Housing Development Old Road, Hayestown, Rush, Co. Dublin

Preliminary Construction and Environmental Management Plan (CEMP)

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Project number: 2020s0434

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Revision History

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1st September 2020	Final Report	O'Briain Beary Architects

Contract

This report describes work commissioned by O'Briain Beary Architects, on behalf of Fingal County Council, by a letter dated 17/03/2020. Conor O'Neill and Emily Rick of JBA Consulting carried out this work.

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Purpose

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Abbreviations

CEMP - Construction and Environmental Management Plan

CIRIA - Company providing research and training in the construction industry

CoW - Clerk of Works

CTMP - Construction Traffic Management Plan

ECoW - Ecological Clerk of Works

FCC - Fingal County Council

NRA - National Roads Authority

NPWS - National Parks and Wildlife Service

PSCS - Project Supervisor for the Construction Stage

SAC - Special Area of Conservation

SPA - Special Protection Area

SuDS - Sustainable Drainage Systems

WWTP - Wastewater Treatment Plant

1 Introduction

This preliminary Construction and Environmental Management Plan (CEMP) has been prepared for a proposed housing development at Old Road, Rush, Co. Dublin. The proposed development is located on residential zoned lands between Hayestown Housing Estate to the north and Old Road L1305 to the south, on the western edge of Rush, Co. Dublin. This preliminary CEMP will form part of the tender documents.

This preliminary CEMP defines 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 project. This plan and methodology seek to demonstrate how works on the project can be delivered in a logical, sensible and safe sequence with the incorporation of specific measures to mitigate the impact on people, property and the environment.

Any constraints and mitigation measures will be required to be interrogated by the Main Contractor as part of the tender process and the specific CEMP to be developed by the Contractor as part of their methodology to complete the works. Approval of the CEMP, to be developed by the Contractor, will be required prior to commencing works on site.

This document should be viewed as an outline plan with the CEMP to be developed by the Main Contractor for implementation throughout the project in consultation with Statutory Undertakers / Authorities and affected Stakeholders prior to works commencing on site.

This review of construction activities covers a description of:

- Duration and phasing;
- Site preparation;
- Construction methods;
- Materials source and transportation;
- Employment and accommodation;
- Dust, noise and traffic;
- Construction safety;
- Waste disposal; and
- Services Requirements.

Proposed environmental measures that will be installed on site during construction are included in this preliminary CEMP. This document will be updated to include any additional conditions proposed by the relevant local authority as a result of their review of the preliminary CEMP.

The CEMP is an integral part of the site health, safety, environmental and quality management system and constitutes a component of the Construction Health and Safety Plan documentation. The CEMP is also subject to the requirements of the site quality management system with respect to documentation control, records control and other relevant measures.

In the event of an accident or emergency on site during the construction period, the CEMP will be reviewed, and procedures amended if necessary. All personnel and sub-contractors will be made aware of the CEMP during the toolbox talks. The site manager or his environmental manager will be responsible for maintaining and updating the approved document.

1.1 Purpose of the Preliminary CEMP

The purpose of this document is to inform all personnel (Main Contractor and sub-contractors) of their obligations with regards to environmental protection. The preliminary CEMP seeks to;

- Provide a basis for implementing construction related mitigation measures to safeguard identified environmental issues;
- Comply with all relevant planning conditions, environmental legislation and statutory consents; and
- Promote best construction and environmental on-site practices for the duration of the works.

The Main Contractor will be required to prepare and implement their own CEMP, which will ensure that their construction activities are planned and will meet the environmental requirements outlined in this preliminary CEMP.

2 Legislation and Guidance

Relevant legislation and best practice guidance that have been considered includes but is not limited to the following.

2.1 National and International Legislation

- Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009;
- Local Government (Water Pollution) Acts 1977-1990
- Habitats Directive (92/43/EEC)
- Wildlife Act, 1976 (S.I. No. 39 of 1976)

2.2 Environment Liability Regulations

The Regulations supplement existing National and European Legislation to achieve the prevention and remediation of environmental damage. Environmental damage under the Environmental Liability Regulations 2008 means:

- Water damage that has significant adverse effects on water status under the Water Framework Directive (2000/60/EC);
- Land damage that creates a significant risk to human health as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms; and
- Damage to protected species and natural habitats.

The Regulations represent an overarching piece of legislation that can be used in concert with all the Agency's existing powers, but will only be used in the appropriate circumstances when environmental damage has occurred as a result of an incident.

2.3 Best Management Guidelines

The following Guidelines will be used, as a minimum, by the contractor to prepare their Method Statements and Environmental Management Plan:

- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. Inland Fisheries Ireland, 2016;
- Fishery guidelines for Local Authority works. Department of Marine and Natural Resources 1998;
- CIRIA – Guideline Document C532 – Control of Water Pollution from Construction Sites;
- CIRIA – Guideline Document C642 – Development and Flood Risk – Guidance for the Construction Industry;
- CIRIA Guidance C515: 'Control of groundwater for temporary works' (Somerville et al., 1986);
- CIRIA Guidance C741: Environmental good practice on site guide (Charles & Edwards, 2015);
- CIRIA Guidance C750D: 'Groundwater control: design and practice' (Preene et al., 2016); and
- CIRIA - Control of water pollution from construction sites - guide to good practice (SP156);
- CIRIA - C648 Control of water pollution from linear construction projects & Site Guide C649;
- NetRegs Guidance for Pollution Prevention for works and maintenance in or near water (NetRegs, 2017);
- Environment Agency Pollution Prevention Guidelines for construction and demolition sites (EA, 2012).
- Inland Fisheries Ireland 2016 Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters;

- Shannon Regional Fisheries Board (SHRFB, 2011) - Planning for watercourses in the urban environment.

3 Project Description

3.1 Site layout

The location for the development is Hayestown, Rush, Co. Dublin. The proposed housing development will be spread over one plot shown below in Figure 3.1, on a greenfield site located on the western edge of Rush, south of a pre-existing housing development (Hayestown), with a vehicular and pedestrian entrance off Old Road L1305. The site is approximately 2.41 hectares in size. The land is zoned RS-Residential: 'Provide for residential development and protect and improve residential amenity'.

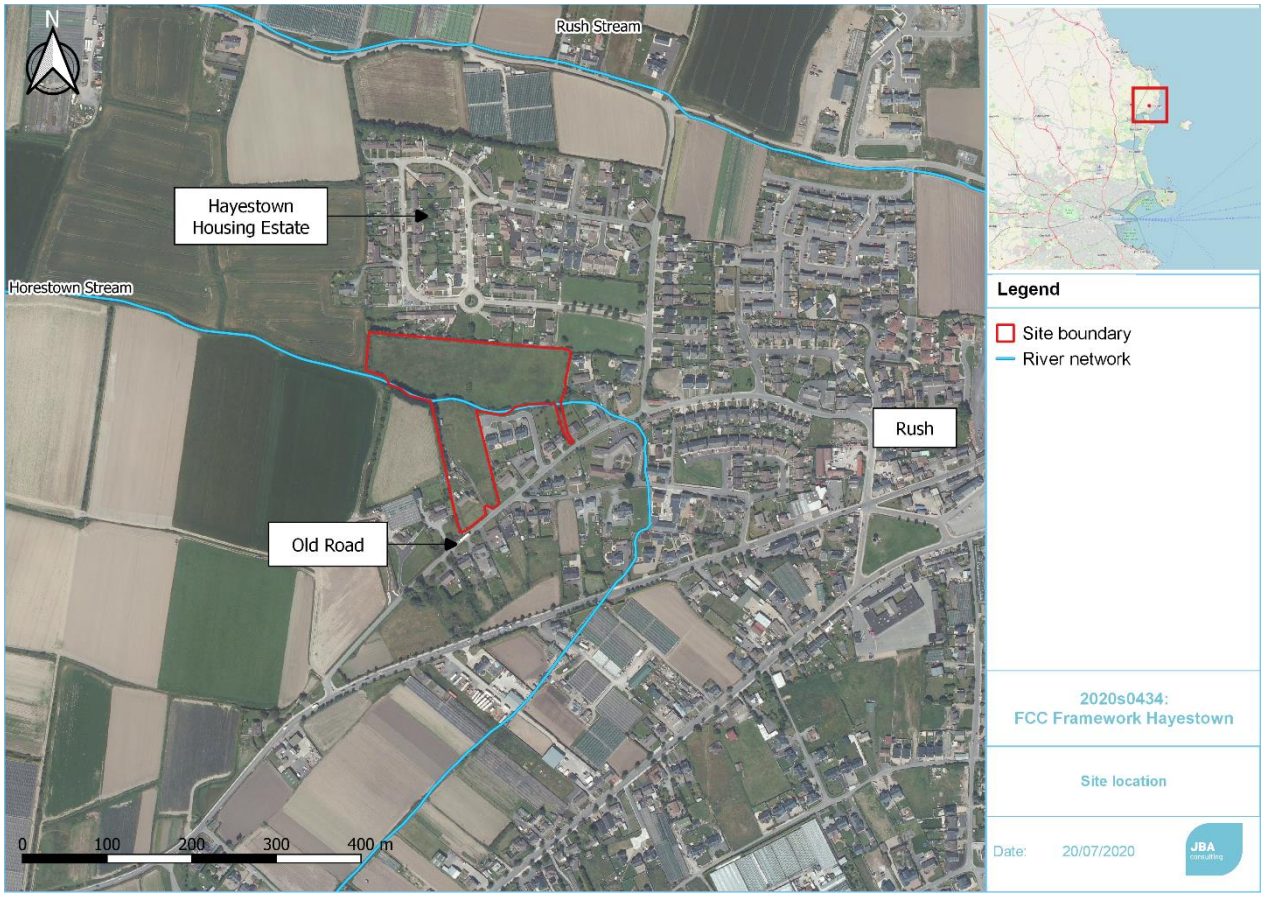

Figure 3.1: Site Location

The proposed development comprises:

- Provision of 62 dwellings, in the following approximate breakdown: 9 No. 2-bed apartments, 9 No. 3-bed duplex, 30 No. 3-bed terraces, 6 No. 3-bed semi-detached, 8 No. 2-bed terraces;
- New street connection to Old Road L1305, associated footpaths, and the provision of new car parking (114 no. spaces);
- New vehicular and pedestrian crossing of Horestown Stream, approximately 10m wide (6m carriageway and 2m footpaths either side);
- Hard landscaping including; homezone areas, bin stores, privacy strip to front gardens, rear garden walls, installation of street lighting etc;
- Soft landscaping including planting of trees;
- Construction of and/or remedial works to boundaries with adjacent sites;
- Construction of foul and surface water and associated drainage works;
- Connection to public utilities;
- All associated site works.

Proposed development works and site preparation include demolition of an abandoned bungalow

in southern section, provision of services including surface water drainage, foul water drainage, and access roadway including a new vehicle and pedestrian crossing of Horestown Stream, and all landscaping.

Figure 3.2 shows the proposed site layout.

Figure 3.2. Proposed site layout

3.2 Drainage

Subject to confirmation from Irish Water, foul water drainage will connect into the existing foul sewer on Doctor's Lane. Allowance has been made in the current proposals to upgrade the 150mm sewer on Doctor's Lane to a 225mm foul sewer, as the existing 150mm sewer may be at capacity. This is indicated on Drawing 5007 of the Civil Engineering report produced by Downes Associates (2020).

SuDS measures are proposed for surface water drainage. Water from rear roofs will be collected in individual water butts for garden use, with excess conveyed to the detention system. Surface water from front roofs, pavements and roadways shall be conveyed to the roadside bioretention system (tree pits or similar linear system). Driveways will be permeable paving for each dwelling.

Excess water which is not absorbed or evaporated shall be conveyed to the detention system. In the Northern section, excess water will be released into the watercourse on site. In the Southern section, excess water will be released into the watercourse southwest of the site at the junction of Old Road and Whitestown Road.

3.3 Watercourses

Three watercourses are in the vicinity of the proposed development, shown in Figure 3.3. These are the Rush Stream, the Palmerstown Stream, and the Horestown Stream.

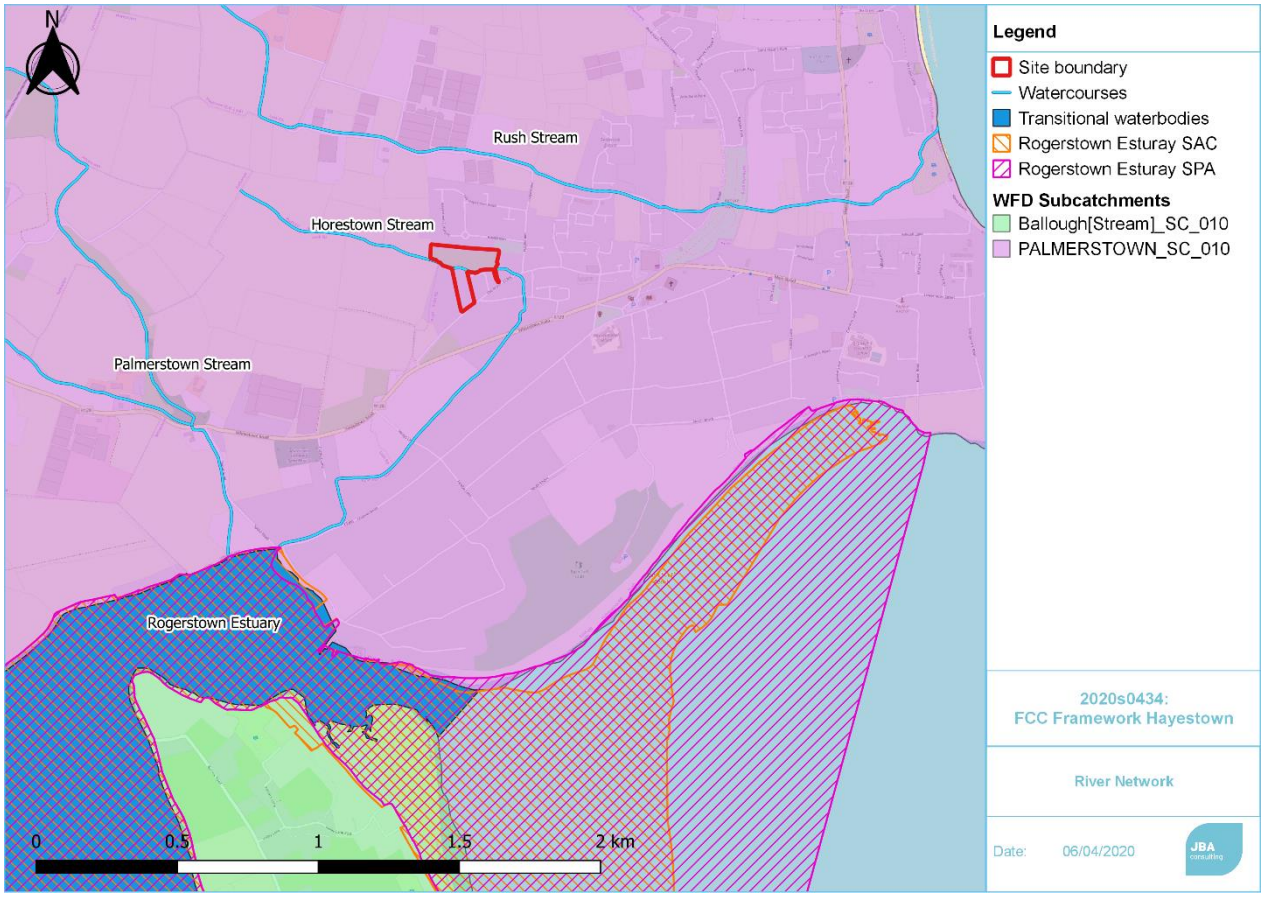

Figure 3.3: Watercourses in the vicinity of the site

Horestown Stream runs through the site from west to east, dividing the north and south sections. The waterbody was not assigned a WFD status for the latest reporting period (2013-2018). However, on leaving the site, Horestown Stream flows approximately 1.6km south to Rogerstown Estuary, which was classed as 'Bad' status for 2013-2018 (EPA, 2020).

Rush Stream is approximately 350m north of the site, running along Brook Lane in an easterly direction. As with Horestown Stream, it was not assigned a status for the WFD 2013-2018 report. Its outfall is on Rush Beach.

Palmerstown Stream is approximately 1.1km south-west of the site, however it was also not assigned a status for the latest WFD report. It drains into Rogerstown Estuary.

The proposal restricts residential development to the higher ground of the site, which will ensure all development is within Flood Zone C, and thus exposed to a lower risk of flooding. No development is proposed within Flood Zones A or B, adjacent to Horestown Stream.

3.4 Ecology

Baseline conditions are based on an ecological walkover conducted by JBA Consulting in May 2020, and June 2020. The surveys included the site of the proposed development and the immediate surrounding area.

The site largely consists of three abandoned agricultural fields, which have reverted to semi-natural grassland. Horestown Stream, which splits the site into northern and southern sections, is a short watercourse, and after almost three months of dry weather between March and May 2020, was dry at the time of the site visit. A number of treelines exist on site, as does a hedgerow in the north western field, and an abandoned bungalow in the south west of the site.

4 Roles and Responsibilities

The Main Contractor is responsible for ensuring that all employees and sub-contractors follow the requirements of the CEMP. The Contractor will be required to provide training and supervision to ensure that the requirements are adhered to.

It is anticipated that the main environmental responsibilities for the key staff will be as set out below (TBC by the Contractor).

4.1.1 Site Manager

The Site Manager will be required to:

- Prepare the site-specific CEMP. This will include the key elements as outlined in this preliminary CEMP;
- Be responsible for ensuring that adequate equipment, adequate control measures and adequate resources are made available to meet the requirements of the CEMP;
- Manage the preparation of the methods statements and will be responsible for implementing these on-site;
- Retain all training records; and
- Retain all records on the quantities of material that leaves the site for disposal, and all disposal records.

4.1.2 Ecological Clerk of Works (ECoW)

- Ensure that all mitigation measures used to protect the environment are in place and are maintained during the work;
- Undertake and report on the weekly monitoring and undertake the weekly site audits;
- Revise the mitigation measure if the monitoring evidence indicates that the measure is not effectively protecting the environment;
- Undertake an invasive species survey in advance of any soil being excavated for disposal off-site. If invasive species are identified the ECoW will prepare an Invasive Species Management Plan;
- Supervise any excavation; and
- Provide toolbox talks to all sub-contractors before they start on site.

4.1.3 Staff and Operators

Staff and operators will be responsible for;

- Attendance at the toolbox talks and ensuring that mitigation measures are in place before the work commences;
- Reporting any environmental incidents to the Site Manager and the ECoW;

All site personnel will undertake site induction prior to carrying out any activity. Induction topics to be covered include:

- Duties and responsibilities;
- Emergency response procedure;
- Site rules;
- Environmental best practice; and
- Waste management and housekeeping.

4.2 Continuous Monitoring

Continuous monitoring of the site will be performed by the site manager.

5 Construction Operations

The work will be contained within the redlined area outlined in Figure 3.1.

The primary construction activities that will take place on the site include:

- Site clearance of vegetation, topsoil etc. to site formation levels;
- Disposal of unusable excavated material off-site;
- Demolition of existing abandoned bungalow on site;
- Profiling and preparation of lands for construction;
- Provide and lay services for the site involving digging of trenches;
- Construction of foul drainage infrastructure, including connection to existing sewer and crossing under existing watercourse on site;
- Concrete foundations for buildings;
- Erection of buildings;
- Construction of car parking, roadways, pathways;
- Landscaping; and
- All associated site works.

5.1 Employment and Accommodation

The construction of the scheme will lead to employment by direct construction work, and indirectly by the requirement for other local support services during the works. Peak construction population on site is estimated to be approximately 200, with an average of 100 persons for the duration of the project (Downes Associates, 2020).

Construction site accommodation will include site toilets, a staff canteen and site office.

5.2 Programme of works

The detailed programme of works will be known at tender stage and the actual construction sequence and program will be confirmed upon appointment of a Contractor.

5.3 Plant

Equipment to be used during the construction of the works will be typical of a project of this scale. In general, the following machinery will be used:

- Diggers;
- Dumpers,
- Forklifts,
- Delivery vehicles for concrete and materials;
- Concrete pumps; and
- Generator.

The main activities on site will involve excavation, fill and construction works. Concrete foundations will be installed as supporting infrastructure for the build.

5.4 Site Confines

The site and proposed works are indicated in Figure 3.1. Site establishment by the Contractor will be limited to the following:

- Setting up of access control to the site;
- Construction traffic management and alert signage, including pedestrian management;
- On-site toilet facility, site offices and site canteen;
- Temporary fencing, hedgerow/tree protection fencing, silt (watercourse protection) fencing and site security;
- Bunded storage of fuels and refuelling area; and
- Storage of materials.

5.5 Construction Timescale

It is anticipated that the scheme will take approximately 12 to 15 months to complete. Working hours are to be confined to between 07:00 – 18:00, Monday to Friday inclusive, and 08:00 – 13:00 on Saturdays, or as determined by the planning authority or local legislation. Work on Sundays and public holidays will not be permitted. Evening and night-time working will not be necessary.

5.6 Method Statements

In advance of any operations commencing at the site the appointed contractor will be required to prepare a Method Statement for approval by Fingal County Council. This may include:

- Location of site compounds;
- Details on hydrocarbon and fuel storage areas;
- Car parking facilities for workers;
- Site security including fencing and hoarding;
- Traffic management plan;
- Waste disposal plan;
- Sediment Management Plan and silt fencing installation;
- Vegetation clearance and earthworks;
- Biosecurity procedures;
- Storm Water Management Plan; and
- Bunding/drip tray proposals for fuel storage & vehicles as required.

5.7 Utilities

The works will require:

- Provision of new foul sewer network;
- Connection of ESB supply;
- Water supply connections;
- Storm water collection system constructed on site by incorporating Sustainable Drainage Systems (SuDS) techniques.

6 Environmental Impacts and Mitigation Requirements

During the construction and operational stages of the development there are potential risks to the receptors from the following:

- Potential leakage of hydrocarbon/lubricants;
- Increased surface water runoff and sediment loading.

Measures will be proposed in the following sections to mitigate against any potentially significant impacts on the surrounding environment in the vicinity of the Site and downstream of the site.

6.1 Planned Erosion and Sediment Control Practices

The function of a Sediment Management Plan is to prevent pollution of surface water from construction works. The risk to water quality must be considered by the contractor and adequate control measures put in place. The presence of Horestown Stream in this area means that there could be a risk to surface water bodies. To prevent this, water that would normally flow over areas of proposed earthworks should be intercepted and diverted around any high-risk areas and be allowed to discharge to the natural environment. Additionally, the water emanating from areas of construction should be intercepted and treated, to remove sediment and any other pollutants before being allowed to dissipate. The use of settling lagoons, settling tanks, or equivalent, with outflow control measures may be used for the interception of surface water or groundwater pumped from an active working area.

6.1.1 Protecting Water Quality

Mitigation measures for the protection of water quality on the site involve silt control, particularly along Horestown Stream.

The risk to water quality must be considered by the contractor and adequate control measures put in place. Material storage and handling measures to contain potential sources of water or soil pollution will be implemented. These will include, but are not limited to:

- The contractor will construct a site compound at a location remote from any water bodies or drains;
- Any lubricants or hydraulic oils will be bunded in bunds that can contain 110% volume of the largest container. Absorbent pig bags will be kept in the site offices. These will be disposed of correctly if used and replaced with new ones immediately. Disposal records for used adsorbent will be retained by the Site Manager;
- All materials taken on-site will be clearly labelled and stored in sealable containers;
- Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (refer to Construction Compound Layout) which will be away from any existing surface water drains which could also provide pathways to the underlying geology.
- A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geo-synthetic material to prevent concrete runoff into the soil media. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.
- The contractor will ensure that no hazardous or noxious materials enter a watercourse or drain. Should this situation arise emergency procedures will be activated;
- During all works the weather forecast will be monitored and a contingency plan developed to prevent damage or pollution during extreme weather. Machinery and equipment will not be left on-site during such events and will be removed beforehand;
- The Contractor is to clean equipment prior to delivery to the site. The Contractor is to avoid using any equipment which leaks fuel, hydraulic oil or lubricant. The Contractor is to maintain equipment to ensure efficiency and to minimise emissions;
- No excavation shall take place below the water-table on the site;
- All soil stockpiles shall be covered (i.e. vegetated) to minimise the risk of rain / wind erosion;

- A Storm Water Management Plan should be completed to address sediment control during the construction works and address the potential risk to release of sediments and various pollutants into local watercourses.
- Management/Response plans will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt run-off.

6.1.2 Silt fencing

A silt fence will be installed on the periphery of the active site (working area of the site if built in stages) to remove potential contamination and suspended solids and trap any sediment delivery during wet weather events.

The silt fence will be a permeable geotextile barrier installed vertically on support posts and entrenched in the ground. Figure 6.1 below illustrates a silt fence in operation on another similar site. The silt fence is to be installed in “smile” and “J-hook” configurations designed to detain sediment-laden sheet flow from the site area and will capture any fine sediment, sand and silt-size particles.

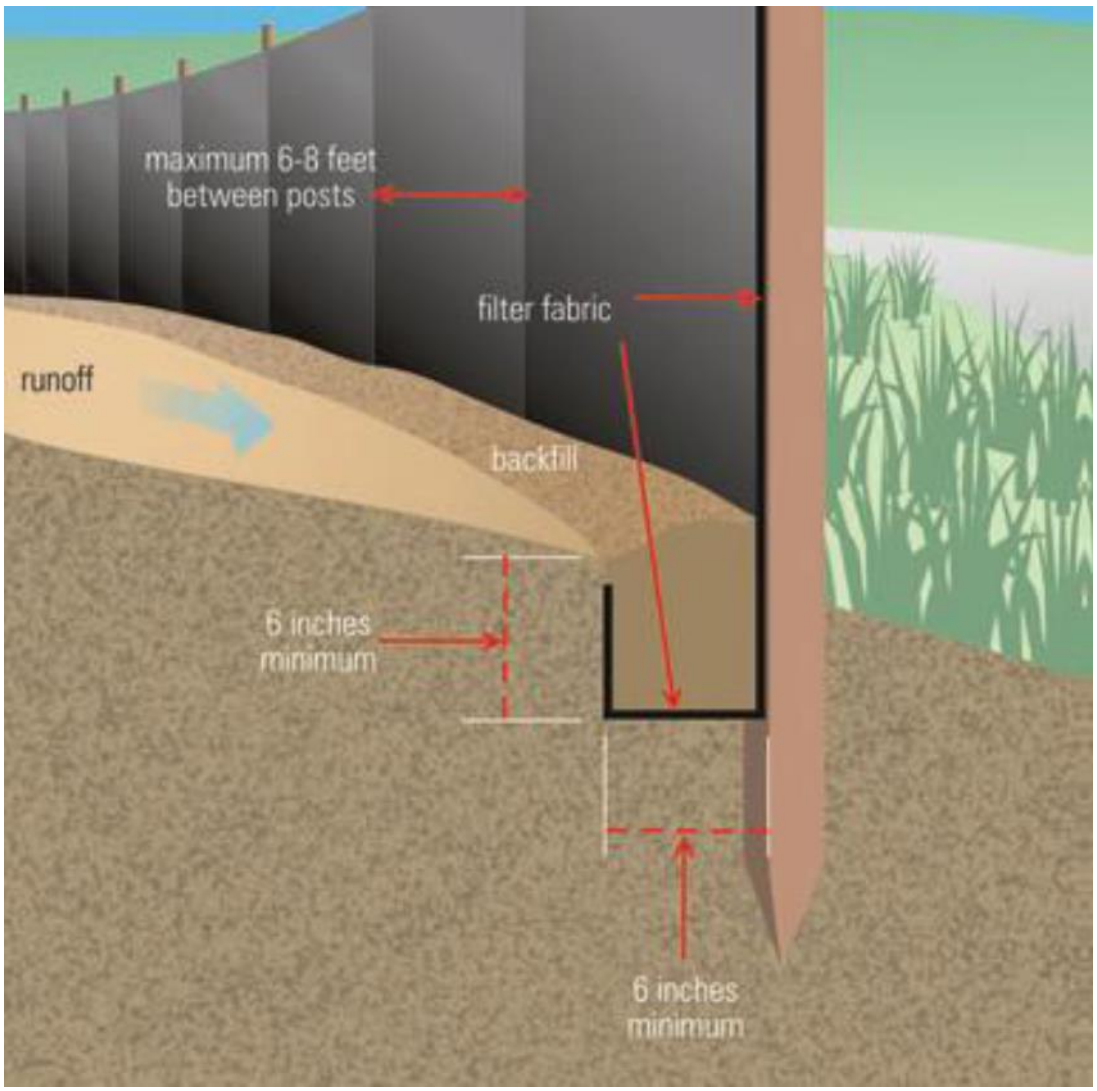

Figure 6.1: Schematic of silt fencing arrangement for site perimeter

6.1.3 Pollution Control and Spill Prevention

Spill kits containing absorbent pads, granules and booms will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site foremen’s vehicles will carry large spill kits at all times. Absorbent material will be used with pumps and generators at all times and used material disposed of in accordance with the Waste Management Plan. All used spill materials e.g. Absorbent pads will be

placed in a bunded container in the contractor's compound. The material will be disposed of by a licenced waste contractor at a licenced facility. Records will be maintained by the environmental site manager.

Regular inspections and maintenance of plant and machinery checking for leaks, damage or vandalism will be made on all plant and equipment.

In the event of a spill the Contractor will ensure that the following procedures are in place:

- Emergency response awareness training for all Project personnel on-site works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Oil booms and oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. The correct disposal of these booms and pads will be demonstrated during the toolbox talks. Records will be maintained by the environmental manager of the used booms and pads taken off site for disposal.
- All hard-standing areas with potential for contamination will be drained to an attenuation pond, via a suitably sized oil/water interceptor where they can be stored for removal and disposal off-site. The site supervisor must ensure that no discharge of suspended solids or any other deleterious matter to the onsite watercourses occurs.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum;
    - Absorbent granules;
    - Absorbent mats/cushions;
    - Absorbent booms.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Track mats, drain covers and geotextile material.
- Any pollutant chemicals, fuels of any kind, concrete additives etc. stored on site throughout the project will be stored in labelled waterproof and secured protective containers to mitigate the risk of pollution of the watercourses; and at no point should there be storage of material or vehicles/machinery within 50m of watercourses
- To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents etc, used during construction will be stored in temporary bunded area within the construction compound.
- Oil and fuel storage tanks shall be stored in designated areas, and these areas will, as a minimum, be bunded to a volume not less than the following;
    - 110% of the capacity of the largest tank or drum within the bunded area (plus an allowance of 30 mm for rainwater ingress). or
    - 25% of the total volume of substances which could be stored within the bunded area.
- The site compound fuel storage areas and cleaning areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.
- Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (refer to Construction Compound Layout) which will be away from any existing surface water drains which could also provide pathways to the underlying geology.
- Mobile plant will refuel over a drip tray with an absorbent mat;
- A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. The pouring of concrete will take place within a designated area using a geo-synthetic material to prevent concrete runoff into the soil media. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility off-site.

- The contractor will ensure that no hazardous or noxious materials enters a watercourse/drain. Should this situation arise emergency procedures will be activated;
- Potentially contaminated run off from plant and machinery maintenance areas will be managed within the site compound surface water collection system.
- Damaged or leaking containers will be removed from use and replaced immediately.

6.1.4 Plant/Machinery

Regular inspections and maintenance of plant and machinery checking for leaks, damage or vandalism will be made on all plant and equipment.

Track mats will be provided and stored onsite for us following heavy rainfall events to prevent break-up of the topsoil cover.

All construction products will be subject to the European Union (Construction Products) Regulations 2013. CE marking will be mandatory for all construction products placed on the market for which harmonised standards are in place. The Construction Products Regulation aims to ensure that reliable performance-related data is made available, by means of Declarations of Performance, in relation to construction products being placed on the European market.

It is envisaged that deliveries of materials will occur on a 'just in time' basis to reduce stocks on site.

6.2 Biodiversity

A number of measures which follow generic best practice are proposed to mitigate the impacts of the proposed development on the ecological environment at the Site:

- All Site construction will be undertaken in accordance with the CIRIA (2015) Environmental Good Practice on Site (Charles and Edwards 2015);
- Any vegetation clearance will be undertaken outside of the bird nesting season (March to August) and under the supervision of a suitable qualified ecologist. If there is a necessity for vegetation clearance within this period, a suitably qualified ecologist must carry out a series of nesting bird checks in advance of any works to ascertain breeding activity in affected areas.
- Lighting will be minimised during hours of darkness and will not illuminate peripheral mature trees and vegetation to ensure no adverse effects on bats and other nocturnal species.

In addition to these generic recommendations, the AA Screening Report completed for this project makes the following recommendations:

- Site lighting that meets the lowest light levels permitted would be preferable for bats in the vicinity. LED luminaires will ideally be used where possible due to their sharp cut-off, low intensity, and dimming capability.
- A height of 6 m or less is suggested for lamp posts.

6.3 Dust, Noise and Vibration

The emission of dust, noise, and vibrations during construction, and possible mitigation measures, are discussed in this section.

6.3.1 Dust Minimisation

A dust minimisation plan will be formulated for the construction phase of the project, as construction activities have the potential to generate some dust emissions. The extent of dust generation is dependent on the nature of the material (soils, peat, sands, gravels, silts etc.) and the location of the construction activity. In addition, the potential for dust dispersion depends on the local meteorological factors such as rainfall, wind speed and wind direction.

During construction, some dust could be generated by activities such as:

- Site fencing;
- Excavation works;
- Construction work;
- Hauling surplus material off site; and
- Movement of vehicles on site during construction.

The Dust Minimisation Plan will outline measures for the control of dust for the duration of the project. A plan for dust minimisation should be included in the Health and Safety plan along with plans for noise and vibration minimisation in order to minimise production of dust, vibration and noise to preserve air quality and also to provide safe and favourable conditions for those working on site and living nearby.

There is a risk that dust may cause an impact on sensitive receptors within 25m of the source of the dust generated. The nearest residential sensitive receptors to the site are located at a distance of <25m in some cases (i.e. houses to the east, west, and north of the site). All sensitive habitats are located at a distance greater than 25m from the emission source, and as a result, the impact on habitats will be imperceptible. Therefore, the impact from construction activities will largely be on human habitation.

Significant dust emissions could arise during dry weather. The use of water suppressants will be used during any dry weather conditions (if required). Where temporary stockpiles are required, the material will be stored in designated areas and will be covered with tarpaulins and/or regularly dampened during dry weather periods.

The temporary stockpile of infill will be covered to avoid dust emissions.

The Dust Minimisation Plan will outline measures for the control of dust for the duration of the project

6.3.2 Noise

A variety of plant will be used, such as diggers, dumpers, forklifts and generators.

There is likely to be temporary and intermittent increases in noise levels during the construction phase of the proposed development at the nearest residential properties. The main sources of noise due to construction of the proposed development will be from activities such as truck movements of excavated and construction materials as well as excavator/loader noise sources.

Proposed practises, according to the guidance offered by BS 5228-1 for the control of noise from demolition and construction activities, include the following:

- Limiting the hours during which site activities are permitted to 07:00-18:00 Monday to Friday, and 08:00-13:00 on Saturdays;
- Establishing channels of communication between the contractor, Local Authority and residents; notification will be provided to residents as to the duration of any works likely to create high levels of noise; and
- A site representative responsible for matters relating to noise will be appointed to liaise with client and residents.

It will be incumbent on the contractor to ensure that construction works are undertaken with particular sensitivity to ensure no significant construction noise impact.

6.3.3 Vibration

Guidance relevant to acceptable vibration within buildings is contained in the following documents:

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration;
- British Standard BS 5228-2: 2009: Code of Practice for Noise and Vibration Control on Construction and Open Sites: Vibration; and
- NRA: 2004: Guidelines for the Treatment of Noise and Vibration in National Road Schemes.

BS 7385 states that there should typically be no cosmetic damage if transient vibration does not exceed 15 mm/s at low frequencies rising to 20 mm/s at 15Hz and 50 mm/s at 40Hz and above. These guidelines relate to relatively modern buildings and should be reduced to 50% or less for more critical buildings.

BS 5228 recommends that, for soundly constructed residential property and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak particle velocity of 15 mm/s for transient vibration at frequencies below 15Hz and 20 mm/s at frequencies above 15Hz. Below these vibration magnitudes minor damage is unlikely, although where there is existing damage these limits may be reduced by up to 50%. In addition, where continuous vibration is such that resonances are excited within structures the limits discussed above may need to be reduced by 50%.

The permissible construction vibration levels during construction phase, as per the National Roads Authority (NRA) document Guidelines for the Treatment of Noise and Vibration in National Road Schemes, is shown in Table 6.1.

Table 6.1: NRA Permissible Construction Vibration Levels

Allowable Vibration (in terms of Peak Particle Velocity) at the closest part of Sensitive Property to the Source of Vibration	Less than 10Hz	10 to 50Hz	59 to 100Hz (and above)
	8 mm/s	12.5 mm/s	20 mm/s

The vibration from construction activities will be limited to the values set out above. It should be noted that these limits are not absolute, but provide guidance as to magnitudes of vibration that are very unlikely to cause cosmetic damage.

The construction phase will be medium-long term and temporary in nature. Limiting the construction hours to daytime only, along with implementation of appropriate noise control measures, will ensure that noise and vibration impact is kept to a minimum and within appropriate levels.

6.4 Materials Source and Transportation

6.4.1 Material Sourcing

In so far as possible, construction materials will be from local sources. All imported material that will be used on site will be procured from approved sources.

All construction products will be subject to the European Union (Construction Products) Regulations 2013. CE marking will be mandatory for all construction products placed on the market for which harmonised standards are in place. The Construction Products Regulation aims to ensure that reliable performance-related data is made available, by means of Declarations of Performance, in relation to construction products being placed on the European market.

6.4.2 Transportation of Materials

Transportation of building materials can significantly contribute to their environmental impact, particularly in relation to use of fossil fuels and emissions of pollutants and carbon dioxide. For this reason, insofar as possible, construction materials will be sourced from local suppliers.

Construction of the proposed scheme will require the delivery to site of minimal quantities of construction materials. The bulk of these materials will be concrete for the walls, gate foundations and footpath surfacing, and tarmacadam for the realigned roads.

In terms of the effect of the construction works on current traffic movements and access arrangements, the proposed works will strive to minimise interference with same.

6.5 Traffic

6.5.1 Site Access

A detailed Construction Traffic Management Plan (CTMP) for the proposed works will be prepared prior to the commencement of construction by the contractor to ensure the safety of road users and construction personnel.

All vehicles entering and exiting the site, including material and equipment deliveries and cars/vans (Contractor's personnel, client staff and Visitors) will do so via an agreed route which will be outlined in the traffic management plan.

Temporary construction stage traffic measures required will be implemented together with traffic signage in accordance with the Department of Transport's Traffic Signs Manual and particularly Chapter 8 entitled "Temporary Traffic Measures and Signs for Road works".

6.5.2 Traffic Management Plan

The Construction Traffic Management Plan (CTMP) will be agreed between the Contractor, local authorities and client's Representative. The following should be considered:

- Delivery times (during operational phase) are to be limited to the specified working hours, i.e. 07:30-18:00, Monday to Friday and 08:00-14:00 on Saturday;
- Construction vehicles will follow the hierarchy of the existing road network and use suitable routes to and from the site;
- Deliveries to site are to be restricted to quiet periods, where possible;
- A wheel wash facility should be provided if necessary;
- Appropriate information and signage along construction routes must be provided on approach roads either side of the construction site;
- Where appropriate, vehicle loads are to be securely sheeted and restrained prior to dispatch;
- Consultation with the local authorities regarding enhancement measures and concerns regarding accidents and road safety along the proposed is recommended; and
- Traffic signage and temporary construction stage traffic measures are to be implemented in accordance with the Department of Transport's Traffic Signs Manual, particularly Chapter 8 entitled "Temporary Traffic Measures and Signs for Road works".

6.6 Asbestos

An asbestos survey has been carried out (Report No: PE 20-418) for the abandoned building on site prior to demolition. All asbestos noted in the report must be removed in accordance with the relevant legislation and disposed of by a suitably trained asbestos removal contractor to an appropriately licensed facility.

6.7 Archaeology

Archaeological mitigation measures will be subject to the findings of test excavations being undertaken by Archer Heritage Planning Ltd.

The current policy of the Minister for Culture, Heritage and the Gaeltacht is the preservation in situ of archaeological sites. Where preservation in situ cannot be achieved, then a programme of full archaeological excavation will be implemented to ensure the preservation by record of the portion of the site directly affected.

PLEASE NOTE: the above recommendations are subject to the approval of the National Monuments Section at the Department of Culture, Heritage and the Gaeltacht.

6.8 Waste Management

6.8.1 Clearance and Excavation

During the construction phase the excess soil/subsoil will be removed off site. These activities will be detailed in a Construction Waste Management Plan to be produced by the appointed contractor. A preliminary estimate indicates that somewhere in the range of 7,000 cubic metres of bulk excavation and removal will be required. Encounters with contaminated ground are not anticipated. One invasive non-native species, Himalayan Honeysuckle (Pheasant Berry) *Leycesteria formosa,* was found within the site boundary. This species is not listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011 and does not need to be managed.

Excess inert soils and sub-soils will be recovered off-site. Soil will only be removed by authorised waste collectors to an authorised site. Any material excavated at the site, which is deemed to be contaminated (i.e. non-hazardous or hazardous) will be stored separately to the inert material, sampled and tested, in order to appropriately classify the material as non-hazardous or hazardous in accordance with EC Council Decision 2003/33/EC10, which establishes the criteria for the acceptance of waste at landfills before being transported to an appropriately authorised facility by permitted contractors.

Discussions about the acceptance of the material should be undertaken with individual landfill operators before removal of any material from site is carried out and further investigation may be required to satisfy the operators requirements. Any nearby sites requiring clean fill/capping material

will be contacted to investigate reuse opportunities for clean and inert material, if encountered. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011, as amended. Similarly, if any soils or stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27. If the material is deemed to be a waste, then removal and reuse/recycling/recovery/disposal of the material will be carried out in accordance with the Waste Management Acts 1996 – 2011 as amended, the Waste Management (Collection Permit) Regulations 2007 as amended and the Waste Management (Facility Permit & Registration) Regulations 2007 as amended.

The volume of waste removed will dictate whether a Certificate of Registration (COR), permit or licence is required by the receiving facility. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered. Contaminated material will be required to be removed from site for treatment or disposal as appropriate.

6.8.2 Construction Waste

Both solid and liquid waste will be produced on site during construction. The expected waste types to be produced include concrete, tarmacadam, clay excavation and day-to-day municipal refuse (generated by construction workers).

All solid waste generated during the construction phase will be adequately segregated and stored prior to transfer to an authorised facility for recovery/recycling/disposal. Waste material will be contained in a waterproof container to be secured at night or will be removed from the site at the end of each day

All domestic effluent generated on site during the construction phase will discharge to temporary sewage containment facilities prior to transport and treatment off-site by an authorised contractor.

6.9 Pest Control

It is recommended that a rodent and pest control plan is put in place to manage and limit any potential disturbance to populations that may utilise the site. The pest control plan should be in accordance with the following guidelines:

- Chartered Institute of Environmental Health (CIEH) “Pest minimisation: Best practice for the construction industry” or a similar appropriate standard.

A Pest Control Plan for the construction phase shall be completed and included in the Contract specific CEMP written by the Contractor.

6.10 Biosecurity

Under European legislation, Regulation (EU) No 1143/2014 prohibits the introduction and dispersal of invasive alien species listed in the Third Schedule. Many of the species listed are highly effective at colonising disturbed ground (e.g., construction sites) and as such particular care must be taken.

One invasive non-native species, Himalayan Honeysuckle (Pheasant Berry) *Leycesteria formosa,* was found within the site boundary. This species is not listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011 and does not need to be managed.

A biosecurity plan shall be completed for the construction phase and included in the Contract specific CEMP written by the Contractor.

7 Ecological and Environmental Constraints

7.1 Appropriate Assessment

A Screening for Appropriate Assessment report for this development was produced by JBA Consulting (2020a) as part of the planning submission.

In the Screening Assessment, it was determined that no likely significant impacts are expected as a result of the proposed development, provided certain recommendations are adhered to. These are:

- The recommendations in this preliminary CEMP, particularly those in Section 6, are adopted into the site-specific CEMP;
- No major works to occur within 10m of Horestown Stream, except for the proposed bridge.

7.2 Environmental Impact Assessment

An Environmental Impact Assessment Report (EIAR) Screening was also completed by JBA Consulting (2020b) for this project. That report concluded that the proposed development did not automatically trigger an EIAR under Schedule 5 (Parts 1 and 2) of the Act.

The Screening report also assessed whether the proposed development would fall under the category of sub-threshold development, with the potential to give rise to significant environmental impacts. The conclusion was that the project did not fall under the category of sub-threshold development. Any potential impacts identified by the EIA Screening report will be mitigated if the recommendations in this preliminary CEMP are adhered to.

8 Health and Safety

As required by the Regulations, a Health and Safety Plan will be formulated which will address health and safety issues from the design stages through to the completion of the construction and maintenance phases. This plan will be reviewed as the development progresses. The contents of the Health and Safety Plan will follow the requirements of the Regulations.

In accordance with the Regulations, a “Project Supervisor Design Process” has been appointed and a “Project Supervisor Construction Stage” will be appointed as appropriate.

The Project Supervisor Construction Stage will assemble the Safety File as the project progresses. The Safety File will be incorporated into the overall technical record system at the end of the project.

Conditions on the site must be included in the creation of the Safety file, better working conditions such as minimising dust, vibration etc. must all be included as elements of the health safety plan. The plan should include plans for minimisation of dust, vibration and noise to provide a safe place of work.

A Project Safety Plan will be developed to ensure that the safety of human beings is not impacted on in a negative way by the construction works. All visitors to the site will be required to report to the site manager and the site is to be adequately secured to prevent unauthorised access. These measures shall not have any negative impact on the safety of human beings when implemented. Ensuring that relevant health and safety legislation is adhered to and that recommended mitigation measures are implemented is the responsibility of the ‘Project Supervisor Construction Stage.’

8.1 Emergency Response Plan

8.1.1 Objective

The emergency response plan is a process/procedure for dealing with environmental preparedness and response. The PSCS for the project will, as required by the Safety Health and Welfare legislation, have prepared emergency procedures for major accidents on-site.

If an environmental emergency arises, the contractor will implement the Environmental Emergency Procedures. The procedure will be prepared with and agreed to by FCC in advance of work proceeding at the site. The most likely causes of an environmental emergency may arise:

- Rupturing of hydraulic hose pipes on the excavator and discharge of potentially polluting materials;
- Rupturing of a silt curtain during heavy periods of rain; and
- An uncontained spillage in the contractor’s compound.

All contractors and sub-contractors will be made aware of the Emergency Response Plan. The Emergency Response Plan will address, as a minimum:

- Fuel handling procedures;
- Silt curtain construction details;
- Adequate supplies of spill control equipment;
- Traffic accidents on the public road;
- Notification procedures; and
- Measures to protect water in the event of a spillage.

8.1.2 Procedure

In the event of a spill the Contractor will ensure that the following procedures are in place:

- Emergency response awareness training for all Project personnel on-site works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum;

- Absorbent granules;
- Absorbent booms; and
- Absorbent mats/cushions.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Track mats will be provided to ensure access following heavy rainfall.
- Any contaminated materials/soil media will be segregated, analysed and disposed of by a licensed waste disposal contractor.

8.1.3 Contact personnel in the event of an environmental emergency

Provided below is some contact details for organisations/statutory bodies that should be contacted if an environmental emergency arises on site. The appointed Contractor will add to this as needed.

- Environment Section – FCC, County Hall, Swords, County Dublin 01 890 5919
- Inland Fisheries Ireland, 3044 Lake Drive, City West Business Park, 01 884 2600
- Local Ranger, NPWS, 90 North King Street, Dublin, 01 888 3242

9 Operational Stage

Limited operations are envisaged during the operational stage of the development. There will be no permanent processes onsite that will pose significant risks to the environment.

Runoff and drainage from roofs and parking areas will be managed via SuDS. Extensive grass areas will be provided, and water butts used to collect rainwater for garden use.

A vegetated buffer strip of at least 15m will be maintained along Horestown Stream where it passes through the development site. This buffer strip already contains riparian vegetation. The planting of suitable native tree species (e.g. willow species) and tall herbs suitable for damp/wet soils using native wildflower seed mix is advised. This is especially important as the buffer strip bordering the watercourse will act to minimize overland runoff to watercourses that have hydrological links to protected watercourses further downstream.

10 Summary

Construction Phase

Prior to works, several critical drainage, erosion, and sediment control measures require consideration. These measures should be thought out and implemented sequentially to ensure effective mitigation against sediment delivery and pollution risks. The general construction sequence for these measures is presented below:

1. Obtain all necessary permits, licences and approvals before site establishment.
2. Establish a single, stabilised entry/exit point. Stabilize with gravel to prevent soil erosion.
3. Install sediment fence(s) on the site, downslope of the works.
4. Divert up-slope water around the work site and stabilise drainage channels.
5. Clear only those areas necessary for building works to occur.
6. Strip and stockpile the topsoil before commencing earthworks or excavations.
7. Stockpile erodible materials within the sediment control zone.
8. Stabilise exposed earth outside of the proposed construction locations (e.g. mulch, turf, erosion control blankets).
9. Excavations will be infilled as soon as possible to limit the risk to the environment.
10. Install on-site waste receptors (e.g. mini-skips, bins, wind-proof litter receptors).
11. There will be no large-scale storage of chemicals, hydrocarbons or any other potential environmentally damaging chemicals on site.
12. There will be no storage of chemicals in the vicinity of open excavations.
13. The construction compound will be designed and located to minimise the risk of contamination to the underlying and surface water environment.
14. All chemicals will be contained within dedicated bunded storage areas.
15. Emergency response plans will be devised to ensure a rapid response to spillage event onsite.
16. Commence building activities.
17. Establish the site's underground drainage system.
18. Connect roof water downpipes to the permanent underground drainage system as soon as the roof and guttering are laid.
19. Regularly inspect all drainage, erosion and sediment control measures and maintain all measures in proper working order at all times.
20. Progressively revegetate/stabilise the site. Remove any remaining temporary drainage, erosion and sediment control measures upon complete stabilisation of the site.

Operational Phase

The operational phase will include the following measures which include designs and enhancements which together will act to mitigate against the perceived risks assessed in the AA document (JBA Consulting, 2020a).

- SuDS components to promote attenuation, treatment, and infiltration, reducing the need for offsite conveyance;
- Vegetated buffer strip around Horestown Stream.

References

Archer Heritage Planning (2020) Hayestown, Rush, Co. Dublin: Archaeological Impact Assessment

Downes Associates (2020) Proposed Housing at Hayestown, Rush, Co. Dublin: Civil Engineering Report

JBA Consulting (2020a) Housing Development, Old Road, Hayestown: Screening for Appropriate Assessment

JBA Consulting (2020b) Housing Development, Old Road, Hayestown: EIAR Screening Report

Phoenix Environmental Safety Ltd. (2020) Asbestos Survey Report, Old Road Bungalow, PE 20-418

Appendices

A: Proposed Foul Water Drainage

B: Proposed Surface Water Drainage

C: Proposed Landscape Masterplan

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