potential sources of hazardous waste include;
    - Plant maintenance and breakdown on site
    - Chemical use
    - Contaminated PPE
    - Empty chemical containers
    - Sealants
    - Concrete wash
    - Batteries
    - Hydraulic fluids and spent oil

Control / Mitigation measures

- A program of monitoring and inspection shall be undertaken to ensure that special waste management at the site are within acceptable limits to prevent pollution. Measures to be instituted include:
- Providing a designated bunded storage area, where practicable, for hazardous waste skips away from water courses and drains
- Covering waste skips to avoid water accumulation and also prevent dust and litters being blown out.
- Regular inspection and maintenance of hazardous waste skips and waste areas to prevent waste accumulation
- Preventing contaminated run-off from waste areas from entering into surface drainage
- Separation of incompatible waste
- Prevent overfilling of hazardous waste skips.
- Correct labelling of hazardous waste skips and containers.
- Training of operatives to observe the best practicable waste disposal behaviour and good house keeping

2.3 Duty of Care

- All waste arising on site shall be dealt with in order to protect the environment, and any persons who may be adversely affected. Waste transportation from the site to a designated waste management company shall be carried out by a licensed carrier. Only hazardous/ special waste vendors that have all required permits or regulatory authorizations for transportation, storage, disposal and treatment of the facility's hazardous waste shall be used. Copies of the license shall be obtained and filed. To comply with our 'duty of care' random checks would be carried out by the project manager to confirm that wastes are transferred to the appropriate disposal unit. All waste shall be logged, and records kept of its disposal including the movement of spoil within each site.
- For waste handled by a carrier, transfer notes shall be completed and filed for a minimum of 3 years where disposal of waste at nominated sites are not possible, the waste carrier must inform the project manager before using any alternative disposal site.

2.4 Special Waste characterization

- The special waste at the site shall be characterized; this involves identification of the source, nature, hazard characteristics and six-digit waste code. The material will be classified as heavily, moderately or slightly contaminated - Classes A to C. Special waste shall be handled on and off site with appropriate precautions, including sheeting of lorries, wheel washes, etc as necessary. If the waste is spoil arising from the site, the guidance in the Section of this manual on Contaminated Land applies.

3.0 - Noise Management Plan

3.1 General

The construction work is liable to create significant noise during the construction phase. Excessive noise generated from the site not only affects site operatives but also the neighbouring community. Sources of noise at the site include, hammering activities, piling activities, alarms from reversing plant and vehicle, working plant and equipment, etc Any work liable to expose any employee of the general public to noise in excess of 80 dB(A) over a working day and/or any work on site liable to create a noise nuisance to neighbouring occupiers is subject to these arrangements.

Potential impact

The potential environmental, health and safety impact associated with excessive noise and vibration includes;

- structural damage to neighbouring buildings and structures
- nuisance to neighbouring community
- stress on nesting birds
- reduced quality of life:-this could result in stress and stress related illnesses in humans

Control / Mitigation measures

The applicant can engage an acoustic consultant for the construction phase of the project if required. A program of monitoring and measurement shall be undertaken to ensure that noise level are within acceptable limits. Method statements addressing sequence of work shall take into consideration the potential impact associated with noise. Control measures should include;

- provision of noise barriers (e.g. screening and shielding) where practicable
- Minimizing reverse alarm to the set minimum
- Prohibiting excessive revving of plant and equipment
- Periodic plant and equipment maintenance including lubrication to reduce squeaking and rattling.
- Adopt working hours to restrict noisy activities to certain period of the day
- Enclosure of noisy activities where practicable
- Training of operatives to observe the best practicable noise control measure
- Regular monitoring of noise at the site will be carried out by the safety manager or his designated person to allow assessment of the effectiveness of management actions.

Project managers shall document all noise complaints from the public, as well as any action plan taken to address it. Results from all noise measurements and monitoring processes shall be documented by the project engineer.

The control measures shall also include any of the proposed measures directed by the client. This shall involve a consultation with the main contractor regarding environmental, health and safety issues that are of concern and also a look at the clients' environmental management plan for the project.

3.2 Suppliers

Project Managers shall ensure that suppliers of plant and equipment to the Company provide information on the noise emissions likely during normal use.

3.3 Tender Preparation and Pre-Contract

Likely noise emissions shall be taken into account when preparing tenders, to ensure that due allowance is made for control measures. Where quieter means of carrying out operations are identified, clients shall be invited to consider modifying the Specification. Consideration shall be given to liaison with neighbours prior to work commencing and notification to the Local Authority.

3.4 Contract

For sites where the creation of neighbour nuisance may be an issue, precommencement noise readings shall be taken with the assistance of the Safety Department.

For noise exposures liable to exceed 85 dB (A) over a working day, assessments shall be made. Precautions may include noise reduction techniques, and/or the use of hearing defenders.

3.5 Equipment

Plant and equipment shall be maintained such that noise emissions are kept to a minimum. Operatives shall make appropriate use of such equipment, report defects without delay.

3.6 Sub-Contractors

All sub-contractors shall advise the Company of processes liable to generate high noise levels. The implications shall be discussed at a pre-contract meeting.

3.7 Operatives

First Action Level - Daily personal noise exposure of 80 dB(A).

Second Action Level - Daily personal noise exposure of 85 dB(A).

Peak Action Level - Level of peak sound pressure of 200 pascals (140 dB).

Where operatives or any other person is likely to be exposed to any level of noise the employer must firstly reduce the exposure to the lowest level reasonably practicable (other than by the provision of personal ear protectors). If the level of noise exposure is still between the first and second action levels after reducing it at its source, the persons exposed must be provided, on request, with suitable and efficient personal ear protectors).

The exposure is above the second action level the person exposed must wear ear protection, which when properly worn can reasonably be expected to keep the risk of damage to that person hearing below the relevant action level. At no time must the Peak action level be exceeded.

Operatives shall be provided with information on hazards of work exposing them to levels in excess of 85 dB(A) over a working day, instructed in working methods to protect their hearing, including the use of hearing defenders, and trained to be able to follow the instructions. They shall comply with the instructions issued, including the use of personal protective equipment.

3.8 Ear Protection Zones

Where a person is likely to be exposed to the second action level or above, ear protection zones must be set up with all persons entering required to wear suitable ear protectors. Suitable notices should be put up showing the area of the zone and stating ear protectors must be worn.

3.9 Record Keeping

Records shall be kept of exposure assessments; information, instructions and training provided; operatives trained.

4.0 - Vibration Management Plan

Excessive vibration generated from the site not only affects the health of site operatives but also the neighbouring community. Vibration works shall be keep to the absolute minimum.

Potential impact

The potential environmental, health and safety risk associated with excessive noise includes;

• structural damage to neighbouring buildings and structures

• nuisance to neighbouring community

• Vibration can cause damage to the arteries, nerves, bones and muscles

leading to a potentially painful condition known as hand-arm vibration syndrome (HAVS).

• The most common result of injury to the blood vessels is 'vibration white finger' (VWF), sometimes called 'dead hand' or 'dead finger'. This leads to periodic attacks, usually provoked by cold, of blanched (whitened) and numb fingers and loss of sensitivity, followed by painful throbbing as blood returns to the fingers.

• If HAVS is allowed to develop, it can lead to loss of grip strength and ability to handle equipment properly and can interfere with work and commonplace leisure activities likely to make the hands cold, such as car washing, fishing or gardening.

Jobs Affected

Regular work with vibratory tools is the main factor to look for. Some of the equipment and processes that may create a problem are:-

• chains saws and similar hand held forestry and wood working machines;

• powerhammers such as caulking and chipping hammers, concrete breakers, percussive drills;

• manual grinding work;

• Riveting tools.

These tools do not always cause injuries because much depends on the way they are used and how long employees work with them. Sometimes it might be possible to assess the risk by measuring vibration as described in HSE's guidance (see 'Further reading'). However, measurement can often be difficult and costly; if the use of this kind of equipment, or other tools causing similar vibration, is a major part of the job, it may be safer to assume that there might be a problem. Any job that causes tingling and numbness in employee's fingers after around 5 to 10 minutes, or jobs where employees develop attacks of finger blanching are also best regarded as suspect.

Control Measures

If the work means that hazardous vibration might be putting employees at risk, a prevention programme will help to control the risk. The most effective course is to reduce the vibration. Some ways to do this are to:-

- ask about vibration levels before deciding which new tool or machine to buy. Where possible, choose low vibration equipment;
- consider whether the job could be done without using high vibration tools;
- provide tools designed to minimise vibration;
- maintain tools and equipment in good condition;
- make sure that employees use the right tool for the job;
- see whether the job can be altered to reduce the grip and pressure that the employee needs to apply.

Where employees need to carry on using high vibration tools, other measures can help to reduce the harmful effect:-

- designing work breaks to avoid long period of uninterrupted vibration exposure;
- enabling employees to keep warm when working in the cold (for example by providing heating or suitable clothing and gloves);
- advising employees to exercise fingers and hands to help blood flow.
- Wearing gloves may help, but so called 'anti vibration' gloves are not normally an effective way to reduce vibration exposure. In the most jobs they do little, if anything, to reduce vibration reaching the hands and can even increase it. Their bulk may also impair the ability of employees to control equipment. Gloves are usually best chosen for their ability to keep hands warm and to protect them from accidental injury

4.2 Information and Training for Employees

Employees need to know about the hazard and what they should do to reduce the

risk. They need information and training on:-

- the hazard and signs of injury; Ways to minimise risk, including; good working practices to reduce vibration directed into the hands;
- how to grip tools properly for safe operation;
- the need to maintain good blood circulation by warming up before starting work in the cold and keeping warm while working;
- exercising fingers;
- the benefits of stopping or cutting down smoking (smoking reduces blood circulation);
    - How they can report any signs of injury to someone who will arrange for the injuries
    - and the hazards in the workplace to be investigated.

4.3 Health Surveillance

Even when precautionary measures have been taken, some employees may remain

at risk where high vibration tools are used for long periods. In these circumstances, you will need to consider whether a programme of routine health surveillance is appropriate is appropriate so that employees showing early signs of injury can be medically assessed and advised about continuing to work with high vibration equipment.

An effective health surveillance programme includes regular checks by an occupational health professional such as a nurse who is familiar with the symptoms and who can refer individuals to a medical practitioner for more advice.

5.0 Material Storage

5.1 Fuel, oil and chemical storage

Potential Impact

The potential impact associated with the storage and use of fuel, oil and chemical at the site include:

- Land pollution
- Surface water pollution
- Aquatic habitat loss due to water pollution
- Ground water pollution
- Distress and death to aquatic organism
- Pollution of drinking water
- Changes in aquatic biodiversity
- Chemical alteration of natural habitat.

Control / Mitigation measures

The potential for impacts to occur as a result of pollution by oil or other chemical would be minimized by the following control measures:

- Storage compounds for fuel, oil or other liquid chemicals would be sited away from surface water drains, existing manhole and sensitive sites.
- They would have an impermeable base and bund with a capacity of 110% and would not drain directly in to the surface water drains.
- Where practicable, drainage from storage compounds would be passed through oil interceptors prior to discharge
- Small plant and equipment such as pumps would be equipped with drip trays
- Drums and barrels would be stored in a designated bunded safe area within the site
- All drums and barrels would be fitted with flow control taps
- All drums and barrels would be properly labelled
- Drums and containers containing oils and chemical shall always be stored upright
- Refuelling of plant and equipment would be done at a designated bunded place
- Provision of security at the site to prevent oil storage vandalism
- Storage facility should be protected against flooding
- Adequately secure storage area against trespasses and vandalism
- Provide adequate training for site operative against pollution
- Provide spill kit for emergency situations

The control measure shall also include any of the propose measures directed by the client. This shall involve a consultation with the main contractor regarding environmental, health and safety issues that are of concern and also a look at the clients' environmental management plan for the project.

5.2 Raw materials

Correct storage and management of material on site does not only reduce damage and wastage but also offer significant protection for the environment.

Most material stored on site has the potential to cause significant environmental pollution this includes, iron rods, cement, fuel, oil, cleaning materials, bitumen etc.

Potential Impact

Environmental impact associated with the storage of materials on site can result from spillages, mechanical damage, vandalism, flooding, etc. The potential impact includes;

- Land pollution (spillages)
- Water Pollution (Surface and ground water)
- Air emissions from volatile compound and chemical

Control / Mitigation measures

A program of training, monitoring and inspection shall be implemented to ensure that environmental impact associated with the storage of materials on site has been reduce to the barest minimum. Control measure shall include

- Designating a suitable area for storage away from all sensitive areas on the site.
- Storage area to be bunded and impervious layer used where practicable
- Designating a trained personnel to be responsible for storage (storekeeper)
- Use MSDS to identify potentially pollution materials, this information will also identify how it should be stored.
- Ensuring that the appropriate spill responds equipment and kits are located near to store.
- Consider correct disposal of expired materials.
- Raise awareness of safe storage and disposal of materials on site using toolbox talks and induction training.
- Regular visual inspection of the integrity of the containing vessels to pick up any potential failures.

6.0 Water Pollution

The applicant is aware of the environmental sensitivities of the site. A program of training, inspection and monitoring shall be implemented to encourage responsible use of water as well as dewatering process and other related activities on site to prevent pollution to surface and underground water bodies. All appropriate means shall be use to prevent water pollution on the site from potential sources such as, groundwater pumping, excavations, storages etc.

Potential Impact

Potential activities that could result in pollution of water bodies at the site shall be given high priority notice, this includes (but not limited to);

- Dewatering operations from excavations
- Concrete wash
- Work in, above or near water bodies
- Storage of oil, fuel and chemical
- Spillage
- Run-off from waste storage areas

- Work close to existing drainage (foul and surface drains)

Control / Mitigation measures

A program of monitoring and inspection shall be put in place to ensure that adequate control measure are implement to protect surface and ground water bodies from pollution. Before commencement of work, a recognizance survey to establish the location of existing water bodies and drainage shall be undertaken by the project engineer and the construction manager. Evaluation of the potential risk of pollution will be carried out and appropriate control and management methods to mitigate the risk established. The control measures shall include;

- Control surface water run-off from stockpiles, excavations etc.
- Regular inspection on the site to pick up any potential pollution
- Store hazardous and non-hazardous waste away from drain where practicable
- Provide drip trays underneath plant where practicable
- Store oil, fuel and chemicals away from drains and sensitive areas on the site
- Provide emergency response plan for spillages (ref: Health and Safety manual)
- Provide security for storage facilities and fuel tanks (site security).
- Keep road and hard standing clean
- Provide a designated place for concrete wash where practicable
- Provide training for site operative to observe best practicable behaviour
- Discharge consent shall be obtained from the authorities before any dewatering activity is carried out.
- Provide sumps and silt traps where necessary

The control measure shall also include any of the propose measures directed by the client or the main contractor. This shall involve a consultation with the main contractor regarding environmental, health and safety issues that are of concern and also a look at the clients' environmental management plan for the project. All spillage must be reported to the project manager who shall inform the relevant environmental regulator. The appropriate clean up action taken shall then be documented.

7.0 Air Emission

Construction activities that are likely to generate dust and other air emissions include, bulk movement, excavations and loading, vehicle and plant movements on the site and haul roads, site clearing, cutting, stockpile, plant exhaust, etc.

Potential Impact

Fugitive dust and air emission on the site is of serious concern not only for the project but also due to proximity of the project to the neighbouring community. Fugitive dust emission causes environmental and health problems including:

- Irritation of the eyes and chest infections
- Poor visibility on the site thereby creating unsafe working condition
- Public nuisance to the surrounding community
- Discoloration of surface waters
- Damage to plant growth
- Pollution of ecosystem in surface water bodies

- Air pollution (Smog, Acid rain, etc)
- Clogging on mechanical and electrical equipment
- Excessive dust can lead to abatement notice being issued by the regulator (EPA)

Control / Mitigation measures

Particular care should be taken to reduce dust and other air emission as much as possible to an acceptable minimum level. Control measures shall include

- Sealing of stockpiles and reduce the slope
- Dumping down of haul roads using mobile water bowsers
- Regular cleaning of haul roads
- Sheeting of vehicle transporting materials to and from the site.
- Limiting vehicle speed within the site to 5mph
- Protection of dusty materials from the wind using barriers, where practicable
- Using wet saw cutting where necessary
- Consideration of the wind direction during site planning and stockpile.
- Training of site workers to observe best dust control practices
- Regular maintenance of equipment, plant and vehicle according to manufactures specification to minimize exhaust fumes
- Vehicle, plant and equipment should be switched off when not in use.

The control measures shall also include any of the proposed measure as directed by the client. This shall involve a consultation with the main contractor concerning environmental, health and safety issues that are of concern.

8.0 - Earth works

This involves the management of large amount of spoil as a result of variety of site operations such as excavations, clearing etc. During earthworks, the risk of water pollution being caused by silt entering surface waters is extremely high. Risk assessment shall be carried out before the commencement of all earthworks to identify service lines and drainage courses

Potential Impact

The potential environmental impact associated with earthworks also includes;

- Water pollution
- Habitat loss (fauna and flora)
- Air pollution (e.g. Smog, NOx, SOx)
- Noise and dust generation during excavation
- Loss of topsoil

Control / Mitigation measures

A program of monitoring and inspection shall be put in place to ensure that adequate control measure are implement to protect all surface and ground water bodies, prevent air pollution as well as noise and dust generation (ref: part 7.1,4.1,& 6.1). Where practicable topsoil will be store and reuse for landscaping. This will be done in consultation with the main contractor and the landscape contractor. Where possible topsoil should be stockpile separately from the subsoil in order to facilitate its reuse.

9.0 Plant

Plant used on site has the potential to cause environmental pollution, this can result from leakages, refuelling, bursting of hose, hazardous waste generation, redundant contaminated parts etc. Hence a program of monitoring, training and inspection shall be put to place to ensure that plant use on site are properly maintained.

Potential Impact

Potential impact associated with the use of plant on site includes

- Water pollution through spillage and infiltration (e.g. Surface and Ground water)
- Land pollution (e.g. leakage, contaminated waste generated)
- Air emissions (e.g. dust, SOx, NOx, CO2)
- Control Measures
- Control measures shall include:
- Trained personnel to carry out repairs to plants
- Schedule routine maintenance for all plants
- Designate a safe area on the site for plant repairs and routine maintenance
- Segregate contaminated waste from plant maintenance from the general waste
- Contain all oil, fuel and chemical spillage
- Control all run-off from the designated area from surface water bodies
- Provide a designated place for refuelling of plant away from water bodies and drains
- Provide a spill kit at maintenance and refuelling area
- Train personnel to observe best practicable behaviour and also the use of the spill kit
- Ensure that all plant and vehicle use comply with MOT emission standard
- Switch of plant and vehicle engines when not in use.
- Provide drip trays for plant where practicable
- Provide a pre-agreed vehicle routes on site away from sensitive areas
- Direct surface run-off from maintenance and refuelling area into oil interceptors.
- Regularly maintain oil receptor on the site.
- Sludge from the oil receptor should be handled as hazardous waste.

10.0 Traffic Management

This is small project and traffic will be managed by the construction team. Any construction traffic will access the site via the Whitechurch Road. This route will be sign posted for construction traffic with advisory 20kph speed limit for the duration of the works. Deliveries and the removal of material off site will avoid peak traffic hours where possible. The temporary parking of delivery vehicles will not be permitted on the internal road network leading to the construction entrance.

Controlled access to the site, in the form of temporary gates or doors, will be monitored. These will be locked and secured to prevent unauthorised access during periods when these are not monitored (e.g. outside working hours). The Contractor will designate a person in a high-visibility jacket to assist construction vehicles to enter/exit the site at busy times to avoid conflict between pedestrian movements, estate road traffic and construction activities.

During the construction of the proposed infrastructure works, all excavated suitable material will be reused for construction and fill activities where possible and appropriate. Any unsuitable material will be disposed of off-site at a suitably licensed landfill facility. Transportation of the material will be by

licensed hauliers. It is anticipated that there will not be any significant concentration of large vehicle movements as no significant concrete pour works, excavation works or similar are envisaged.

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to/from the site and managing larger deliveries to occur outside peak periods,
- Use of precast/prefabricated materials where feasible,
- Adequate storage space on site,
- A strategy to minimise construction material quantities.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site construction and supervisory staff.
- Excavation plant and dumper trucks involved in site development works and materials delivery vehicles.

10.1 Road Cleaning / Wheel Washing

Provision will be made for the cleaning of all access routes to and from the site during the course of the works, (within 50m of the site boundary).

Stoned haul roads will be constructed in order to minimise dirtying of wheels. Road cleaning shall be undertaken as needed while the "Earth Shifting" phase of the project (i.e. Roads, foundations and deep Drainage construction) is being carried out. This will be carried out using a mechanical road sweeper and will be heavily concentrated during periods of inclement weather and while "Earth Shifting" works are being carried out.

Material off site will be carted only during periods of dry weather. Truck loads per day off site will be kept at a minimum. Material will only be carted off site during normal working hours.

Deliveries to site will be managed such that they arrive during off peak hours. Special consideration will be given to nearby school timetable so as to minimise disruption during drop off and pick up times.

10.2 Compound Facilities / Parking

Sufficient parking spaces will be provided within the construction site to cater for all staff. In addition a number of visitor parking spaces will also be provided.

The compound shall be constructed using a clean permeable stone finish. Site accommodation to be provided will include suitable-washing / dry room facilities for construction staff, sanitary facilities, office accommodation etc.

On completion of the works all construction materials, debris, temporary hard-standings etc. from the Site Compound will be removed off site and the site compound area reinstated in full.

Section 3 – Management Procedures

1.0 Implementation Schedule

1.1 The implementation of the EMP will be carried out throughout the duration of the contract, with no specific stage completion schedule required, to ensure all elements identified are suitably controlled.

The requirement implementation measures will be the responsibility of Site Management and regular monitoring, review and audits will be carried out to ensure compliance by site supervision, visiting safety officer and visiting senior management.

The implementation, including relevant consents, will be evaluated every 28 days or as otherwise agreed with the Employer's Representative.

2.0 Training Awareness & Competence

2.1 The contractors experienced manager will ensure that the appropriate training and awareness is given to his personnel in conjunction with the potential environmental impact associated with the works. This will normally be in the format of staff briefings, inductions and tool box talks with relevant records kept.

2.2 *Safety Manager / Contract Manager*

Contractors Safety Manager or Contract Manager will obtain the Site Specific Environmental Impact Assessment Register from either the Client or Planning Supervisor. This document will be fully reviewed in conjunction with both the Pre-Tender and Construction Phase Health and Safety Plans.

The relevant information will be collated within the Site Environmental Management Plan (EMP/CMP) which will be implemented and utilised throughout the contract to identify, manage and control all potential environmental aspects and impacts which may arise.

The EMP/CMP will be updated as the Contract progresses to take account of any circumstantial change and will be utilised as a "live working document".

2.3 *Project Management*

Project Management will be made fully aware of the contents / requirements of the EMP/CMP by the Safety Manager, Project Management will subsequently ensure that the appropriate training / awareness of all potential aspects and impacts associated with the works is provided to all relevant persons on site. The training will consist of the following:-

2.4 *Site Safety Induction*

All persons who require to enter the site will receive a specific safety induction, this will include all environmental issues relevant to the site and will ensure all persons are made aware of the minimum acceptable environmental standards they will be required to achieve and comply with the works.

2.5 *Method Statement*

A Method Statement is a step by step account of how the contractor and any appointed Sub Contractor intend to execute works in an environmentally sound manner.

Specific requirements relating to particular working activities will be formally documented to ensure a safe system of work is adopted at all times.

Environmental duties, requirements and responsibilities are subsequently briefed to all relevant personnel who are required to sign a confirmation receipt to demonstrate their full understanding of what is necessary prior to commencing works on site.

2.6 *Tool-Box Talks*

In addition , continuing awareness is supplemented by a series of regular tool box talks which address specific environmental issues which are intended to reinforce the acceptable standards and ensure all staff and operatives continue to be reminded of any changes in circumstance and of their own personal responsibilities

3.0 Internal Communication

3.1 Ensure the necessary communication of environmental issues, copies of the Contractors Environmental Policy Statement and the Employers Environmental Policy Statement (where applicable) will be displayed at the site location. In addition to being addressed within the site induction the relevant environmental issues contained in the job specific risk assessment/method statements will be addressed and subsequently briefed to the operatives carrying out the nominated task.

Specific environmental issues will be further communicated within progress reports and site correspondence as deemed necessary.

4.0 External Communication

4.1 Prior to commencement of work likely to have an environmental interface with residents, land owners, schools, hospitals, etc the contractor will notify, or ensure notification has taken place, to liaise the work activity, nature and duration at least 14 days in advance of commencement unless in case of emergency.

Complaints received will be assessed and in all cases forwarded to the EMP/CM Employers

Representative as soon as practicable.

5.0 Environment Management System Documentation

5.1 All relevant environmental documentation will be listed and collated within the Site Environmental File and will form part of the overall EMP and final Contract H & S Plan.

6.0 Operational Control

6.1 The potential environmental aspects and impacts identified within the 'Register of Environmental Aspects and Impacts' will be addressed by implementation of specific control measures and be subject to regular monitoring to ensure complaint.

7.0 Emergency Preparedness And Response - Pollution Incident Control Plan

7.1 Emergency Procedures for Spillages

- At the first sign of a spillage, the delivery must be stopped and the alarm raised. All vehicles should be fitted with emergency cut off devices which will stop the delivery if necessary.
- Ensure that the spillage is contained and the contamination cleared from the site as quickly as possible. It is for this reason that all sites should carry absorbent materials for use in small scale spillage clean up procedures.
- As soon as a spillage occurs that is as a result of the delivery, the site should endeavour to clean up as much as possible with the absorbent materials carried.
- The site should inform the employers representative that there has been a spillage. If the spillage is too large for the site to handle, the emergency services will be informed immediately.
- Depending on the severity of the incident, the site teams should as appropriate, assist with the clean up using equipment brought with them, and offer advice on specialist contractors that may be required.
- It is good practice for the site owner to keep a supply of absorbent materials near to the point of discharge. This could include absorbent granules, booms, tiger tails, pads etc. Also, if there are any drains close by, plugs are available to purchase, for protecting drains from
- contamination should there be an oil spillage. There are companies who manufacture these materials, please contact a local supplier.
- All oil contaminated materials generated from a clean-up will be left at the site to be suitably disposed utilising licensed waste carriers.

7.2 Emergency Contacts

[Please contact Gerard O' Connor – 087-2505622 / cashwood2008@gmail.com]

8.0 Monitoring & Measurement

8.1 The contractor will ensure that environmental requirements are suitably monitored

and the following regime will be adapted:-

- weekly site supervisor safety inspection,
- regular safety officers environmental inspections,
- senior management safety audit, including environmental matters,
- copies of the above will be submitted accordingly to the Employers Representative.

9.0 Non-Compliance, Corrective And Preventative Action

9.1 When non-compliances are identified during the monitoring procedure remedial action will be implemented accordingly and 'close out' procedures forwarded to confirm required action has been carried out.

10.0 Records

10.1 All records will be kept on site and be suitably filed. Usually within the overall H&S file, to ensure an auditable trial of documented environmental issues is maintained.