

Construction Environmental Management Plan



Strategic Housing Development,

**Redforge Road, Blackpool,
Co. Cork**

On behalf of

Bellmount Developments Limited.



MALONE O'REGAN



Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
Tel: +353- 1- 567 76 55
Email: enviro@mores.ie


Title: Construction Environmental Management Plan, Strategic Housing Development, Redforge Road, Blackpool, Co. Cork, on behalf of, Bellmount Developments Limited.

Job Number: E1810


Prepared By: Janette McDonald

Signed: 

Checked By: Janette McDonald

Signed: 

Approved By: Kevin O'Regan

Signed: 

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	02/09/'21	CEMP	FINAL	JMD	JMcD	KOR

Copyright and Third-Party Disclaimer

MOR has prepared this report for the sole use of our client (as named on the front of the report) in accordance with the Client's instructions using all reasonable skill and competence and generally accepted consultancy principles. The report was prepared in accordance with the budget and terms of reference agreed with the Client and does not in any way constitute advice to any third party who is able to access it by any means. MOR excludes to the fullest extent lawfully permitted all liability whatsoever for any costs, liabilities or losses arising as a result of or reliance upon the contents of this report by any person or legal entity (other than the Client in accordance with the terms of reference). MOR has not verified any documents or information supplied by third parties and referred to herein in compiling this document and no warranty is provided as part of this document. No part of this report may be copied or reproduced without express written confirmation from MOR. Any methodology contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of MOR. Disclosure of such information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Third parties who obtains access to this report by any means, including disclosure by the Client, will be subject to the Copyright and Third-Party Disclaimer contained herein.

Construction Environmental Management Plan
Strategic Housing Development,
Redforge Road, Blackpool, Co. Cork,
Bellmount Developments Limited.

Contents

1	INTRODUCTION	1
1.1	Scope and Objective	1
1.2	Report Structure	2
2	DESCRIPTION OF THE PROPOSED DEVELOPMENT	3
2.1	Drainage	3
2.1.1	Surface Water Drainage	3
2.1.2	Foul Water Drainage.....	4
2.2	Water Supply Service.....	4
2.3	Internal Access/Circulation	4
2.3.1	Pedestrian Access	5
2.3.2	Cycle Access	5
2.3.3	Emergency Vehicle and Refuse Collection Access	5
2.4	Landscaping	5
3	CONSTRUCTION WORKS	5
3.1	Construction Programme	5
3.2	Construction Management Plan.....	7
3.3	Construction Compound	7
3.4	Demolition and Construction Procedures.....	7
3.5	Earthworks.....	7
4	ENVIRONMENTAL MANAGEMENT FRAMEWORK.....	8
4.1	Environmental Policy	8
4.2	Objectives and Targets	8
4.3	Structure and Responsibilities.....	8
4.4	Communication	8
5	ENVIRONMENTAL RISK ASSESSMENT	10

5.1	Risk Classification	10
5.2	Risk Identification	10
6	EMERGENCY MANAGEMENT PLAN	18
6.1	Incident Response	18
7	MONITORING AND IMPLEMENTATION OF THE CEMP	19
7.1	Complaints, Comments and Enquiries.....	19
7.2	Site Visits and Evaluation of Compliance	19
7.3	Control of Records.....	19
8	IMPLEMENTATION, REVIEW AND TRAINING.....	20
8.1	Training Awareness and Competence.....	20
9	CONCLUSIONS.....	21
10	REFERENCES.....	22

FIGURES

Figure 1-1: Site Location	1
Figure 2-1: Proposed Development Site Plan	3
Figure 6-1: Site Incident Response	18

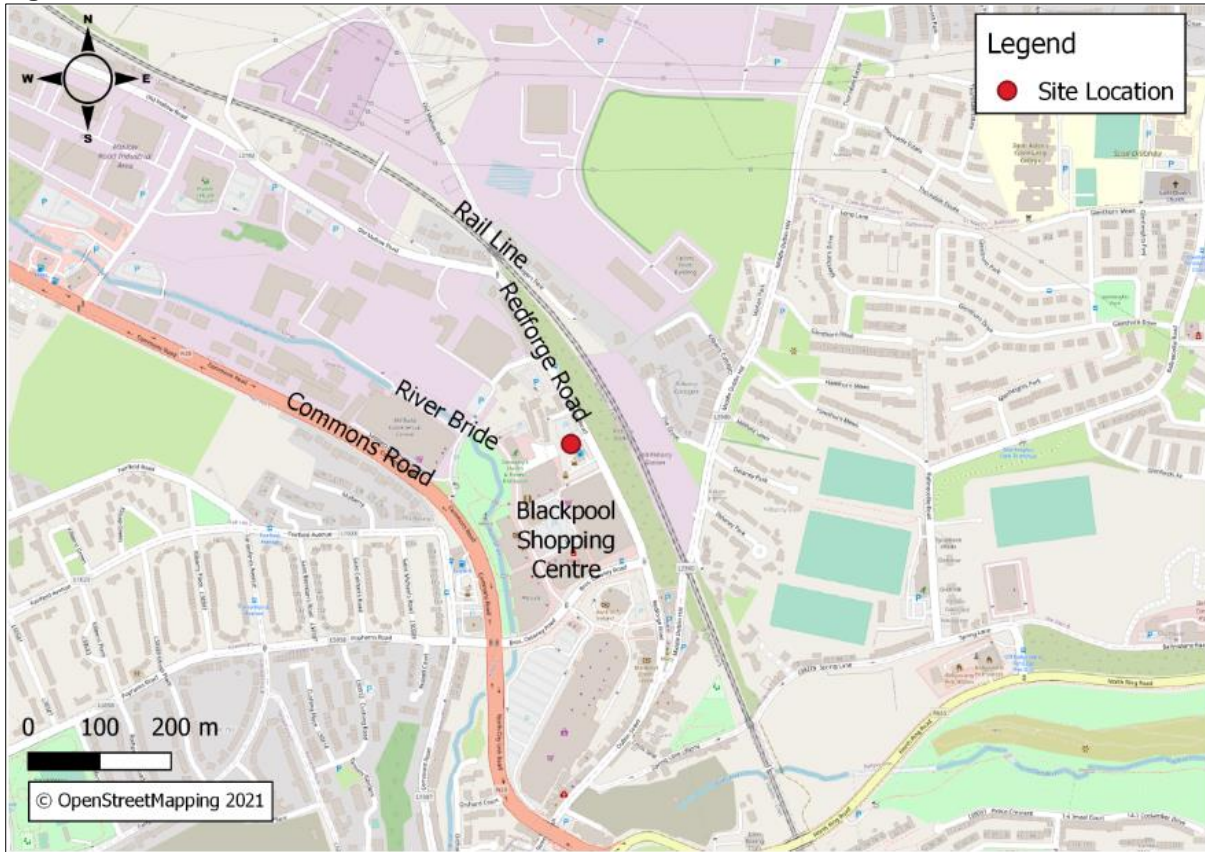
TABLES

Table 3-1: Proposed Approximate Construction Programme.....	6
Table 4-1: Roles and Responsibilities	8
Table 5-1: Rating Magnitude of Impact	10
Table 5-2: Rating of Likelihood of Risk Occurring.....	10
Table 5-3: Rating of Consequence of Risk Occurring.....	10
Table 5-4: Site Specific Environmental Risk Assessment and Management	12

1 INTRODUCTION

Malone O' Regan Environmental Services (MOR) was commissioned by Bellmount Developments Limited ('the Applicant') to prepare a Construction Environmental Management Plan (CEMP) to accompany a planning application for a housing development and all associated works on lands at Redforge Road, Blackpool, Co. Cork. (OS Reference 67595 74010). The location of the proposed development ('the Site') is shown in Figure 1-1.

Figure 1-1: Site Location



1.1 Scope and Objective

The key objective of this CEMP is to ensure that all potential construction phase environmental impacts will be addressed in accordance with current legislative requirements and best practice guidelines. It will assist in the control of environmental risks that may arise during construction to ensure that these works do not result in an environmental incident, environmental damage or undue nuisance to the local environment.

This document contains an assessment of the likely risks on-site, it outlines procedures for monitoring the effectiveness of the environmental protection measures and for the dissemination of information to all relevant personnel during the construction programme. In assessing the risks to the environment on and adjacent to the Site, full cognisance has been taken of:

- CIRIA C741 Environmental Good Practice on Site (4th edition) [1].
- C532 – Control of Water Pollution from Construction, Guidance for Consultants and Contractors [2];
- C753 - The SuDS manual [3];

- Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads [4]; and,
- BS 5228-1 + A1:2014: Code of Practice for noise and vibration control on construction and open sites- Part 1: Noise [5] and Part 2 Vibration [6].
- Guidance for the Treatment of Badgers Prior to the Construction of National Road Schemes [8]
- Guidance for the Treatment of Otters Prior to the Construction of National Road Schemes [9]
- Guidance for the Treatment of Bats Prior to the Construction of National Road Schemes [10]

Further guidance mentioned in the Natura Impact Assessment (NIS) and Ecological Impact Assessment (EclA) regarding the protection of particular species may also be applicable to the construction period.

To achieve this objective the CEMP will:

- Provide a method of documenting compliance with the Environmental Commitments / Environmental Management Requirements / Best Practice Guidelines;
- Ensure compliance with current legislation;
- Effectively minimise any potential adverse environmental effects during construction including how site-specific method statements will be developed to avoid, minimise and mitigate construction effects on the environment; and,
- Communicate key environmental obligations that apply to all contractor organisations, their sub-contractors and employees while carrying out any form of construction activity.

This CEMP will be used by the appointed contractor to prepare an updated and comprehensive CEMP prior to the commencement of any on-site works. If required by the conditions of the grant of planning permission, the updated plan will be approved by the Planning Authority in advance of any works commencing on-site. The approved plan will be implemented for the duration of the construction works to protect the receiving environment from potential impacts arising during the construction works.

1.2 Report Structure

The CEMP should be considered by the appointed contractor as a 'living' document with reviews being undertaken at predetermined intervals and data added as appropriate. The measures identified in the CEMP should be:

- Viewed as mandatory and common practice on-site; and,
- Embedded within the construction company's policies and site procedures, e.g. within an existing environmental management system framework.

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development is for a housing development on c. 0.73ha at Redforge Road, Blackpool, Co. Cork. The site is known as Millfield Service Station and currently used as a petrol filling station and associated uses including car wash. The proposed development will include demolition of existing petrol station and construction of residential apartments. All design details of the proposed development have been included within the overall planning application and are briefly summarised within this section:

Full details of the proposed development are provided as part of the overall Planning Application. Figures 2-1 below shows the Site Layout of the proposed development.

Figure 2-1: Proposed Development Site Plan



2.1 Drainage

2.1.1 Surface Water Drainage

The existing site is comprised of buildings and hardstanding's with un-attenuated outflow to the public drainage network and river system. The existing topography falls from north to

south. There is an existing 750mm diameter surface water drainage pipe running along Redforge road, east of the proposed site and returns along the southern perimeter.

The proposed surface water drainage system will collect storm-water run-off generated from the residential roofs and impermeable hard surfaces via gullies. Please see drawing 4507-P2 submitted with this application for layout of the proposed surface water drainage. The storm water will be drained to an on-site, below ground attenuation facility. Attenuation capacity is designed for a 1 in 30-year storm event + 10% allowance for climate change. Capacity of attenuation tank capacity will be 40.8m³. Surface water outfall from the attenuation tank will be restricted by a Hydro brake to limit the flow to the existing public storm drainage system.

Further, surface water will be discharged to the existing public drainage system, east of the site. This system eventually discharges to the River Bride ca.85m to the west of the site. The proposed discharge rate from the site will be lower than the pre-development run-off levels in line with the SUDS requirement.

Provision for an area of soft landscaping including grass, planting and trees, at ground floor externally to the west of the complex will be made to improve the drainage sustainability of the scheme. Petrol interceptors will not be included as there is no car park hardstanding proposed within the site. Surface water drainage calculations and associated attenuation design included in the Engineering report submitted with the planning application.

2.1.2 Foul Water Drainage

There is an existing 375mm diameter foul sewer pipe running along Redforge Road, east of the proposed site. The network run along the southern perimeter of the site beneath the public roadway. An existing combined sewer is located to the west of the proposed site. A 10 meters way leave is associated with this combined sewer and this right of access is to be retained as required by Irish Water to inspect and maintain the pipeline and chambers.

The wastewater discharge for the development is calculated in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. Please see drawing 4507-P1 for the layout of proposed foul water network. The pipework will be 225mm diameter. The foul sewer will be discharged to the existing system which is main UWWTP for Cork City at Carrigrennan. All foul sewers and manholes will be constructed in accordance with the Irish Water Standard and the Irish Water Code of Practice for Wastewater. Foul water design calculations will be submitted with planning application.

2.2 Water Supply Service

There is an existing 100mm diameter ductile iron watermain running along Redforge Road.

It is to be noted that Irish Water have advised that the existing 100mm diameter watermain on Redforge Road is not sufficient for supplying the proposed development. Hence, to accommodate the proposed connection to Irish Water network at the premises, approx. 175m of the existing 100mm watermain needs to be upgraded to 150mm diameter. Please see drawing 4507-P4 submitted with this application for layout of the proposed mains water supply.

The total peak water demand of the proposed development is estimated to be 3.3 l/s. In accordance with best practice, new water saving devices (low water usage appliances and aerated taps etc.) will be fitted as per standard into the proposed new units. Individual water meters for each apartment will be fitted on the incoming watermain in a designated area of the proposed development.

2.3 Internal Access/Circulation

This existing use of the site generates a high number of access and egress vehicular movements each day. This movement is related to customers, staff and service/delivery personnel.

There will be a reduction to the current vehicle traffic movements surrounding the site from the proposed development. There is no provision for vehicular parking spaces to be provided within the site boundary. Once occupied, the traffic to the site will likely be from pedestrians, cyclists, residential tenants as well as occasional delivery and refuse collection. Therefore, the level of vehicle trip generation from the proposed accommodation development will be relatively low. As a result of this, there will be no material impact on the operational performance of the surrounding road network and any change will be minimal.

2.3.1 Pedestrian Access

It is expected that many of the tenants living in the residence will access the development by foot. Footpath infrastructure surrounding the site and its environs is well developed due to the existing neighbouring retail units. Footpaths are considered an acceptable approach to the proposed residential development.

2.3.2 Cycle Access

Bicycle storage bays will be provided within the development to encourage travel by bicycle. The provision for appropriate level of bicycle parking for proposed development is provided in accordance with Cork City Council requirements.

2.3.3 Emergency Vehicle and Refuse Collection Access

The existing vehicular entrance along Redforge Road will be removed. The proposed new vehicular entrance will be to the west of the site, between blocks A and B, and the proposed new vehicular exit will be to the north of the site. The new entrance/exit and internal road layout is designed to accommodate a fire tender vehicle and a refuse heavy goods vehicle. The internal pathway providing access to the western section of the site will be designed and constructed to handle emergency vehicle traffic loading.

2.4 Landscaping

A Landscape Plan has been developed for the Site and incorporates supplementary plantings of native species, the provision of outdoor amenity spaces and public amenity works. For further details refer to drawings 2014-LA-P001 and 2014-LA-P002 submitted with this application

3 CONSTRUCTION WORKS

3.1 Construction Programme

It is envisaged that construction work will take ca. 24 months to complete.

Table 3-1: Proposed Approximate Construction Programme

Stage	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Enabling and Demolition Works		✓	✓	✓																					
Earth works					✓	✓	✓																		
Drainage installation							✓	✓																	
Piling, installation of foundations & concrete slab									✓	✓	✓														
Building Structure												✓	✓	✓	✓	✓									
Services installation and internal works																✓	✓	✓	✓	✓	✓	✓			
Landscaping																						✓	✓	✓	
Finishing																						✓	✓	✓	✓

3.2 Construction Management Plan

During the construction phase, the methods of working will comply with all relevant legislation and best practice in reducing the environmental impacts of the works. Although construction phase impacts are generally of a short-term duration and are localised in nature, the impacts will be reduced as far as practicable through compliance with current construction industry guidelines.

Construction Phase timelines will be as follows:

- 8:00am to 6:00pm Monday to Friday;
- 8:00am to 2:00pm on Saturdays; and,
- No work on Sundays or public holidays.

Construction works outside these hours will be limited to works necessary for health and safety reasons, to protect the environment or with prior agreement with the Planning Authority.

3.3 Construction Compound

To ensure the efficient management of the construction works, a Temporary Construction Compound will be set up for the duration of the construction works. The compound will be located in the western portion of the Site. A temporary sewer and water supply connection will be put in place for personnel facilities for the duration of the works with prior approval from Irish Water.

During the initial stages of construction works, construction vehicles (i.e. Heavy Goods Vehicles (HGVs) are proposed to access the site via the existing entrances off Redforge Road which bounds the site to the east for the initial stages of the works. Once the buildings have progressed above ground level it is proposed to access the site from the west with vehicles exiting to the north operating a one way system.

3.4 Demolition and Construction Procedures

During the demolition and construction phases of the proposed development potential environmental effects will be short-term and localised. Nonetheless, all works will comply with the relevant legislation, construction industry guidelines and best practice in order to reduce potential environmental impacts associated with the works. Where remaining potential impacts have been identified, additional mitigation measures will be employed to reduce, as far as practicable potential impacts.

All potential demolition phase environmental impacts will be addressed through the implementation of a comprehensive Demolition and Construction Waste Management Plan (DCWMP) in accordance with current best practice guidelines and will be submitted with the planning application. This plan will be agreed with Cork County Council (CCC) and relevant statutory bodies for the proposed works.

3.5 Earthworks

Earthworks will include the excavation for the proposed attenuation tank and drainage system. Four (4No.) of existing fuel tanks, related fuel lines and existing hydrocarbon interceptor will also need to be excavated. Foundations for the buildings will be piled, minimising earthworks requirements. Excavations across the site will be required to a depth of 0.4m which will be backfilled with 0.5m of clean engineering fill material.

4 ENVIRONMENTAL MANAGEMENT FRAMEWORK

4.1 Environmental Policy

The project will be carried out in accordance with the policies / objectives of the appointed Contractor's Environmental Policy and procedures.

4.2 Objectives and Targets

Environmental objectives for the construction phase will be developed and should refer to legal compliance and environmental good practice, these may include:

- Zero pollution incidents;
- Minimise disruption to residents;
- Reduce / avoid impacts on biodiversity; and,
- Minimise waste sent to landfill.

4.3 Structure and Responsibilities

A management structure that includes an organisational chart encompassing all staff responsible for environmental work will be included within the CEMP. This will set out the respective roles and responsibilities with regard to the environment and identify the nominated Construction Environmental Manager. Illustrative key roles and responsibilities are set out in Table 4-1 below.

Table 4-1: Roles and Responsibilities

Role	Responsibility
Project Manager/Construction Environmental Manager (Appointed Contractor)	<p>Responsible for management of the construction phase of the project. Has overall responsibility for the environmental performance of the project.</p> <p>Responsible for implementing the CEMP during the construction phase to ensure that waste is disposed of legally, economically and safely.</p> <p>Ensure compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the Environmental Impact Assessment Report.</p> <p>Responsible for reporting incidents and where required, communicating the incident details to the client and relevant regulatory authorities.</p> <p>Monitoring of the construction processes against the project objectives.</p> <p>Liaison with all staff and local stakeholders dealing with any complaints or queries from the public.</p>
Site Staff (Assigned by Appointed Contractor)	<p>To receive general environmental awareness training and undertake work in accordance with Method Statement Briefings and toolbox talks. Trained personnel to manage particular tasks such as, refuelling plant and equipment, managing the stores, water quality monitoring and supervising the segregation and collection of waste.</p>
Environmental Clerk of Works / Consultant (Assigned by Appointed Contractor) (MOR)	<p>To provide information relevant to construction that may assist the Contractor to manage environmental aspects of the scheme and to ensure that the Contractor complies with all the relevant legal requirements, commitments and targets agreed for the scheme.</p>

4.4 Communication

The CEMP will be distributed to the project team, including sub-contractors, to ensure that the environmental requirements are communicated effectively. Relevant staff and Contractors will

also be briefed on key activities and environmentally sensitive operations. Project, client and company environmental policies, where available, should be displayed on-site.

The Contractor will define procedures for internal and external communication. The client may require that any communication with external parties such as environmental regulators or the public will be undertaken through a nominated client representative.

During the construction phase, internal communication will include regular progress meetings, which should cover:

- Training undertaken;
- Progress reports;
- Inspections, audits and non-conformance;
- Complaints received;
- Visits by external bodies and the outcome or feedback from such visits;
- Objective / target achievement, including reporting on environmental performance; and,
- External communication, including letter drops or meetings, and liaison with statutory authorities will be overseen by the Site Manager.

5 ENVIRONMENTAL RISK ASSESSMENT

5.1 Risk Classification

The classification of the environmental risks, arising from the construction phase will follow the definitions of significance as outlined by the Environmental Protection Agency (EPA) for Environmental Impact Statements [11] as shown below in Table 5-1.

Table 5-1: Rating Magnitude of Impact

Magnitude of Impact	Importance / Sensitivity of Resource			
	High	Moderate	Low	Negligible
Large	Very Substantial	Substantial	Moderate	Slight
Medium	Substantial	Substantial	Moderate	Slight
Small	Moderate	Moderate	Slight	Slight
Negligible	Slight	Slight	Slight	Negligible

In addition to the assessment of risks arising from known sources, an assessment of risk for unplanned events/incidents on site were also assessed. These were rated as per the EPA 'Guidance on assessing and costing environmental liabilities' [11]. The methodology for the rating of likelihood and consequence are shown in Tables 5-2 and 5-3.

Table 5-2: Rating of Likelihood of Risk Occurring

Rating	Likelihood	
	Category	Description
1	Trivial	Very low chance of hazard occurring
2	Low	Low chance of hazard occurring.
3	Medium	Medium chance of hazard occurring.
4	High	High chance of hazard occurring
5	Very High	Very high chance of hazard occurring.

Table 5-3: Rating of Consequence of Risk Occurring

Rating	Consequence	
	Category	Description
1	Trivial	No impact or negligible change to the environment.
2	Minor	Minor impact / localised or nuisance.
3	Moderate	Moderate impact to environment.
4	Major	Severe impact to the environment
5	Massive	Massive impact to a large area, irreversible in medium term.

5.2 Risk Identification

In developing this CEMP, the following site-specific aspects were considered relevant to the construction phase:

- The location of the Site in the context of the surrounding area;
- The local road network;
- Local residences and businesses;
- The location of the Site in context of the closest water bodies;
- An increase in air and noise emissions during the construction stage; and,
- The biodiversity value of the Site and its surrounding habitats.

Mitigation measures to prevent and manage likely environmental risks are outlined within Table 5-4.

Additionally, the following detailed site-specific plans will be completed by the appointed Principal Contractor, adhered to and incorporated into site works:

- Construction Stage Method Statement(s);
- Final Construction Environmental and Waste Management Plan (CEMP).

Table 5-4: Site Specific Environmental Risk Assessment and Management

Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
1. Site Operations and Design	a. Potential nuisance towards public (out of hour's activities).	Minor	Low	<ul style="list-style-type: none"> Normal construction hours will be restricted to 08:00 to 18:00 Monday to Friday and 08:00 to 14:00pm on Saturday. No work on Sundays or public holidays.
	b. Traffic	Moderate	Low	<ul style="list-style-type: none"> Best practice measures and the Construction Traffic Management Plan will be agreed with the planning authority in advance of commencement of the works and implemented. Hydrocarbon spill kits shall be in place on all site vehicles / plant. Adequate signage shall be provided on the public network identifying the Site, access, speed limits etc.
2.A Water Quality – Suspension solids	a. Suspended sediment due to run-off from construction areas entering the Bride River causing potential detriment to water quality.	Moderate	Medium	<ul style="list-style-type: none"> Standard measures to control run-off will be incorporated into the Method Statements, to include Construction Industry Research and Information Association (CIRIA) 2001 C532 – Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors and CIRIA 2015 C741 Environmental Good Practice on Site. Excavations will be left open for minimal periods to avoid acting as a conduit for surface water flows. During the construction period appropriate containment measures, sandbag or similar, shall be installed on site where material is required to be stored temporarily, thus ensuring adequate protection in silt-laden runoff draining off site. All construction works associated with the new drainage infrastructure onsite will be completed, checked and cleaned where required, in advance of discharging to the Bride River. A silt fence or similar sediment control structure will be installed along the western boundary of the Site to prevent sediment running off into the Bride River; The Contractor shall ensure that sediment / silt-traps, and check dams are regularly maintained during the construction phase. Weather conditions will be considered when planning construction activities to minimise risk of run off from site. Provision of 20m exclusion zones and barriers between any stockpiled materials and any surface water features to prevent sediment washing into the receiving water environment. If dewatering is required as part of the proposed works e.g. in trenches for services in wet areas, water must be analysed to determine how it is to be managed i.e. apply for a temporary connection to the sewer from Irish Water or to removal offsite by a

Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
				licensed contractor for disposal in accordance with all relevant waste regulations. <ul style="list-style-type: none"> • Entry by plant equipment, machinery, vehicles and construction personnel into watercourses, wet drainage ditches or the river riparian zones shall not be permitted. • All routes used for construction traffic shall be protected against migration of soil or wastewater into watercourses. • An environmental clerk of works shall be engaged to periodically inspect all elements of the works for their entire duration. • Emergency response procedures will be put in place. • Any oils fuels and potential pollution substances shall be stored on hardstanding or within a suitably bunded area.
2.B Water Quality – Oil & other construction related chemicals	a. Oil Spill/Oil leaking from bulk container to ground / surface water. Oil pollution is known to cause significant damage to the aquatic environment.	Moderate	Low	<ul style="list-style-type: none"> • All materials shall be stored at the main contractor compound and transported to the works zone immediately prior to construction. • Appropriate containment facilities will be provided to ensure that any spills from vehicles are contained and removed off-site. Adequate stocks of absorbent materials, such as sand or commercially available spill kits shall be available. • The Contractor shall ensure that all personnel working on-site are trained in pollution incident control response. • A regular review of weather forecasts of heavy rainfall is required. • No storage of hydrocarbons or any polluting chemicals will occur within 20m of watercourses or surface water features. • Any diesel or fuel oils stored on site will be bunded to 110% of the capacity of the storage tank. • Re-fuelling of plant will not occur within 20m of any watercourse or surface water feature and only in bunded refuelling areas. • Design and installation of fuel tanks to be in accordance with best practice guidelines. • Drip trays and spill kits will be kept available on site. • Cabins, containers, workshops, plant, materials storage and storage tanks shall not be located within 20m of the River. • Prior to any works commencing, all construction equipment will be checked to ensure that they are mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease. • Existing drainage and fuel / oil interceptors will be maintained until they are ready to be replaced or are decommissioned.
	b. Oil spill during refuelling operations.	Moderate (low volume)	Low	<ul style="list-style-type: none"> • Refuelling of plant and machinery will be completed in a controlled manner using drip trays (bunded container trays).

Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
				<ul style="list-style-type: none"> • Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile containers. Bunds for the storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored. • Only emergency breakdown maintenance will be carried out on-site. • Emergency procedures and spillage kits will be available and construction staff will be familiar with emergency procedures. • Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. • Drip trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills. • Only designated trained operators will be authorised to refuel plant on-site. • Procedures and contingency plans will be set up to deal with emergency accidents or spills. • An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill. • Existing drainage and fuel / oil interceptors will be maintained until they are ready to be replaced or decommissioned.
<p>2.C Water Quality - Cement</p>	<p>a. Cement and Concrete entering waters resulting in water pollution and contamination to the environment.</p>	<p>Moderate</p>	<p>Low</p>	<ul style="list-style-type: none"> • All concrete pours will be carefully planned to avoid any impacts; • Water supply points, if required, will be agreed with the appointed Contractor in advance of the works. • Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed. • Chemicals used will be biodegradable where possible. • Any spillages will be cleaned up immediately and disposed of correctly. • Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening. • Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete. • Concrete washout of trucks and larger plant should not occur on site; • Concrete washing from smaller equipment will be collected and disposed of off-site, not to the on-site drainage system;

Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
				<ul style="list-style-type: none"> Surplus concrete will be returned to batch plant or off-site concrete wash facility after completion of a pour.
3. Earthworks	a. Encountering contaminated materials during excavation works	Moderate	Very High	<ul style="list-style-type: none"> Earthworks in the vicinity of the existing forecourt and underground tanks will be supervised by a suitably qualified environmental consultant; All excavated contaminated soils will be segregated, sampled and be removed off site in a timely manner, in accordance with the relevant waste legislation; Further measures are included in the Site Investigation report submitted with this application. <p>Visual and olfactory indicators of contamination may include the following;</p> <ul style="list-style-type: none"> Asbestos Containing Materials (ACMs) – board, pipe, free fibres and fragments; Refuse material (other than concrete and brick); Odour (petroleum, oil, creosote, solvent, sulphur & gas); and Discoloured soil (black/green staining is most common); <p>If any unexpected materials are identified during the excavation process which differ from those outlined in the Site Investigation Report, works should cease in the area. The area should be fenced off with barrier tape (2.0m buffer zone) and a competent person contacted. The competent person will advise on how to safely proceed which may require a visual inspection/sampling/analysis and /or further investigations.</p>
4. Waste Management	a. Incorrect management of general Municipal Wastes / welfare facilities resulting in litter on-site and / or attraction of rodents	Moderate	High	<ul style="list-style-type: none"> Should hazardous waste be encountered during construction (such as contaminated soils), it will be segregated, contained, classified, transported and disposed of by appropriately permitted waste contractors in accordance with all relevant national and international waste legislation (Refer to C&DWMP for further details). Measures will be implemented to minimise waste and ensure correct handling storage and disposal of waste. During the construction phase, covered skips should be available across the Site to allow for appropriate segregation of wastes in accordance with existing legislation. No burning of waste material shall take place on site.

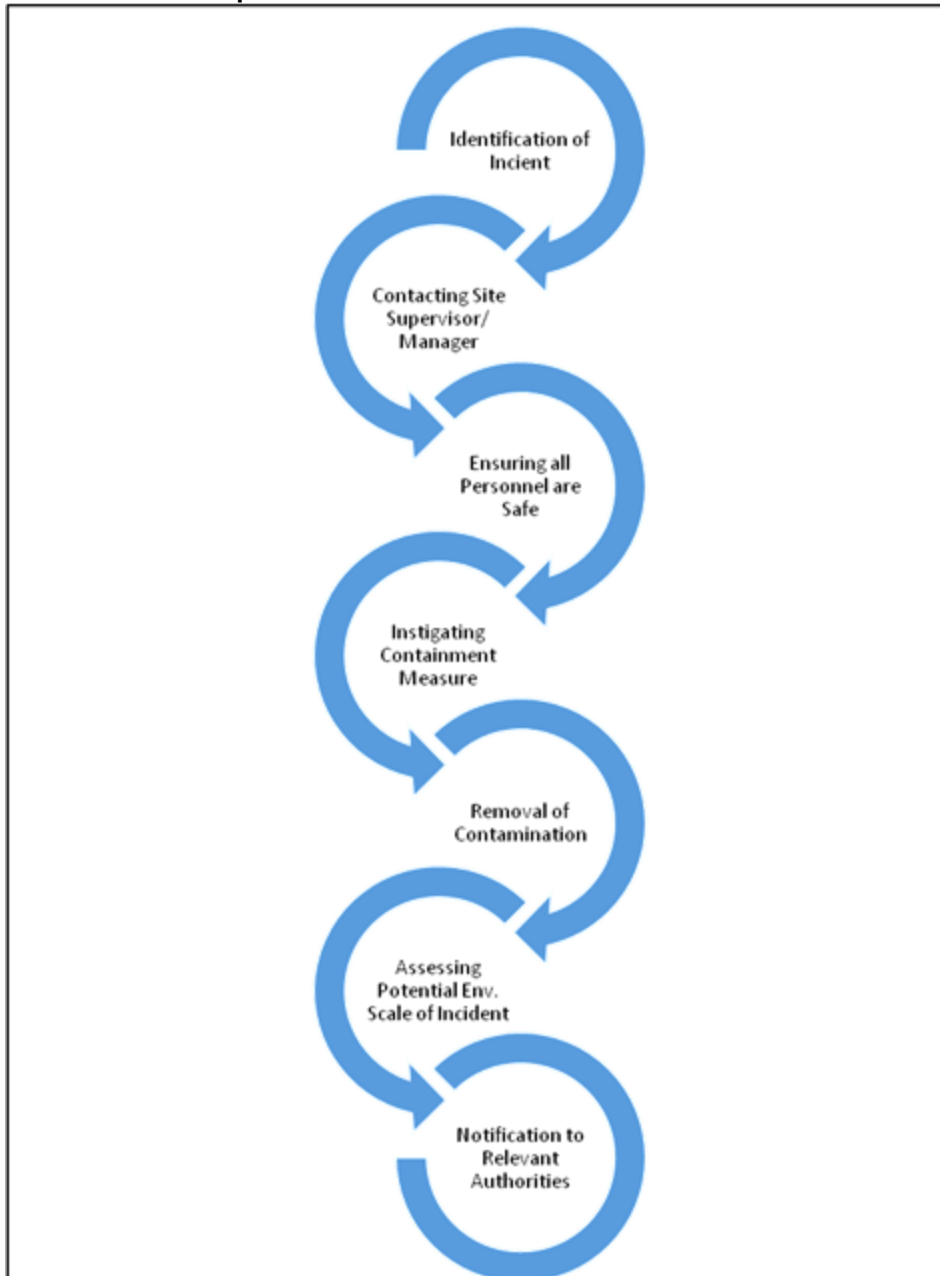
Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
5. Nuisance – Dust / Dirt	a. Generation of dust leading to dust soiling at receptors	Moderate	Low	<ul style="list-style-type: none"> All potential demolition phase environmental impacts will be addressed through the implementation of a comprehensive Construction and Demolition and Construction Waste Management Plan (C&DWMP) in accordance with current best practice guidelines. This plan will be agreed with the planning authority and relevant statutory bodies for the proposed works. Road cleaning and dust minimisation procedures will be put in place by the contractor for the duration of the works
6. Nuisance - Noise	a. Generation of noise resulting in loss of amenity to the local area and cause disruption to the local species;	Moderate	Medium	<ul style="list-style-type: none"> A noise complaint procedure shall be implemented; A solid and continuous hoarding shall be erected across the entire Site perimeter; Onsite vehicles/equipment shall be throttled down/switched off when not in use; Selection of low noise rated machinery and equipment; Use of acoustic enclosures/screens where applicable; Isolation of vibrational sources such as pumps/compressors where required; Cut off trenches to isolate vibration transmission path installed where required; and Noise compliance monitoring is undertaken
10. Biodiversity Protection	a. Impacts on specific flora and fauna	Moderate	Medium	<ul style="list-style-type: none"> ECoW will inspect the Site in advance of works commencing and will undertake site inspections as required during the works, to ensure that all works will be completed in line with the CEMP and all wildlife legislation. Protection for Birds 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 1st March to 31st August. The management of vegetation (including trees and scrub) will be restricted to outside the bird breeding season. In the event that works need to be undertaken within the main breeding season, this would be undertaken in consultation with NPWS. Refer to the EclA submitted with the application for further details.
	b. Impacts on water quality and therefore aquatic ecology	Moderate	Low	<ul style="list-style-type: none"> Measures to protect water quality addressed in points 2A – 2C above will also protect aquatic ecology Refer to the EclA submitted with the application for further details.

Aspect of Construction	Potential Hazard	Consequence	Likelihood	Risk Management Procedures – Mitigation Measures
	c. Impacts on Bats	Moderate	Medium	<ul style="list-style-type: none"> Immediately prior to works on the roof structure / demolition of the building, an updated building inspection and emergence / dawn re-entry survey will be required to confirm the presence / absence of roosting bats within the building; If bats are found to be roosting within the building, then further measures may need to be considered in order to protect bats against any disturbance (i.e. lighting or noise levels). The NPWS will be consulted for advice and a delegation licence will be if required; and, The findings of the updated bat surveys will be submitted to the planning authority prior to the commenced of the demolition works. Refer to the EclA submitted with the application for further details.
	d. Impacts on Otters	Moderate	Low	<ul style="list-style-type: none"> Measures to protect water quality will help in the protection of the local Otter population. Refer to the EclA submitted with the application for further details.
11. Invasive Species	a. Spread of Invasive Alien Species	Minor	Low	<ul style="list-style-type: none"> All vehicles, machinery and any other equipment used for the works will be washed prior to its use at the Site to prevent the import of plant material or seeds; Before machinery or equipment is unloaded at the Site, equipment will be visually inspected to ensure that all adherent material and debris has been removed; Any vehicles and machinery that are not clean will not be permitted entry to the Site; All materials to be imported to the Site including additional planting will be sourced from a reputable supplier and records of all material and supplies will be maintained; and,

6 EMERGENCY MANAGEMENT PLAN

Although, the Site will be managed, there remains a low risk from unexpected occurrences, such as accidental spillages on-site, which may result in environmental pollution. Incidents on-site will follow a similar emergency response template. This template is outlined in the schematic presented in Figure 6-1 below:

Figure 6-1: Site Incident Response



6.1 Incident Response

Where an environmental incident is identified then, it will be reported to the on-duty Project Manager and thereafter the Health and Safety Officer. Each incident will have the following information gathered and reported:

- Location of the incident;
- Time and date;

- Scale of the incident;
- Nature of the incident, including any specific environmental dangers;
- Remediation actions taken;
- Name of personnel noting the incident, and who they work for; and,
- Any other relevant details.

Works in the vicinity of the incident must be stopped until the incident is resolved and an all-clear is issued by the Site Manager or Environmental Manager. All personnel in the immediate area of the release/spill shall be alerted to the circumstances and any dangers to them (Health and Safety) and to the environment.

The Project Manager will ensure, where required, that the incident details are communicated to the relevant regulatory authorities.

7 MONITORING AND IMPLEMENTATION OF THE CEMP

7.1 Complaints, Comments and Enquiries

Any complaint related to the Site will be dealt with by the Site Manager. The source of the complaint will be investigated immediately. If possible, the source of the complaint will be stopped, moved or modified immediately. All complaints must be recorded including details of the complaint and any required corrective actions.

7.2 Site Visits and Evaluation of Compliance

An Environmental clerk of works (ECoW) will inspect the trees and roof structures in advance of works commencing and will undertake Site inspections as required during the works. A suitably qualified Environmental Consultant will supervise key stages of earth works, namely excavations in and around the existing fuel tanks, fuel lines, interceptor and forecourt. The aim of these visits will be to ensure compliance with procedures and mitigation measures set out in the CEMP.

This will be done by means of a Site inspection and the auditing of different aspects of the works including documentation. Checklists for compliance will be drawn up, corrective actions will be required for any non-compliances identified and follow-up surveys will be scheduled to ensure compliance.

All monitoring results and reports detailing the compliance or otherwise of the works will be maintained at the Site office. In the event of an incident, an incident report will be completed and that will document both the cause of the incident and the corrective action taken to address the incident. These incident forms will be available for inspection at the Site office.

7.3 Control of Records

Environmental records, including waste management records (see C&DWMP), will be maintained in accordance with the respective company procedure and legal requirements. The records are to be maintained, in either hard copy or electronic format as required by the individual procedure that the records relate to, in such a way that they are readily identifiable, retrievable and protected against damage, deterioration or loss. The procedure that the records relate to also specifies the retention time for the records and who has the authority to dispose of them.

8 IMPLEMENTATION, REVIEW AND TRAINING

The Appointed Project Manager will be responsible for developing an updated site-specific CEMP(s) prior to the commencement of Site works. The Project Manager will be responsible for ensuring compliance with the CEMP. Each sub-contractor will be responsible for appointing a point of contact for matters related to environmental protection.

Copies of the CEMP(s) will be made available to all personnel on-site. All Site personnel and sub-contractors will be instructed about the objectives of the CEMP and informed of the responsibilities which fall upon them as a consequence of its provisions.

All staff will receive environmental awareness training as part of their Site induction to ensure they are aware of their responsibilities under the CEMP. This will include:

- Site induction, including relevant environmental issues;
- Method statement and risk assessment briefings;
- Toolbox talks, including instruction on incident response procedures; and,
- Key task-specific environmental issue briefings.

The CEMP(s) will be reviewed on an as needed basis if the scope of works changes significantly or if the need is identified following a site audit.

8.1 Training Awareness and Competence

Site personnel shall be trained appropriately to ensure they are competent to perform tasks that have the potential to cause a significant environmental impact as part of the proposed development. Competence is defined in terms of appropriate education, training and experience.

All managers and supervisors will be briefed on the CEMP.

Method Statements will be prepared for specific activities prior to the works commencing and will include environmental management / best practice measures and emergency preparedness appropriate to the activity. The Site Manager or nominated deputy will review key Method Statements prior to their issue.

Method Statement briefings will be given before personnel carry out key activities for the first time.

9 CONCLUSIONS

This CEMP document outlines the management procedures to enable the Appointed Site Manager to respond to potential environmental risks from construction activities on-site. The final CEMP will cover all aspects of the construction development.

In assessing risks on-site, full cognisance has been taken of best practice guidance including:

- CIRIA C741 Environmental Good Practice on Site (4th edition) [1].
- C532 – Control of Water Pollution from Construction, Guidance for Consultants and Contractors [2];
- C753 - The SuDS manual [3];
- Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads [4]; and,
- BS 5228-1 + A1:2014: Code of Practice for noise and vibration control on construction and open sites- Part 1: Noise [5] and Part 2 Vibration [6].
- Guidance for the Treatment of Badgers Prior to the Construction of National Road Schemes [8]

The appointed Contractor will be required to develop an updated CEMP prior to the commencement of any construction works and, if required, this will be submitted to the Planning Authority for approval.

The implementation of all the environmental management measures outlined in this CEMP will ensure that the construction programme will be completed without significant adverse effects on the surrounding environment.

10 REFERENCES

- [1] CIRIA, "C:741 Environmental Good Practice on site (fourth edition)," Construction Industry Research and Information Association, London, 2015.
- [2] CIRIA, "CIRIA C532 Control of Water Pollution from Construction, Guidance for Consultants and Contractors," CIRIA, 2001.
- [3] CIRIA, "C753 - The SuDS Manual," CIRIA, London, 2015.
- [4] NRA, "Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads," National Roads Authority, Dublin, 2010.
- [5] BSI, BS5228-1:2009+A1:2014 Code of Practice for noise and vibration control on construction and open sites. Noise, London: British Standards Institution, 2009.
- [6] BSI, BS 5228-2:2009 2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration, London: British Standard, 2009.
- [7] N. R. Authority, "Guidance for the Treatment of Badgers Prior to the Construction of National Road Schemes," 2006.
- [8] N. R. Authority, "Guidance for the Treatment of Otters Prior to the Construction of National Road Schemes," 2006.
- [9] National Roads Authority, "Guidelines for the Treatment of Bats prior to the Construction of National Road Schemes," National Roads Authority, Dublin, 2006.
- [10] EPA, "Revised Guidelines on the Information to be Contained in Environmental Impact Statements (Draft)," Environmental Protection Agency, Dublin, 2015.
- [11] EPA, Guidance on assessing and costing environmental liabilities, Dublin: EPA, 2014.