



**SIMON CLEAR & ASSOCIATES  
PLANNING AND DEVELOPMENT  
CONSULTANTS**

# **Outline Construction Environmental Management Plan**

**For**

**A Proposed Residential Development**

**At**

**Ballymany,  
Newbridge,  
Co. Kildare**

**For**

**Glan Developments Limited**



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## **1.0 Introduction**

This outline Construction Environmental Management Plan (CEMP) has been prepared to define the project specific environmental measures that are to be put in place and procedures to be followed for the scope of construction works, both permanent and temporary, for the proposed SHD Residential Development at Ballymany, Newbridge, Co. Kildare. This outline CEMP is produced as part of the planning application. It is intended that this will be updated to include more site specific information once the Construction Management Team (CMT) is appointed.

### **1.1 Objective/Purpose**

The objective of this document is to communicate key environmental obligations that apply to the contractor, their sub-contractors and employees while carrying out any form of construction activity on the site of the proposed development.

### **1.2 Scope**

The CEMP defines the approach to environmental management at the site during the construction phase. *Compliance with the CEMP, the procedures, work practices and controls will be mandatory and must be adhered to by all personnel and contractors employed on the construction phase of the works.*

This CEMP seeks to:

- Provide a basis for achieving and implementing the construction related mitigation measures identified;
- Promote best environmental on-site practices for the duration of the construction phase.

### **1.3 Project Description**

The proposed development is located in the southern portion of Newbridge approximately 90-150 metres north of the M7 motorway and to the east of the R445. The site is currently in agricultural use.

The proposed development will consist of the demolition of an existing derelict house and sheds and the construction of a new residential development comprising 180 dwellings

(145 No. houses of between 2 and 2.5 storeys, and 35 No. apartments in a part 4 storey and part 6-storey block), bicycle stores and bin store for the apartments, and all associated and ancillary site development works on lands to the west/ south-west of Ballymany Manor and Rathcurragh Housing Estates. The application includes improvement works to the foul sewer pump station and provision of additional storage capacity and surface water attenuation pond. A new c.660m. long link street connecting onto the R445 (Ballymany Road) including a new right turning lane created from the R445 and terminating at the Rathcurragh Public open space will be provided as a part of the planning application.

#### **1.4 'Live' Document**

The CEMP is considered a 'live' document and as such will be reviewed on a regular basis. Updates to the CEMP may be necessary due to any changes in environmental management practices and/or contractors. As explained in more detail in the later sections, the procedures identified in this CEMP will be audited regularly throughout the construction phase to ensure compliance.

#### **2.0 Construction Schedule**

It is proposed that construction will commence once planning permission has been granted. The construction will be undertaken on a phased basis in accordance with the enclosed Phasing Plan (Dwg. No.06.135.PD104).

#### **2.1 Site Construction Compound**

All construction support activities will be controlled within the site construction compound including office facilities, toilets, canteen etc. Materials and waste handling and storage will be within the confines of the site. Adequate warning signs will be on display to illustrate the required PPE and risks associated when entering the construction site.

#### **2.2 Working Hours**

Site development and building works shall be carried out only between the hours of 0700 to 1800 Mondays to Fridays inclusive, between 0800 to 1400 hours on Saturdays and not at all on Sundays and public holidays. Deviation from these times will only be allowed in

exceptional circumstances where prior written approval has been received from the Planning Authority.

### **3.0 Work Roles and Responsibilities**

The assigned environmental roles and responsibilities for the relevant works personnel are detailed below.

#### **3.1 Construction Director**

The Construction Director will have an overall responsibility for the organisation and execution of all related environmental activities as appropriate, in accordance with regulatory and project environmental requirements. The principal duties and responsibilities of this position will include:-

- Overall responsibility for the development and implementation of the CEMP;
- Allocating resources to ensure the implementation of the CEMP;
- Participating in the management review of the CEMP for suitability, adequateness and effectiveness; and
- Setting the focus of environmental policy, objectives and targets for the Contractor.

#### **3.2 Construction Manager**

The Construction Manager is directly responsible to the Construction Director for the successful execution of the project. The principal duties and responsibilities of this position will include:-

- To report to the Construction Director on the on-going performance of the CEMP;
- To discharge his/her responsibilities as outlined in the CEMP; and
- To support and augment the Construction Management Team (CMT) and the Environmental Officer through the provision of adequate resources and facilities in the implementation of the CEMP.
- To liaise with the project ecologist with regard to the implementation of the mitigations measures outlined in the ecology report, habitat management plan and CEMP.

### **3.3 Environmental Officer**

The CMT Environmental Officer will be responsible for, but not limited to, the following activities:-

- Ensuring that the requirements of the CEMP are developed and environmental system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements;
- Reviewing the Environmental responsibilities of other managed Contractors in scoping their work and during Contract execution;
- To ensure that advice, guidance and instruction on all CEMP matters are provided to all their managers, employees, construction contractors and visitors on site;
- Report to the Construction Manager on the environmental performance of employees, contractors and sub-contractors;
- Advise site management on environmental matters.

### **3.4 Project Environmental Consultant**

The Project Environmental Consultant will be responsible for, but not limited to, the following activities:-

- Advise site management (including, but not limited to, the site Construction/Commissioning Manager) on environmental matters;
- To liaise with the project ecologist with regard to the implementation of the mitigations measures outlined in the ecology report and CEMP;
- Carry out environmental surveys (data logging (noise, water, dust, etc.)) where necessary;
- Generate reports as required to show environmental data trends and incidents;
- Ensure adherence to the specific measures listed in the Planning Conditions and in the submitted planning documentation Mitigation Measures;
- Advise upon the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce;
- Investigate incidents of significant, potential or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence; and
- Be responsible for maintaining all environmental related documentation.

### **3.5 Project Archaeologist**

The Project Archaeologist will report to the Environmental Officer and is responsible for advising on all archaeological monitoring activities, conducting watching briefs and distributing information relevant to monitoring. The responsibilities and duties of the Project Archaeologist will include the following:-

- Monitor all ground disturbance works associated with the construction of the development;
- Ensure the appropriate course of action is taken in the event that archaeological material is discovered during the works;
- Liaison with the CMT throughout the construction phase of the project; and
- Liaison with the Department Applications Unit, National Monuments Service, Department of Arts, Heritage and Gaeltacht and the Planning Authority archaeologist as required.

### **3.6 Project Ecologist**

The Project Ecologist will report to the Environmental Officer and is responsible for advising on the mitigation measures as outlined in the planning application for the protection of sensitive habitats and species encountered during the construction phase of the project. The responsibilities and duties of the Project Ecologist will include the following;

- To ensure all wildlife and derogation licences that are required are in place prior to works commencing;
- Provision of specialist input and supervision, where necessary, of construction activities for the protection of habitats and species;
- Provision of toolbox talks, specialist advice on ecological protection, and conduct surveys, monitoring and site inspections as set out in the mitigation measures in the ecology report and habitat management plan, planning documentation and in the Planning Conditions; and
- Keep detailed records of any ecological incidents and report these to the Environmental Officer, NPWS and LA
- Liaison with the National Parks and Wildlife Service (NPWS) as required.

### **3.7 Project Communications Officer**

The Project Communications Officer is responsible for conducting all public liaison associated with the construction phase of the project. The responsibilities and duties of the Project Communications Officer include the following:-

- Responding to any concerns or complaints raised by the public in relation to the construction phase of the project;
- To liaise with the Environmental Officer on community concerns relating to the environment;
- Ensure the Environmental Officer is informed of any complaints relating to the environment; and
- Keep the public informed of project progress and any construction activities that may cause inconvenience to the local community.

### **3.8 Site Supervisors**

CMT Site Supervisors are required to:-

- Read, understand and implement the CEMP;
- Know the broad requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance. Where necessary seek the advice of the CMT Environmental Officer;
- Ensure that environmental matters are taken into account when considering Contractors' construction methods and materials at all stages;
- Be aware of any potential environmental risks relating to the site, plant or materials to be used on the premises and bring these to the notice of the appropriate management;
- Ensure plant suggested is environmentally suited to the task in hand;
- Co-ordinate environmental planning of CMT activities to comply with environmental authorities requirements and with minimum risk to the environment. Give Contractors precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists;
- Where appropriate, ensure Contractors method statements include correct waste disposal methods;
- Be aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management; and

- Ensure materials/waste register is completed.

### **3.9 Site Personnel**

All Contractors, and other site personnel, on the project will adhere to the following principal duties and responsibilities:-

- To co-operate fully with the CMT and the Environmental Officer in the implementation and development of the CEMP at the site;
- To conduct all their activities in a manner consistent with regulatory and best environmental practice;
- To participate fully in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site; and
- Adhere fully to the requirements of the site environmental rules.

### **4.0 Project Environmental Policy**

Glan Developments Limited recognises and seeks to minimise the impacts of its activities on the environment. The developer is committed to:-

- Carrying out the Project in full compliance with all applicable environmental regulations;
- Implementing good environmental practice as part of designs, (e.g. carry out design reviews, risk assessments, etc. on all relevant projects);
- Preventing pollution from activities through a system of operational controls that include written instructions and staff training appropriate to the environmental requirements of their work;
- Continually improving Project environmental performance by setting objectives and targets and implementing them through an environmental programme;
- Informing all project employees about Environmental Policy and explaining what they should do to protect the environment;
- Implementing this Policy through the successful operation of the CEMP.

This policy will be reviewed periodically, taking into account current and potential future business issues.



## 5.0 Site Environmental Awareness

The following general site Environmental Rules will apply. These general rules will be communicated to all site personnel via the site induction training and they will be posted across the site at strategic locations, such as the site entrance, canteen and near the entrances to buildings.

### General Site Environmental Rules

- Do** Report any signs of pollution or environmental damage to the manager no matter how small;
- Do** Report any spills, incidents or near misses that occur on site immediately to the site foreman;
- Do** Refuel only in designated areas with spill kits available;
- Do Not** Dispose of anything into a drain or onto land. All waste must be sent to the designated site waste management areas
- Do Not** Throw litter, all waste must be sent to site waste management contractor
- Do Not** Drive plant or machinery outside the authorised working boundaries of the site.

The CMT will develop Environmental Procedures to control the potential impacts from the construction phase of the development. These procedures together with the site Environmental Policy are to be made available in the site offices at the site.

The training of the site construction staff is the responsibility of the CMT. An environmental training programme will be organised for onsite personnel to outline the CEMP and to detail the site environmental policy. A brief outline of this CEMP will be incorporated into the site induction course.

There will be regular audits and monitoring of the CEMP through an Environmental Auditing and Inspection programme, which is to be developed in conjunction with the CMT.

## **5.1 Communication & Consultation**

The Project Communications Officer (Section 3.7) will undertake any required 3rd party communication and liaise directly with landowners/local authorities/members of the public, etc. for access, scheduling of works, accommodation works etc.

## **6.0 Environmental Conditions, Potential Impacts and Controls**

### **6.1 Planning Conditions**

It is normal practice for An Bord Pleanála to include a number of specific environmental conditions as part of their planning consent for the development. The compliance with the environmental conditions and the proposed control / mitigation measures will be included in the next version of the CEMP once these planning conditions are known.

### **6.2 Mitigation Measures**

An outline of typical mitigation measures to be implemented during the construction phase are set out in Section 6.6 of this document.

### **6.3 Implementation of Controls**

The CMT, the respective Construction Manager and all contractors shall be responsible for the implementation of control measures as identified in Section 6.6.

Contractors will comply with the requirements of the CMT and all activities will be subject to the preparation of Works Method Statements as required.

Requirements and responsibilities will be reviewed with each Contractor at initial site meetings and at weekly progress meetings. Any contractor submitting a tender for the project must inform the CMT of any legal proceedings with a regulatory authority, including the Irish EPA or environmental agencies of other jurisdictions. Contractors shall ensure that any sub-contractors working under their remit are supplied with a copy of the CEMP, receive sufficient environmental training and are aware of their environmental obligations on the project.

Environmental requirements identified will be controlled as follows:-

Procedures and control measures as set out in this CEMP;

- Approved Method Statements and Risk Assessments from Contractors which shall address all potential environmental impacts for the specific task;
- Detailed contractor plans for specific environmental aspects;
- Emergency response plans;
- Specific induction training before commencing work.

In summary, it is expected that all contractors will follow good environmental practice throughout all activities.

### **6.3.1 Communication & Training - Construction Personnel**

In addition to contractor site induction provided by the CMT, contractors are obliged to conduct safety meetings / toolbox talks on relevant EHS topics for all employees in their care on a weekly basis. Details of all safety meetings / toolbox talks, including topics and attendees must be submitted to the CMT.

### **6.3.2 Keeping of Records**

The Construction Manager will ensure that fully detailed records are maintained of any 'incident / event' likely to cause non-compliance and / or harm to the environment. Environmental Incidents/Near Miss Reports are reported and recorded.

Complaints and Follow up Actions on the construction site will be managed by the CMT and contractors will ensure that all complaints are recorded according to CMT requirements.

Each contractor will be responsible for ensuring that a full record and copy of all Safety Data Sheets (SDS) pertaining to their works is kept on file and up to date in their site offices.

Contractors will also retain a duplicate copy of all SDSs held by the contractors.

The CMT will be responsible for monitoring the movement and treatment of all waste during the construction phase of the project. Monitoring will be carried out by the CMT who will record the nature, quantities and off-site destination of wastes.

## **6.4 Monitoring, Audits and Inspections**

Periodic inspections by the CMT will address environmental issues including dust, litter, noise, traffic, surface water, waste management and general housekeeping.

An EHS Inspection Audit of the construction site will be carried out by an appointed contractor.

Environmental aspects of this audit will be documented. The frequency of these audits (weekly / monthly / other) will be based on the nature of contractor activity.

## **6.5 Non Conformance and Corrective and Preventative Action**

Corrective Action Requests (CARs) will be issued to ensure that prompt action is agreed and committed to, with a view to the effective resolution of any deviations from the CEMP requirements or any environmental issues.

CARs may be raised as a result of:-

- An internal or external communication;
- An internal audit;
- A regulatory audit or inspection;
- A suggestion for improvement;
- An incident or potential incident.

All corrective action requests will be numbered and logged.

## **6.6 Operational Controls**

The proposed environmental control measures are described in the following sections.

### **6.6.1 Dust Minimisation Plan**

A Dust Minimisation Plan for the project will be included in the CEMP prior to the commencement of construction activities. The plan will involve the following procedures:-

- Site roads and the access onto the public road will be regularly cleaned and maintained as appropriate;

- The site will be regularly dampened, if required, during dry and/or windy conditions;
- Vehicles delivering materials to site will be enclosed or covered with tarpaulins, if necessary;
- A wheel-wash will be provided;
- Material handling systems and stockpiling of materials on site will be arranged to minimise exposure to wind;
- Water misting, or sprays will be used as required if particularly dusty activities are being undertaken during dry or windy periods;
- During the movement of soil/fill material both on and off-site, trucks will be covered with tarpaulins, if required.

### **6.6.2 Construction & Demolition Waste Management Plan**

The Construction & Demolition Waste Management Plan will be included in the CEMP pre commencement of construction activities.

### **6.6.3 Training**

All construction personnel will be required to complete contractor induction and be certified with FÁS SafePass or equivalent. It is also required that non-specialist contractor personnel are Construction Industry Federation registered.

### **6.6.4 Control of Noise Generation**

The following noise control measures shall be implemented by all contractors:-

- The hours of construction will be limited in accordance with Section 2.2 and night-time works will require prior agreement with the Planning Authority;
- All contractors will ensure that the plant and construction methods employed are the quietest available for the required purpose insofar as practicable;
- All contractor vehicles will use existing site access roads, contractor car park and construction compound area (surfaces of hard standing);
- Site roads will be maintained in a clean condition and the site speed limit of 15 km/hr will be strictly adhered to;
- Engines, vehicles and equipment will be switched off when not in use;
- Significant sources of noise will be enclosed;

- Plant will be used and serviced regularly in accordance with manufacturer's instructions;
- Cranes will be shut down during work periods / throttled to minimum when not in use;
- Machinery having rotating parts will be serviced according to supplier recommendations to prevent friction induced sound;
- Materials should be lowered, not dropped, insofar as practicable and safe;
- All contractors will notify the CMT in advance of any critical periods arising for noisy activities.

### **6.6.5 Noise Monitoring**

Noise monitoring will be undertaken during critical periods of construction works, including rock breaking, should it arise, during foundation excavation. The noise levels will be compiled in a technical report available for inspection, along with comment on applicable noise limits. Where necessary, measures for the reduction of construction noise levels will be defined by the CMT and contractors working on-site.

### **6.6.6 Archaeology**

An Archaeological Assessment of the proposed development has been carried out by ICON Archaeology and is enclosed with the application. The results of the archaeological assessment are as follows:-

- No upstanding archaeological monuments or remains will be impacted by the proposed development works
- No known sub-surface archaeological monuments or remains will be impacted by the proposed development works
- The location of the possible church (KD023-020) shown as adjacent to the development site is not known despite previous archaeological investigations in the area
- The late 19th or early 20th century vernacular farm buildings are of no architectural or historic significance
- A review of cartographic sources, aerial photography and satellite imagery identified no sub-surface features of archaeological interest

- The field survey identified no features or anomalies of archaeological interest

Based on the results of the archaeological assessment it is recommended that the development be allowed to proceed subject to the following conditions:-

- A 40 x 40m area to the immediate north of the possible church site should be subject to a licenced archaeological test excavation to investigate the location of this potential site.
- In the event that no church site or related archaeological material is discovered, all groundworks associated with the construction phase should be monitored by a suitably qualified archaeologist. This includes the removal of topsoil and subsoil from across the development footprint. Additional mitigation measures may be required if archaeological remains are discovered.
- A report detailing the findings from monitoring should be submitted to the relevant authorities within four weeks of the completion of on-site works.

#### **6.6.7 Flora & Fauna**

The Appropriate Assessment Screening by Roger Goodwillie & Associates notes that the site has nothing of significant ecological values and contains organisms that are frequent in any countryside area.

The most significant Natura 2000 site is Pollardstown Fen which is located 1.4km to the northwest. The site is within its catchment but is only connected through the groundwater; there is no overland flow. The only influence the project can have is through pollution of the groundwater but this can be prevented. Normal precautions during construction will minimise any input of solids to the ditch water which anyway would be settled and filtered before reaching the groundwater because there is no direct link. Any oil fractions from roadways and paths (the only significant likely sources) will be trapped in the interceptors before discharge. Mitigation measures are outlined in Section 6.6.13 below.

There shall be on-going monitoring of wildlife in the vicinity of the construction site and any unusual species, dead species or damaged habitats should be reported immediately to the Construction Manager and/or Environmental Officer. Where unexpected ecological

habitats are uncovered the habitats protection protocol will be adhered to by site contractors.

#### **6.6.7.1 Protection Protocol**

This protocol is designed to ensure that all persons working on the construction site are fully aware of their legal obligations under the Wildlife Act 1976, as amended. This Act affords protection to a range of wildlife in Ireland including wild birds, animals and plants. Whilst the project has received permission from the Government to proceed, this does not override certain laws that prevent wilful harm to protected species.

#### **6.6.7.2 Bats**

A bat survey was carried out by Faith Wilson (licensed bat specialist) of the buildings and lands at Ballymany, Newbridge. This bat survey details the findings of an inspection of the buildings and surrounding trees for their roosting potential for bats and a bat activity survey of the general area.

Whilst no bat roosts were found, there is a chance that bats could occupy roosts prior to the commencement of works. If bats are found during site clearance, works will cease and the National Parks and Wildlife Service (NPWS) will be contacted to avoid an offence being committed by disturbing a bat roost. Works will be suspended if bats are found to avoid further risk of direct harm to bats.

Mitigation measures to ensure the safeguarding of bats which may use the buildings at other times of the year, potential roosts in trees and to minimise the potential disturbance to bats commuting and foraging in the area are detailed below.

- If a long period of time has lapsed between when planning permission is granted and the project commences (greater than 6 months) the buildings will be rechecked as animals may have sought refuge in the building during the intervening period and a bat derogation licence may be required.
- It is recommended that the buildings are resurveyed for bats prior to any proposed demolition works.



- Ideally demolition work would be done during the winter months when bat numbers are known to be lower in buildings and would also avoid the bird breeding season – swallows were currently using the buildings at the time of the survey.
- Trees with dense ivy cover should be left intact on the ground for 24 hours before they are cut up/chipped in order to allow any roosting bats which may be present under ivy or loose bark an opportunity to escape.
- Trees may require section felling or other works to ensure bats are not injured or killed during the felling process.
- It is important that as much of the existing native vegetation is retained in full along with the trees and that the site does not undergo clearance of these features during works.
- Protective fencing will be erected in advance of any construction works commencing as outlined in the arboricultural impact assessment.
- Fencing will be erected outside the drip-line of the canopy of retained trees and vegetation along the site boundaries in order to prevent damage by machinery, compaction of soil, etc. in accordance with BS 5837:2012.
- This fencing must be signed off on by a suitably qualified ecologist to ensure it has been erected properly before any machinery is allowed on site.
- No ground clearance, earth moving, stock-piling or machinery movement will occur within these protected areas.
- In addition to planting a hedgerow of beech it is recommended that native species such as hawthorn, blackthorn, holly, hazel, spindle, willow and elder are included in the hedgerow planting proposals as well as under the retained trees and newly planted trees elsewhere in the site.
- All species used should be of certified native origin and sourced locally to ensure genetic provenance to the area.
- Nesting and roosting opportunities should be provided for both bats and birds in the new development given the required removal of several trees and other vegetation.
- These include the erection of artificial nest boxes and bat boxes, which should be specified by an ecologist and erected under their supervision.

- It is important that the retained trees and vegetation should not be lit or illuminated in any way remaining a dark and suitable habitat for both foraging, commuting and roosting bats.
- Any lighting proposed for the property should be wildlife friendly.
- Ideally bats should only be handled by a licensed bat specialist.
- Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, restricts the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or in hedges or ditches during the nesting and breeding season for birds and wildlife, from 1 March to 31 August.
- No clearance of vegetation suitable for nesting birds within the site (shrubs, bramble tangles, etc.) will take place during this period. Should such clearance be required then the area proposed for clearance should be inspected by an ecologist to ascertain if any nesting birds are present.

#### **6.6.7.3 Liaison with NPWS Conservation Officer**

The project ecologist will liaise with the NPWS during the lifetime of the project with regard to the implementation of the proposed mitigation measures and the protection of flora and fauna in accordance with the Wildlife Acts and the EU Birds and Natural Habitats Regulations 2001 to 2015. All licences required to facilitate the completion of works will be in place prior to construction commencing.

#### **6.6.8 Tree Protection**

A site arborist shall be appointed prior to the commencement of site construction works and will be responsible for the setting up and monitoring of tree protection, liaising with local authority tree / planning officers, and providing feedback and advice to the design construction teams on issues relevant to trees. The Site Arborist shall be retained for the duration of construction works and should be appointed to carry out a post-construction tree survey / assessment.

The contractor will be required to adhere to the Tree Protection Strategy provided by Arborist Associates Ltd submitted with this application.

### ***Stage 1 Pre-Construction Works***

Prior to the main construction works commencing on site the following needs to be planned:

1. The developer or main contractor needs to appoint an Arboriculturist for the duration of the project. The Arboriculturist is to make regular site visits to ensure that the tree protection measures are in place and adhered to.
2. The main contractors and all sub-contractors work force are to be briefed on the tree protection and ensure that these measures are to be kept in place throughout the construction period.
3. All personnel are to adhere to the recommendations of the appointed Arboriculturist.
4. Any issues in relation to the trees shown for retention must be discussed with the appointed project Arboriculturist and the necessary mitigation measures put in place without delay and prior to the works being carried out.

**Site meeting** - Prior to any works commencing on site, it is necessary that a meeting be arranged between the project manager, site foremen, the project Arboriculturist and local authority to identify and finalize the trees for removal and the line of the protective fencing.

**Tree works** - The developer or the main contractor is to appoint a tree surgery company competent of carrying out the remedial tree surgery works and tree felling that are required on this site. The tree surgery contractor is to produce a method statement detailing how he plans to undertake the works and informing the site foreman of the process so the necessary steps can be taken to ensure the works are carried out safely and efficiently. The works are to be carried out by appropriately trained personnel taking account of the recommendations of BS3998 2010.

**Tree removal** - Trees for removal are to be identified by the project Arboriculturist and the method of removing the stumps is to be carried out to the recommendations of the project Arboriculturist. The trees in the way of the development layout are to be removed in such a manner not to cause damage to those being retained. Where necessary to avoid

damage to the trees to be retained, these are to be removed in sections by a tree surgeon (Arborist).

Where necessary, the roots and stumps are to be dug out with a digger except where the stumps are located within the RPA (root protection area) of trees being retained. In this instance, the stumps are to be ground out with a mechanical stump grinder taking care not to cause damage to the roots of trees being retained.

**Remedial tree surgery works** - The necessary remedial tree surgery works required to promote health and safety of the trees to be retained is to be carried out. A schedule of these works is to be produced by the project Arboriculturist taking into consideration the trees within their new built environment and prior to these works being carried out; they are to be agreed with the local authority.

**Erection of the protective fencing** - Once the trees have been removed, the line of the protective fencing that is required around the trees being retained **must be** erected as per Dwg. No. BMNB002.

The fencing needs to be 2.3m high and constructed in accordance with figure 2 of BS 5837 2012 (see fencing detail on drawing No.BMNB002 & Appendix 1 of the Arborist Report) using vertical and horizontal scaffold bars well braced together with the verticals spaced out at a maximum of 3m centres. Onto this, weld mesh panels are to be securely fixed with wire or scaffold clamps.

Signs need to be attached to these fences warning people to 'keep out'. See detail within drawing No.BMNB002 & Appendix 1. Once the protective fence line is erected, then the main construction works can commence on site.

**Storage of Material, Work Yards and staff car parking** – These areas must be identified on the work drawings prior to the construction works starting. These must be positioned outside the root protection areas around the trees being retained.

## ***Stage 2 The Construction Works Stage***

**Protective fencing** - During the course of the works, special attention must be paid to ensure that these fences and all other tree protection measures are kept in place, in good order and remain upright, rigid and complete at all times. They must be checked daily by the main contractor/foreman and any damage noted must be fixed immediately.

If works need to take place inside the protective fence lines, then the project Arboriculturist must be informed in advance of the works taking place and the mitigation measures required to reduce impact on the tree vegetation agreed. These mitigation measures will include the supervisions of these works by the project Arboriculturist. The protective fencing and all other protection measures are to remain in place throughout the construction works phase and must only be removed when all the works are complete and at this stage incorporated into the finished landscape.

**Excavations** - The excavation works are only to commence once the protective fence line and all other protection measures are in place. The excavations in the vicinity of the tree vegetation being retained will need to be viewed on site once marked out with the project manager, site foreman and the project Arboriculturist in advance of excavation to determine the extent of the impact and the work space required to allow for the construction works to proceed and to assess what additional mitigation measures will be required to protect those trees to be retained. In certain areas, it may be necessary to use an alternative method of excavating to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls or similar.

No roots are to be severed by the construction works without prior approval by the project Arboriculturist. Where roots are encountered, the project Arboriculturist is to assess these prior to cutting and these are to be pruned back to appropriate pruning points beyond the excavation line. Where roots cannot be cut; alternative methods of construction will need to be considered. The excavated face is then to be covered with soil or with Hessian sacking to prevent further drying out and the death of root material. Where the Hessian sacking is used, it will be necessary to keep this moist especially during dry periods.

**Working within the RPA (Root Protection Area)** – If it becomes necessary to carry out works within the RPA of a tree/trees, these must be discussed and agreed with the project Arboriculturist. All works must be carried out manually.

Root pruning is to be undertaken by an Arboriculturist using proprietary cutting tools such as a secateurs or hand pruning saw. The ground within the RPA of the trees must be protected from damage as per the recommendations of **section 6.2.3** of BS5837 2012. See detail within appendix 1 on ground protection using boarding for pedestrian loading.

**Finished ground levels/Landscaping** - The existing ground levels within the RPA of trees must be retained and incorporated into the finished landscaped development. Where changes in levels occur, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. All soft and hard landscaping within the RPA of the trees to be retained must be carried out manually and the soil levels must not be lowered or raised resulting in root damage to the trees. All surfaces are to be porous to allow the free movement of air and moisture to the roots below. Recommendations of sections 8 of BS5837 2012 must be adhered to during the landscaping within the RPA of the trees being retained.

### **Other items**

The following is a list of additional activities *that are not allowed* within the RPA or within the vicinity of the trees being retained.

- 1 - Storage of equipment, fuel, construction material, or the stockpiling of soil or rubble.
- 2 - Burning rubbish
- 3 -The washing of machinery
- 4 - Attaching notice boards, cables or other services to any part of the tree.
- 5 - Using neighbouring trees as anchor points.
- 6 - Care is required when using machinery such as Tele-porters, cranes or other equipment close to trees so as not to damage the crown or any other parts.

### **6.6.9 Protection of Birds**

Ground clearance works will be carried out outside of the bird nesting season (March 1st to September 1st inclusive) to avoid disturbance or harm to breeding birds. Any vegetation removal during the bird breeding season must be checked for nesting birds prior to removal to avoid committing an offence under the Wildlife Acts. Vegetation includes grassland (tussocky or long grass), scrub, trees, and woodland.

### **6.6.10 Procedure for Protection of Bats**

All mitigation measures for the protection of bats as outlined in the Bat Report will be implemented.in full.

- All bat mitigation work will be carried out by an ecologist in receipt of a bat derogation licence.
- The ecologist will liaise with the site arborist and site manager with regard to the scheduling of tree felling and arboricultural work.
- A licensed ecologist will be present during the felling of trees/arboricultural work
- All trees identified for removal/arboricultural work will be scheduled for September when bats are still active and capable of escape.
- Prior to construction commencing Category 1 trees as identified in the Bat Report will be examined at a height using an endoscope for the presence of bats. If present, they will be removed under licence and placed in a bat box
- Trees will be felled in a sensitive manner as detailed in the ecology report.

Security and construction lighting will be the minimum required for health and safety reasons and will be directed away from the treelines.

Lighting of the site during construction will be designed in accordance with the following guidance: -

- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011);
- Bats & Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, December 2010);

### **6.6.11 Surface Water**

Protection of watercourses will adhere to the following guidelines:

*Inland Fisheries Guidance Guidelines on the Protection of Fisheries during construction work in and adjacent to watercourses* (IFI, 2016) and CIRIA C532 *Control of Water Pollution from Construction Sites*.

The following is an outline of the procedure which will be implemented in relation to the protection of the existing surface water networks:-

- Identify the location of all stream, watercourses, stormwater drains and drainage paths for surface water and how the proposed works will affect them by undertaking an appropriate pre-works survey (desk-based and on-site verification);
- A construction site drainage plan will be drawn up. Silt traps and settlement ponds will be established in appropriate locations of the site to treat run-off during construction prior to discharge. These will be inspected and maintained during construction;
- Run off from the construction site will be monitored. The level of suspended solids discharged to fisheries water as a result of construction works shall not exceed 25mg/l nor result in the deposition of silt on gravels or any element of the aquatic flora and fauna;
- Designated impermeable concrete wash out areas will be established, maintained and the contents disposed of in an appropriate manner;
- Temporary oil interceptors shall be installed and maintained where site works involve the discharge of drainage waters to receiving rivers and streams;
- All fuels and chemicals will be stored in bunded areas;
- Refuelling will take place in designated bunded areas;
- Buffer strips and working/storage distances from watercourses will be established;
- Identify potential sources of pollution;
- A method of disposing of contaminated water will be established.

### **6.6.12 Protection of Soil & Groundwater**

Material storage and handling measures will be implemented to contain potential sources of soil/groundwater pollution. The contractor will ensure that spill kits will be accessible to construction personnel at all times and all spills will be reported to the CMT.



The contractor and sub-contractors shall be responsible for ensuring the following measures are implemented:

- All liquids, solids and powder containers will be clearly labelled and stored in sealable containers;
- All liquid and hazardous materials will be stored in a designated and temporarily bunded area with appropriate signage. This area should be within the construction compound or at an alternative location agreed with the CMT;
- Bunding must have a minimum capacity of 110% of the volume of the largest tank or 25% of the total storage capacity, whichever is the greater. Bunding shall be impermeable to the substance that is being stored in the tank;
- Where a contractor is responsible for materials stored in a bunded area, that contractor shall implement measures for the regular inspection of bunds and emptying of rainwater (when uncontaminated);
- Material storage areas will be at a safe distance from live construction activities;
- Spill kits will be provided in areas where liquids are stored and refuelling areas;
- Chemicals / fuels / materials brought on-site must be accompanied by a Safety Data Sheet (SDS). A copy of the SDS should be provided to the CMT;
- Materials will be stored in accordance with any specific requirements of the SDS;
- A complete register of all SDSs in use on-site will be maintained and retain copies of all SDS on-site;
- Careful ordering of materials to minimise quantities present on-site;
- Excess materials will not be stored on-site for extended periods;
- Contractors will be responsible for ensuring the regular maintenance of construction plant and equipment, to prevent leaks.

### **6.6.13 Excavations and Groundworks**

All excavations and related groundworks will be undertaken using best practice methods and the following principles will be followed:-

- Excavations will be kept to the minimum required taking cognisance of the construction methods and health and safety requirements;
- Construction equipment and support vehicles will travel only on designated roads and other approved access routes;
- Ground disturbance will be kept to a minimum;

- Material stockpiles will be stored in designated locations and soil stockpiles lightly compacted at the end of the working day;
- Surface water runoff from stockpiles will be intercepted via the construction site drainage plan to avoid direct discharge into the surface water system.

#### **6.6.14 Refuelling**

Where contractors are required to refuel vehicles on-site, this will be carried out at a central refuelling location. The contractor will be required to make the necessary arrangements with CMT access to and purchase of fuel oil from a central supply. All refuelling areas will be on areas of hard standing at designated areas agreed with the CMT. Open valves will not be left unattended.

#### **6.6.15 Site Tidiness & Housekeeping**

The contractor will be required to meet current Good Manufacturing Practice (cGMP) standards. These standards ensure that products manufactured on-site are made in such a way that the CMT can guarantee they are safe, pure, and effective.

Accordingly, a high standard of housekeeping is expected on all areas of site, including those areas outside of manufacturing. The contractor will be required to operate on-site using good housekeeping practices. Work areas shall be left in a clean state by construction personnel. The CMT contractor induction communicates the requirement for site housekeeping and tidiness.

Further to measures described in the previous sections, the following measures shall be implemented to maintain site tidiness:-

- Construction works will be carried out according to a defined schedule agreed with the CMT. Any delays or extensions required will be notified at the earliest opportunity to the CMT;
- Contractors will ensure that road edges and footpaths are swept on a regular basis;
- The contractor will be responsible for the clearance of their plant, equipment, and any temporary buildings upon completion of construction. The site will be left in a safe condition.

## **7.0 Emergency Planning and Responses**

A PSCS will be appointed for the works and will ensure that installation works are carried out consistent with all existing emergency response plans and procedures.

The emergency management procedure ensures that emergencies such as fires, explosions, accidents, leaks, sabotage, or emergencies caused by force majeure occur as little as possible; if they do, however, occur, it ensures that all countermeasures proceed in a controlled manner so that greater damages are avoided and the possible effects upon persons, the environment and property are avoided or limited.

### **7.1 Emergency Contact Details**

Emergency contact details will be posted at suitable noticeboards/welfare facilities throughout the site.

### **7.2 Environmental Emergency**

In the event of an environmental emergency, a procedure for Environmental Emergency Preparedness and Response will be developed prior to commencement of construction and can be implemented by the CMT in order to ensure to minimise environmental impacts.

An environmental emergency at the site may include:-

- Discovery of a fire within the site boundary;
- Uncontained spillage / leakage / loss of containment action;
- Discharge concentration of potential pollutants in excess of environmental trigger levels.

The general required emergency response actions will be posted at strategic locations, such as the site entrance and in the canteen.

As an example of emergency response actions required, in the event of a spillage, the following procedure shall be followed:

- **IF SAFE (USE PPE)**, stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- **IF SAFE (USE PPE)**, contain the spill using the absorbent spills material provided. Do not spread or flush away the spill.

- Cover or bund off any vulnerable areas where appropriate.
- If possible, clean up as much as possible using the absorbent spills materials.
- Do not hose the spillage down or use any detergents.
- Contain any used absorbent material so that further contamination is limited.
- Notify the Environmental Officer so that used absorbent material can be disposed of using a licensed waste contractor.
- An accident investigation should be performed in accordance with procedures and the report sent to the Environmental Officer.

### **8.0 Environmental Regulatory Requirements**

A register of regulatory, legal, and other requirements will be developed by the CMT. This will be a summary list of the major environmental legislation and other requirements to which the works must subscribe.

A typical register of environmental legislation is divided into a number of categories, which include:

- General Environmental Legislation
- Flora & Fauna
- Emissions to Air
- Emissions to Water & Groundwater
- Waste Management
- Noise & Vibration

All legislation included in this Register can be readily accessed on <http://www.irishstatutebook.ie/> or will be available through the construction manager's office.

The Register of Legislation will be reviewed and updated on a minimum six-monthly basis. This is a controlled document and as such will comply with all the requirements of the Contractor document control procedures.