TOBIN

Station Road Residential Development

Preliminary Construction Environmental Management Plan

BUILT ON KNOWLEDGE

Document Control Sheet	
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1. INTRODUCTION

Our Client, Kildare County Council are proposing a new social housing development located in Kildare Town, Co. Kildare.

TOBIN have been commissioned to prepare a Preliminary Construction and Environmental Management Plan (CEMP) for the proposed development.

1.1 PURPOSE

This preliminary CEMP will be provided to the Main Contractor for implementation during of the site clearance and construction stages. It will be considered as a 'Live Document' and will be updated accordingly throughout the project as required.

The purpose of this preliminary CEMP is to:

- Identify stakeholder requirements.
- Ensure compliance with the grant of planning.
- Effectively avoid any potential significant adverse environmental effects during site clearance and construction; and
- Translate mitigation measures set out in the planning documentation into committed site procedures.

On appointment, the Main Contractor is required to implement the mitigation and protective measures set out in this document and maintain environmental monitoring records for the duration of the project which shall be made available to representatives from Kildare County Council for inspection on request.

It will be the responsibility of the Client and the Contractor employed to update and add (where required) specific control measures relevant to the environmental management plan and procedures, taking into account any conditions imposed on any planning permissions granted.

The control measures will be amended by improvement with regards to environmental protection and will take cognisance of additional environmental commitments arising from planning conditions.

The Client will oversee the process through appointment of the Contractor with input from the Project Engineers and oversight from the planning and project team. The Contractor will be contractually obliged to comply with the CEMP.

Mitigation measures set out in this CEMP comply with the following relevant CIRIA and Inland fisheries guidance documents:

- CIRIA Good Practice Guidelines (C532 – Control of Water Pollution from Construction Sites)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016).

1.2 AA/ EIA Screening / Biodiversity Statement

This Preliminary Construction and Environmental Management Plan (CEMP) is to be read in conjunction with the AA and EIA Screening Reports and Biodiversity Statement prepared by Brady Shipman Martin (BSM) and is to take consideration and note the mitigations measures contained within the reports.

The Contractor is to carefully consider and implement the mitigation measures as outlined in Section 3 of the Biodiversity Statement. According to the AA and EIA Screening Reports and Biodiversity Statement the proposed development will not have significant effect on the environment or designated conservation areas, including European sites.

1.3 Roles & Responsibilities

The Contractor is responsible for ensuring that all members of the Project Team, including sub-contractors, comply with the procedures set out in the CEMP. The Contractor will ensure that all persons working on site are provided with sufficient training, supervision and instruction to fulfil this requirement. The Contractor will ensure that all persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood. The principal environmental responsibilities for key staff can be identified as follows:

Site /Construction Manager

The Site Manager's environmental management responsibilities include, but are not limited to:

- preparation and implementation of the CEMP;
- close liaison with the Environmental Manager to ensure adequate resources are made available for implementation of the CEMP;
- ensuring that the risk assessments for the control of substances hazardous to health regulations (COSHH), noise and environmental risk are prepared and effectively monitored, reviewed and communicated on site; and
- managing the preparation and implementation of method statements. Ensuring that the Environmental Manager reviews all method statements and that relevant environmental protocols are incorporated and appended.

Environmental Manager

The responsibilities of Environmental Manager include, but are not limited to:

- maintaining environmental records;
- providing guidance for the site team in dealing with environmental matters, including legal and statutory requirements affecting the works;
- reviewing environmental management content of method statements;
- reporting environmental performance to the Site Manager;
- liaison with statutory and non-statutory bodies and third parties with an environmental interest in the scheme; and
- collection and collation of CEEQUAL evidence.

Engineering Staff

The engineer's environmental management responsibilities include, but are not limited to:

- reporting any operations and conditions that deviate from the CEMP to the Site Manager;
- taking an active part in site safety and environmental meetings; and
- ensuring awareness of the contents of method statements, plans, supervisors' meetings or any other meetings that concern the environmental management of the site.

Supervisors

The supervisors' environmental management responsibilities include, but are not limited to:

- ensuring all personnel affected by a method statement are briefed and fully understand its content. Monitor operatives for compliance, including sub-contract operatives;
- implementation of environmental management activities required by the CEMP and works method statements; and
- ensuring that all inspections are carried out as prescribed in the CEMP.

Ecological Clerk of Works (ECoW) (if required as part of the Client's supervisory site staff)

The ECoW will be on site when required to monitor work to ensure that no wildlife comes to harm and also to provide advice to site workers regarding best practices. ECoW duties include, but are not limited to:

- maintain a watching brief on the proposed mitigation measures included for the protection of European sites.
- monitoring site works;
- provision of status reports and updates;
- provision of advice to and liaison with workers on site;
- identifying environmental risks and developing environmental controls;
- delivery of environmental training for site personnel and sub-contractors; and
- liaison with the Site Manager.

Archaeologist (if required)

The Archaeologist will be on site when required to monitor excavation works and also to provide advice to site workers regarding best practices. The archaeologist's duties include, but are not limited to:

- excavation and watching briefs, as required;
- production of detailed method statements to define how archaeological mitigation is to be sequenced with earthworks operations;
- certification of cleared areas prior to commencement of construction works;
- agreeing areas for topsoil strip or the use of toothless buckets;
- ensuring that all scheduled state care monuments and other known archaeological features requiring protection are demarcated with protective fencing and adequate signage;
- provision of induction training to site teams on archaeological controls;
- providing instructions to the site teams on how and when to access expert advice and opinions; and
- examination of incidental or unexpected finds; and agreeing programmes with the Site Manager for investigation and recording of the archaeological remains.

2. SITE LOCATION AND LAYOUT

The proposed development is located within Kildare Town, co. Kildare. The access to the site will be via Station Road located along the western site boundary. The site is illustrated on Insert 2.1 below.

The proposed development consists of:

- The construction of 30 social housing units to include:
    - 5no. 3 bedroom two storey duplex apartments;
    - 1no. 3 bedroom three storey house;
    - 2no. 2 bedroom two storey houses;
    - 2no. 2 bedroom single storey apartments;
    - 4no. 2 bedroom 3 person single storey apartments;
    - 6no. 2 bedroom two storey duplex apartments;
    - 10no. 1 bedroom single storey apartments;

  The construction of ancillary structures to include:
    - ESB substation;
    - Switchroom;
    - Secure cycle storage rooms;
- Associated site works to include:
    - Demolition of 2no. existing cottages and associated ancillary structures on Station Road;
    - Erection of new boundary treatment to south, east and north boundaries;
    - New vehicular and pedestrian entrance from Station Road;
- Provision of:
    - 26no. vehicle parking spaces
        - Of which 6no. provided with EV charging points
    - 54 no. residents bicycle parking spaces
        - Of which 4no. suitable for adapted cycles / cargo bikes
    - 16no. visitor bicycle parking spaces
        - Of which 4no. suitable for adapted cycles / cargo bikes
- New landscaping, internal vehicular and pedestrian shared surface route, public lighting, site drainage works, ancillary site services and development works above and below ground.

Insert 2.1 - Site Location Map © Google

Insert 2.2 – Extract from Proposed Development Site Plan

3. CONSTRUCTION LOGISTICS

3.1 SITE CONTACT DETAILS

The Construction Site Contact details will be updated on the event that Planning permission is granted, and the Client progresses to the construction stage of the project:

Site Manager – TBC

Phone No. – TBC

Email – TBC

Out of Hours Contact: TBC

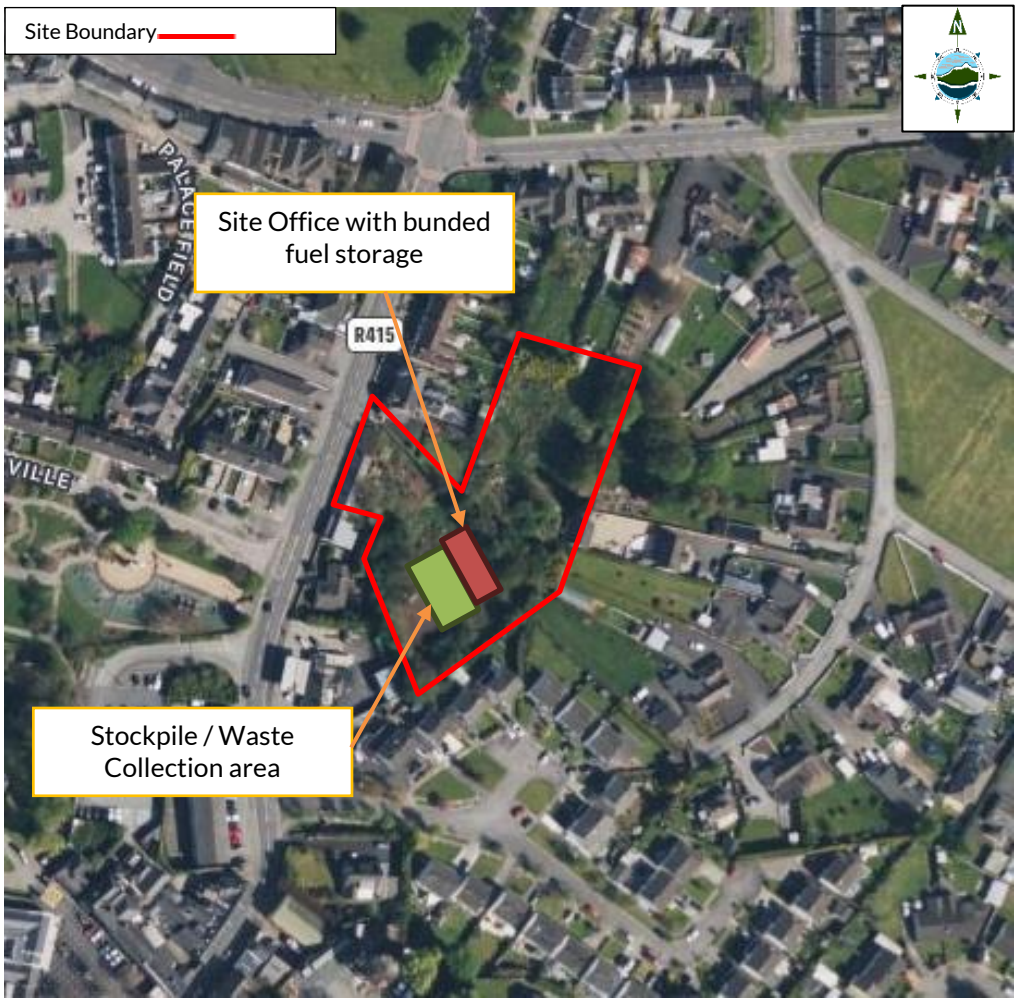
The above contact details will be posted at the site entrance gate and will be clearly displayed for public information. Any changes to the above details during the proposed works will be notified to Kildare County Council and amended on-site.

3.2 CONSTRUCTION COMPOUND AND STORAGE AREAS

The construction compound for the development will be located in the southern side of the proposed site as demonstrated in the following Insert 2.3. Note that the office location and layout will be agreed with the Main Contractor appointed for the works.

Only plant and materials necessary for the construction of the works will be permitted to be stored at the compound location. Portaloo's will be provided in the compound initially with a dedicated toilet block installed at a later date and connected to the existing foul drainage network. Electrical and potable water supply will be provided from the existing connections.

Waste skips / bins can be located adjacent to the site office as indicated in the green area identified below. Containers and skips used for construction waste handling will be moved close to the work face, as required.



Insert 2.3 - Site Location Map (Source: Google Maps)

Incoming construction materials will be offloaded and stored in the materials compound to be located adjacent to the site office. Note that the compound location and layout will be agreed with the Main Contractor appointed for the works and allow for the programming and phasing requirements for the subject site.

3.3 Site Access and Security

Access to and egress from the construction site will be via the existing Station Road. There will be sufficient space for construction vehicles to enter onto the site for delivery of materials and collection of waste without causing an obstruction on the public road network.

The site will be secured using temporary fencing or hoarding at all times to ensure that the ongoing works are separated from the public. Netting will be erected on any fencing used to prevent debris and dust release from the site and provide screening of the construction and works. A secure lockable gate will be erected at the site entrance and visitors to the site will be directed to the adjacent site office. The Site management team will carry out regular inspections and maintenance of the security fencing/ hoarding while also ensuring areas are kept clean.

3.4 Construction Programme

It is anticipated that the construction works will last for approximately 70 weeks. This will be confirmed upon appointment of a Main Contractor.

Insofar as is possible, ground excavation works will be scheduled during periods of dry weather to minimise potential for silt laden run-off from the works or requirements for wheel wash facilities.

3.5 Working Hours

It is proposed that Construction works will be carried out between the hours of 08:00 and 18:00 from Monday to Friday and 08:00 and 14:00 on Saturdays.

No construction works will be carried out on Sundays or Bank Holidays, without the specific agreement of Kildare County Council.

Note that the working hours will be confirmed by Kildare County Council on grant of a planning permission.

3.6 Pre-Construction Surveys

Topographical, Site investigation and utility surveys have been carried out for the site and will be made available to Contractor.

The Contractor will be required to carry out a pre-condition photo survey of the site which will include all perimeter boundaries, footways, existing carriageway on approach to the site. Any damage caused to existing boundaries or elements to be retained will be rectified by the Contractor in accordance with relevant standards.

The Contractor will also be required to carry out all surveys as identified within the AA and EIA Screening Reports and Biodiversity Statement prepared by Brady Shipman Marin (BSM).

4. CONSTRUCTION OPERATIONS

The proposed development will be constructed on the site area described above and all activities relating to the works will be contained within these site boundaries for the duration of the works. The following is a non-exhaustive list of the primary construction activities to take place on this site for this development:

- Erection of Site hoarding
- Demolition of the existing structures
- Construction of new access road
- Diversion works to existing services on site
- On-site cut/fill earthworks operations
- Formation works to suit proposed site development
- Installation of building foundations and building structural frames
- Construction of superstructures
- Completion of on-site drainage
- Internal fit out and building finishes
- Completion of external pavement surfaces
- Landscaping works
- Repairs to existing site boundary walls

4.1 MITIGATION MEASURES

4.1.1 Construction Stage:

The Main Contractor will ensure that fully detailed records are maintained of any incident / event likely to cause non-compliance and / or harm to the environment. Environmental incidents / near misses should be reported and recorded.

All materials should be stored so that they are resting at a level higher than the projected flood level on this site. This will ensure that no contaminants can spill from stored materials to groundwater during the construction phase of these works.

Appropriate protection bunds may be required for the storage of fuel and chemicals during the construction stage. It would be advisable to also store these materials away from any excavated or low-lying areas on this site and to include a response plan for construction personnel in the CEMP if flooding were to occur.

4.1.2 Post-Construction

The proposed surface water collection network includes for the provision of a new on-site attenuation system that has been designed in accordance with the requirements of the SUDS Manual (CIRA Publication C697). A site-specific drainage strategy has been prepared for this proposed development and is provided as part of the Planning Application Package. This Report includes for the assessment of the existing system (if any) in the current site and an evaluation

of appropriate discharge values from the proposed development site, including storm water attenuation system proposals for this development.

This design strategy also proposes to install a suitable flow control device on the discharge pipe from the attenuation tank so as to maintain an acceptable discharge rate from this site. The design strategy will account for a 1 in 100-year event, plus 30% climate change and 10% urban creep factors.

Please refer to the Engineering Design Report accompanying this Planning Application for more specific details on the proposed surface water collection and attenuation system.

4.2 Oil and Fuel Storage

Where possible, refuelling of vehicles and equipment will not be carried out on site to minimise the potential for spills or leaks to occur. However, some fuel, lubricants and hydraulic fluids will need to be stored on site during construction works for equipment such as excavators and generators.

Fuelling and lubrication of equipment will only be carried out in a designated area of the site away from any existing manholes or gullies. At present, it is proposed that fuel and lubricants will be stored adjacent to the materials compound as shown in Section 3.2 above. Fuels and oils will be contained within a bunded structure with capacity for 110% of the storage capacity of the largest container/tank. This bunded area will be roofed appropriately to exclude rainwater.

The fuel storage area will be properly secured to prevent unauthorised access or vandalism and all triggers will be locked when not in use. Spill kits and drip trays will be used during refuelling to collect any potential spills or overfills. No vehicles or containers will be left unattended during refuelling.

Mobile fuel bowsers may be used for refuelling heavy equipment. Bowsers used will be double skinned and spill kit/drip tray equipment will be used during refuelling which will take place away from any nearby drains or watercourses and from any surface water drainage gulleys.

4.2.1 Environmental Response Procedures

Spill kits will be made available on site and identified with signage for use in the event of an environmental spill or leak. A spill kit will be kept in close proximity to the fuel storage area for use in the event of any incident during refuelling or maintenance works. Heavy machinery used on the site will also be equipped with its own spill kit.

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 appointed Project Environmental Manager of the used booms and pads taken off site for disposal.

In the event of an environmental incident, the appointed Project Environmental Manager will be notified immediately, and absorbent materials used to prevent the spread of the spill/leak. The contaminated materials will be transferred to leak-proof storage containers and any contaminated soils or gravels excavated and removed off-site. A record of the incident will be kept, and Kildare County Council will be notified.

4.2.2 Training and Awareness

All site staff will be required to compete an induction prior to commencement of works on the site. The details of the site induction will be provided by the main contractor in the *Construction Health & Safety Plan*.

As part of the site induction, all site staff will be made aware of the presence of the sensitive ecological areas in the vicinity of the site. Employees will also be informed about the risks associated with stormwater runoff to soakaways on site and will be required to ensure no runoff or chemicals will enter the network or soakaways once installed.

During the project works, the Site Manager or Project Environmental Manager will deliver strategic toolbox talks focused on potential environmental and safety risks associated with the works being carried out at that stage of the project.

5. HEALTH AND SAFETY

The main Contractor is required to provide a best practice working environment for all employees involved in the construction of the proposed development. This includes a responsibility to take into account all relevant statutory laws and guidelines.

All construction activity will be carried out in accordance with the requirements of the *Safety, Health and Welfare at Work (Construction) Regulations 2013*. The main contractor will be required to prepare a *Construction Health & Safety Plan* prior to commencement of construction activities.

In the case of an emergency at the site, the following procedures shall be followed:

- Emergency services will be contacted immediately by dialling 112 or 999;
- Exact details of the emergency/incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner;
- The emergency will then be reported to the Site Manager;
- Where available, trained site first aiders will attend the incident; and
- The Site Manager will maintain contact with the emergency services to ensure they have directions to the site.

In the case of an incident where the emergency services are not required, any persons injured will be taken to the nearest hospital by the Site Manager or other appointed person. The nearest hospital to the site is:

HSE Kildare Primary Care Centre

– located c. 0.5 km to the south of the site Station Road

Phone No. – (00353) 45908500

Driving Time – c. 3 minutes

Minimum PPE required during the construction works will include protective footwear, high visibility vests, gloves, safety glasses and hard hats. Ear defenders will be used during noise works, as required.

Further details will be set out on the *Construction Health & Safety Plan* to be prepared by the appointed Contractor.

Signage will be erected at the site entrance to warn the public of the ongoing construction works. The signage used will be similar to that shown in the Insert below.

Insert 4.1 – Example of Site Safety Signage

6. CONSTRUCTION TRAFFIC MANAGEMENT

The majority of construction traffic coming to and leaving the site will use the internal access road. A Traffic Management Plan (TMP) will be agreed between the Contractor, the Local Authority, and client's Representative which will consider hours of operation and deliveries to site, suitable routes for construction traffic, timing of deliveries to coincide with quieter periods in the surrounding road network, wheel washing, etc.

Temporary construction stage traffic measures will be required to 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 Roadworks".

The Contractor will be required to use licenced and permitted waste management facilities within Western Waste Management Region which can accept C&D waste which will be generated from the site.

The appointed Contractor will determine which facilities will provide construction materials and collect waste from the site. Suitably permitted waste contractors will be appointed to transport any waste off-site.

and utilise relevant sized vehicles for deliveries, etc. Drivers coming to site will be informed of the site working hours and suppliers will not be permitted to park at the site entrance awaiting the gates to open. A "Just in time" delivery strategy will also need to be implemented onsite to minimise generating waste and also minimise material storage requirements on the site.

There will be a noticeable increase in construction traffic on the road network during the construction stage works as waste materials are removed from site and deliveries brought to site, however this activity will be of short duration.

Parking will be provided within the site boundary for construction staff and no car parking will be permitted outside of the site boundary.

Visual surveys of the road network approaching the site will be carried out on a regular basis. The main Contractor will carry out road sweeping operations, employing a suction sweeper or similar appropriate method, to remove any project related dirt and/or material deposited on the road network by construction/delivery vehicles. The Contractor will be required to provide suitable hard standing directly within the site boundary off the main access to minimize spoil being transferred onto the public road. Nonetheless, a wheel wash system will be set up in the event there is a risk of debris deposit on the road.

Waste collection vehicles leaving the site will be required to cover their loads with a canvas to prevent waste or dust emissions from the vehicle on the road network.

7. ENVIRONMENTAL OBJECTIVES AND TARGETS

The key environmental objectives of the construction phase of the proposed development are:

- To ensure there is no pollution of surface water or watercourses.
- To ensure there is no deterioration in soil or water quality at the site as a result of construction activities; and
- To ensure there is minimal impact on local residents and road users as a result of construction activities.

In terms of waste management, a target of 70% recycling and recovery of C&D waste has been set in line with the national targets and waste contractors will be evaluated on the basis of being able to achieve this target and be able to provide evidence of same.

8. ENVIRONMENTAL MANAGEMENT

8.1 AIR QUALITY

Dust will be generated mainly from earthworks activities at the early stage of the project and to a lesser extent from new construction and traffic movements. The closest human receptors are located in properties located to the western boundary.

Measures will be put in place to minimise the impact of dust generated from the works with reference to best practice guidance such as the *Control of Dust from Construction and Demolition Activities* document [1]. These measures will include:

- During periods of dry weather, the site access routes will be kept damp to minimise dust generation from construction traffic;
- Street sweepers will be employed to ensure the adjacent roads are maintained free of dust and debris;
- Establishing a 10 km/hr speed limit for vehicles on site;
- Minimisation of extent of working areas at any one time;
- Netting and/or hard surface hoarding around the perimeter of the site will minimise dust migration from the site at low levels;
- Stockpiling of imported materials will be limited to the volumes required to practically meet the construction schedule;
- Excavated materials will be removed from site as soon as possible to minimise potential for stockpiles to create windblown dust; and
- Daily inspections by the main contractor will be carried out to identify potential sources of dust generation along with implementation measures to remove causes where found.

It is not proposed to carry out dust deposition monitoring as it is considered that the above measures will be sufficient to ensure that there is no dust impact on local human or ecological receptors.

Contact details for the site manager as outlined in Section 3.1 will be provided at the entrance to the site and local residents/public will be encouraged to report any off-site dust deposition issues. Any air quality complaints made during the works will be logged, investigated and followed up with measures to limit emissions, where appropriate.

There will also be some exhaust emissions generated from use of excavators, HGVs and vibrating rollers during the demolition and construction phase. These impacts will be temporary in duration and are not considered likely to give rise to significant air quality impacts following the implementation of the following measures:

- All machinery will be suitably maintained to ensure that emissions of engine-generated pollutants shall be kept to a minimum in accordance with Measures Against the Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be Installed in Non Road Mobile Machinery (2002/88/EC) and Emissions of Pollutants from Diesel Engines (2005/21/EC);
- Vehicles will not be left unnecessarily idling on the site and trucks removing demolition waste from the site will turn off engines during loading;
- Pre-start checks on all machinery will be conducted on a daily basis prior to commencement of activities;
- Low emission fuels will be used insofar as possible; and

[1] BRE/DTI, *Control of Dust from Construction and Demolition Activities* (2003)

- Mains power will be used for small plant and equipment, where possible, in preference to generators.

8.2 Noise & Vibration

All works will be carried out being mindful of potential noise impacts from construction activities. Plant and machinery operating on the site will be the main source of noise during the works most notably during any earthworks, rock breaking etc. The works will be carried out in accordance with the requirements of *BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites*.

The primary measure to limit the potential impact of noise from the works will be to limit working hours to the suitable daytime hours outlined in Section 3.5. This will reduce the potential noise impact on the local human receptors by avoiding early morning noise generating activities.

Other measures to control noise emissions from the works will include:

- Ensuring that HGV drivers turn off engines when parked for prolonged periods on the site and turning off engines during loading of demolition waste materials;
- Using minimal impact reversing alerts and avoiding the use of horns, where possible. These alerts, however, are essential safety measures for bust construction sites and cannot be avoided;
- Choosing equipment with reduced noise output and silencers/dampeners;
- Using radio contact across the site to avoid workers shouting or whistling;
- Maintaining plant and equipment in good condition to ensure noise emissions are as per plant specifications and that all noise attenuation features are in good working order; and
- Use of mains power supply instead of generators insofar as is possible.

Contact details for the site manager as outlined in Section 3.1 will be provided at the entrance to the site and local residents/public will be encouraged to report any noise issues. Any noise complaints made during the works will be logged, investigated and followed up with measures to limit noise emissions, where appropriate.

It is not anticipated that there will be any significant vibration impacts from the proposed works. Some minor vibrations will be generated from heavy plant and machinery, but it is anticipated that there will be no piling or significant percussion plant required which could have the potential cause vibration effects or damage.

8.3 Fuels and Oils Management

Construction vehicles will be refuelled off-site, wherever possible. This will primarily be the case for road vehicles such as vans and trucks. However, for construction machinery that will be based on-site continuously (such as excavators and dumpers), it will not be practical to move machinery off-site for refuelling. On-site refuelling of machinery will only be carried out using a mobile double skinned fuel bowser typical of that shown in the Figure below.

Refuelling will be carried out at least 50m from any watercourse. The fuel bowser, typically a double-axle custom-built refuelling trailer, will be re-filled off-site and will be towed as required within the site by a 4x4 vehicle to where machinery is located. The 4x4 vehicle will also carry fuel absorbent material and pads in the event of any accidental spillages. Only the required amount of fuel will be brought onto site in the fuel bowser and the bowser will be removed from

site once refuelling is complete. The fuel bowser will not be permitted to be stored at the construction compounds.

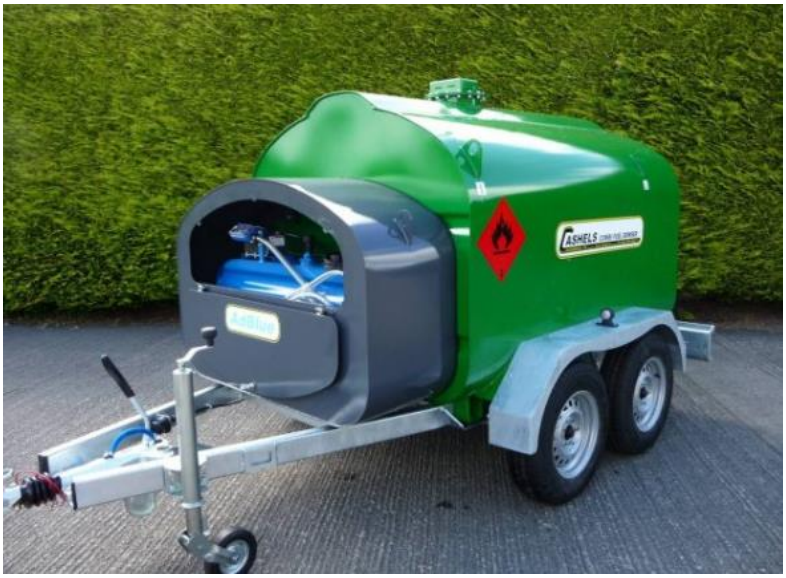


Figure 8.1: Typical mobile fuel bowser (Source: Clarke Machinery Group)

Oils, lubricants and other hazardous liquids which are essential for maintenance of equipment during the construction phase will be stored on the dedicated impermeable bunded storage platform in the construction compounds. Small quantities of fuel for equipment such as generators, lights, vibratory compaction plates etc., where required, will also be stored in the bunded storage area. Hazardous liquids will be stored within contained areas fitted with locks so that their use is controlled. Only designated trained and competent operatives will be authorised to refuel equipment on site.

New clean ancillary machinery equipment such as hoses, pipes and fittings can be stored appropriately on-site, however used or damaged parts are not permitted to be stored on-site and will be removed immediately. Any repair works required on machinery involving fuel and oil control will be carried out off-site where practical, or in the construction compound over an impermeable surface. Where unavoidable, repair works carried out in the field where machinery is operational will use spill trays and absorbent materials to prevent release of contaminants to the ground. Maintenance and repair works will be carried out at least 50m from any watercourse.

Daily checks prior to start-up of plant and machinery will minimise the risk of break-down and associated contamination risks for on-site repairs. Records of daily pre-start checks will be maintained and kept in the site office. A clean site policy and diligent housekeeping will also reduce the potential of hydrocarbon or contaminant release on site.

8.4 Spill Control and Response

Emergency spill kits with oil boom and absorbent materials will be kept on-site in the event of an accidental spill. Spill kits will be kept in the construction compound at both site locations, the 4x4 vehicle transporting the fuel bowser and smaller spill control kits will be kept in all construction machinery. All construction personnel will be notified of where the spill kits are located as part of the site induction and will be trained on the site procedures for dealing with spills.

In the event of a leak or a spill in the field, the spill kits will be used to contain and absorb the pollutant and prevent any further potential contamination. The absorbed pollutants and contaminated materials will be placed into leak proof containers and transferred to a suitable waste container for hazardous materials in the compounds. Where a leak has occurred from machinery, the equipment will not be permitted to be used further until the issue has been resolved.

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 appointed Project Environmental Manager of the used booms and pads taken off site for disposal.

The SHEQ Officer (or equivalent appointed person) will be notified of any spills on site and will determine the requirement to notify the authorities. Detailed measures for spill control will be included in the H&S Plan and form part of the Emergency Response Plan.

8.5 Soil & Groundwater

The proposed development works will require some stripping of surface covering for the new development. The design of the development has endeavoured to maintain proposed ground level to match the existing levels where possible to minimise cut and fill across the site. Excavations to suitable formations for building and roads will be required. It is intended that any excavated soil and stones materials will be reused within the site boundary insofar as possible to minimise the quantity of materials to be removed from site.

Any material that is intended for retention on site for re-use within the site boundary in landscaping will be relocated to this area as soon as possible. The Main Contractor will minimise the extent of areas of exposed soil at any one time to reduce potential for generation of dust during dry periods or creation of sediment laden run-off during wet periods. Where possible, works will be carried out during dry weather periods.

There is a requirement to excavate approximately 1250m^3 of Japanese Knotweed infestation located on western side of the site, close to the station road. The works are to take place prior to the redevelopment of the site into residential dwellings. The excavated soils are to be exported to a suitable facility. Refer to section 8.7.1 for management of invasive species.

It is noted that there is an undefined amount of contaminated soil from a leaking manhole in the northeast of the site. The area of contaminated ground around the manhole to be fenced off with warning signs. The contaminated ground is to be inspected and disposed of to a licenced facility. Contaminated soil will be stored separately from any non-hazardous materials. Refer to section 8.8.2 of this document for management of contaminated lands.

8.6 Surface Water

Surface water flooding is the result of rainfall-generated flows that arise before run-off can enter a watercourse or pipeline.

A Flood Risk Assessment report has been prepared by Cundall and is included as part of the planning application submission. The Assessment reviews the potential flood risks to the site from Fluvial, Pluvial, Coastal, and Groundwater flooding.

The Assessment determined that the site is located sufficiently outside the flood zone risks for Fluvial, Coastal, and Groundwater. However, the site, as indicated through the Draft Local Area Plan for Kildare Town, shows that there is potential for Pluvial flooding to occur as the site is located within the Pluvial Risk Assessment Zone and is noted to be within lands that have had capacity issues in the past with their drainage networks.

To mitigate against the pluvial flood risk, the drainage design will account for the 1 in 100-year event, plus 30% climate change and 10% urban creep factors, with suitable attenuation provisions provided on-site. In addition to this, finished floor levels (FFL) throughout the site will be set a minimum of 500mm above the top water level of any attenuation structure with ground levels designed to fall from away from the units to ensure during exceedance events there is no risk to any internal property flooding.

Sustainable Drainage Systems (SuDS) and Nature-Based Solutions (NBS) will also be provided wherever possible throughout the site and will be designed as such to allow runoff to build up within these areas and infiltrate through the ground during exceedance events.

8.6.1 Construction Stage:

Construction site management measures will be put in place to avoid release of potential pollutants into groundwaters at the site. The management of surface water run-off during the construction phase will also be carried out in accordance with the CIRIA C698 publication *Site Handbook for the Construction of SUDS* [2].

Material stockpiles will be kept at least 10m from any watercourses or manholes and silt fences will be erected at the toe of stockpiles to prevent run-off into watercourses.

Tarpaulins or polythene sheets will be used to cover stockpiles of material during heavy rainfall to avoid sediment release. Washout from concrete delivery vehicles will not be permitted on site and will only occur at designated concrete washout areas which will be located off site. This area will be allocated by the site manager at the start of the works and relayed to all concrete delivery drivers upon arrival on site. The washout area will not be permitted within areas close to sewers or ground.

No liquids will be permitted to be discharged direct to ground and absorbent socks will be installed around surface water drains to prevent silt entering the drainage network.

Surface water monitoring comprising visual inspections and in-situ testing will be carried out on a regular basis throughout the project to monitor for any changes in water quality of these open water streams. The results of surface water monitoring will be retained on site for inspection.

The Contractor will employ the best practice measures outlined in CIRIA C532 publication *Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors*.

During construction works, rainfall will permeate naturally to ground and any controlled water run-off, such as from excavations for the attenuation tank, rainwater harvesting tank or wastewater tanks, may be pumped out and discharged under controlled conditions discussed below.

Excavations will be carried out in short sections to minimise exposure of the underlying soils to rainfall and run-off for any prolonged period of time. Any water that does accumulate will be

[2] CIRIA, *Site Handbook for the Construction of SUDS (2007)*

allowed to naturally percolate to ground where possible. Any excavated material which is not removed immediately will be stored onsite in a manner that any sediment run-off will be collected and permitted to percolate to ground. During periods of inclement weather, linear excavation can be completed in a leap-frog system leaving intermittent undisturbed strips which prevents surface water run-off from running the length of an excavation at formation level.

To avoid/reduce the release of suspended solids/pollutants into the surface water environment via surface water run-off, the following measures will be implemented:

- Excavation works will not be carried out during or following heavy rainfall. Excavations will be covered during heavy rainfall to avoid the creation of surface water with high concentrations of suspended solids that would require dewatering. During lighter rain periods, the time period over which excavations are left open will be reduced insofar as is reasonably practicable.

- The stockpiling of materials will be minimised on-site and will be situated where surface water percolates freely into groundwater and >10m from any watercourse/drainage ditch;

- Dewatering of excavations will be minimal and will be avoided, where possible. If required, dewatering will be carried out by pumping excess water to temporary settlement tanks or filtration systems located within the construction works area. These will be monitored at least twice daily and discharged to existing drains when water is within the prescribed water quality limits. Environmental Quality Standards (EQS) as set out in the *European Communities Environmental Objectives (Surface Waters) Regulations 2009*, as amended, will be applied for reference unless otherwise directed by the Local Authority or Statutory Bodies. Silt de-watering bags or temporary settlement tanks will be used when water is being discharged and discharge pumping rates will be controlled to a maximum of 2 litres/second (l/s);

- In the absence of a significant source, a minor spill can be addressed effectively and efficiently on-site using existing best practice pollution control procedures. The measures set out in the previous Section will be followed to deal with any spills occurring;

- Fuel and oil handling as well as refuelling of plant and equipment will be carried out in accordance with the measures described in Section 8.3;

- Wastewater generation from the welfare facilities will be discharged to an enclosed tank and removed off-site for treatment as required; and

- On completion of the works, all apparatus, plant, tools, offices, sheds, surplus materials, waste and temporary erections or works of any kind will be removed from the site.

Temporary control measures implemented during construction works may include silt fences, silt bags, temporary settlement tanks and run-off attenuation, as required. Examples of silt fences, silt bags and temporary settlement tanks are shown in the Figures below.

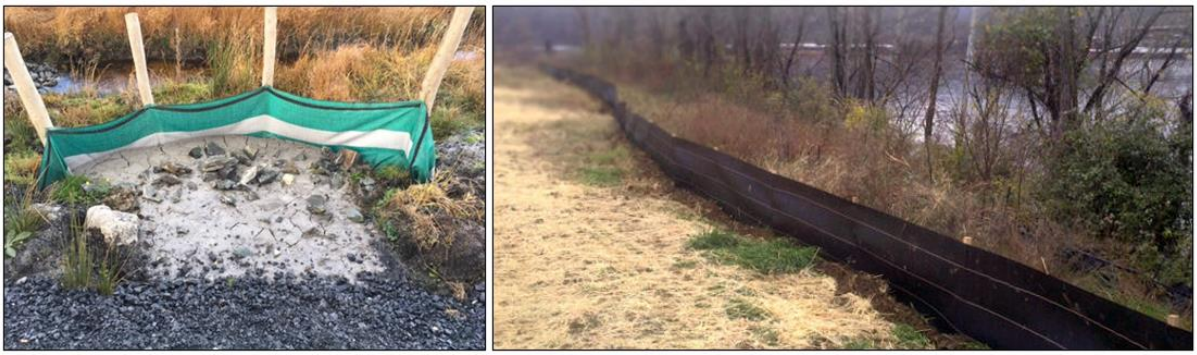


Figure 8.2: Silt fencing measures (Source: Hy-Tex (UK) Ltd. (left) and Thrace Group (right)

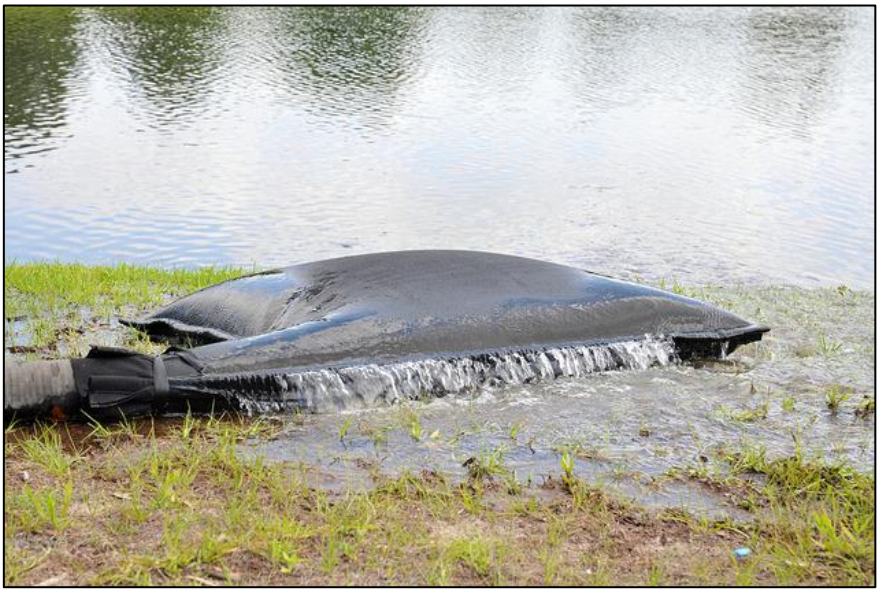


Figure 8.3: Silt/Dewatering bag (Source: Hy-Tex (UK) Ltd.)

Figure 8.4: Temporary site settlement tanks (Source: Siltbuster)

The surface water management measures will be regularly inspected during construction works to ensure that it is working optimally. Where issues arise, construction works will be stopped immediately, and the source of the issue will be investigated. Records of all maintenance and monitoring activities associated with the surface water network will be retained by the Contractor on-site, including results of any discharge testing.

There is potential for earthworks to lead to release of suspended solids to surface water bodies. The main factors influencing the rate of soil erosion and subsequent sediment release includes:

- Climate;
- Length and steepness of slopes;
- Soil erosion potential;
- Soil Vegetation/cover;
- Duration and extent of works; and
- Erosion and sediment control measures.

Erosion and sediment control measures include, but are not limited to:

- Minimisation of soil exposure, by controlling, in so far as is practical, where and when soil is stripped; and
- During the side casting of spoil, silt fences and/or biodegradable geogrids will be used to control surface water run-off from material storage areas.

Dewatering silt bags (Figure 8.3) allow the flow of water through them while trapping any silt or sediment suspended in the water. The silt bags provide a passive non-mechanical method of removing silt from silt-laden water collected from works areas within a construction site.

8.6.2 Concrete Handling

In the event of in-situ concrete pouring required on-site, the following measures will be followed.

Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks of on-site batching. Concrete trucks will be washed out fully at the batching plant, where facilities are already in place, and will not be permitted to wash-out at the site. The Contractor will establish this agreement with suppliers in advance of commencement of the works.

Measures to prevent contamination from concrete pouring on-site will include:

- Using weather forecasting to assist in planning concrete pours and avoiding pours where prolonged periods of heavy rain is forecast;
- Restricting concrete pumps and machine buckets from slewing over watercourses while placing concrete;

- Ensuring that excavations are sufficiently dewatered before concreting begins and that dewatering continues while concrete sets;
- Ensuring that covers are available for freshly placed concrete to avoid the surface washing away in heavy rain; and
- Disposal of surplus concrete after completion of a pour off-site.

8.7 ECOLOGY

All works should be contained within the proposed development site area only. The appointed Main Contractor must ensure that no materials are stockpiled outside of the defined site boundary.

Measures should be undertaken to avoid any risk to existing wildlife habitats within the proposed development site during the clearance of topsoil / overburden operation.

Protection Protocol

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

Protected species that may be found in the Project Area could include:

- All wild birds and their eggs, nests and young, except for certain species, are protected under the Wildlife Acts.
- Certain animals including all bat species.

The following measures will be put in place to prevent disturbance of fauna during the construction works:

- Noise control measures such as limited working hours and minimising noise emissions will assist in reducing the disturbance of animals; dusk and dawn is high faunal activity time;
- Plant machinery will be turned off when not in use to reduce noise emissions;
- Illumination of the site will be kept to the minimal required for health and safety purposes and established on a task specific basis to prevent disturbance to local fauna that may occur in the wider area;
- Light spill will be minimised where possible; and
- Operating equipment and machinery will be restricted to the site boundary.

The following mitigation measures will be put in place to avoid significant negative impacts to protected fauna and to accord with The Wildlife Act 1976 (as amended) and the European Communities (Birds and Natural Habitats) Regulations, 2011-2015.

Mitigation measures for breeding birds

Site clearance should take place outside the bird breeding season which occurs from March 1st to August 31st inclusive. Where this schedule cannot be accommodated an ecologist will be required to check the vegetation (trees, hedgerows, scrub and grassland) for the presence of nesting birds prior to vegetation clearance. If nesting birds are found to be present, NPWS

should be consulted, and appropriate mitigation measures should be put in place to avoid disturbance to nesting birds until the young have fledged.

8.7.1 Invasive Species

The Japanese Knotweed Management Plan report from LK Group noted that there is invasive species recorded within the red line boundary of the site.

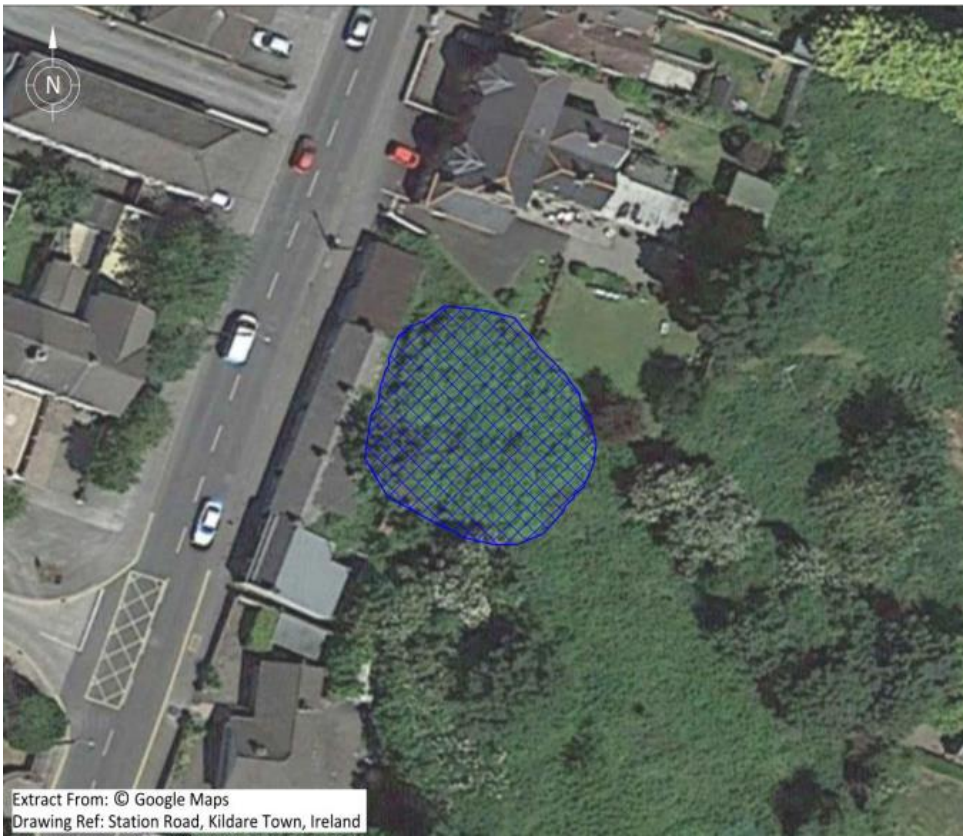


Figure 8.5: Japanese Knotweed location on site (extract from LK Group Report)

The recommended management plan is to undertake a "controlled excavation" of the material within the development area and export the soils to a suitable landfill prior to the redevelopment of the site into residential dwellings. Excavation will take place to remove all evidence of Japanese Knotweed and its Rhizomes up to the boundary wall where a batter may be required to maintain the stability of the party wall to the north.

Once the batter has been formed and a flat surface has been provided, a C3 Dendro Scott root barrier is to be placed on the dig area and extend just beyond the dig areas. The membrane is to be lapped with a minimum of 1,000mm overlap on each joint and finished 100mm above proposed finished ground level. The membrane will need to be suitably protected prior to backfill so as not to damage or pierce the material.

The sequence of operations suggested for the site is as follows:

- The demarcation and isolation of all contaminated areas to prevent any spread from other contractors.
- Set up a waste management area on site for wagons to access.

- Excavation of Japanese Knotweed.
- Load wagons directly from the waste management area.
- Installation of geo-textile or Dendro Scott root barrier membrane.
- Protection of the membrane and backfill
- Final tidy and completion.
- Ongoing herbicide treatment/management to the stockpile area inspections of whole site.

8.8 WASTE MANAGEMENT

On-site segregation of materials will be carried out where possible to maximise off-site reuse potential. Skips and haulage trucks will be temporarily stored close to the work areas to facilitate storage prior to moving off-site.

Suitably sized skips will be provided adjacent to the construction compound as shown in Section 3 above for general construction wastes and wood/metal/plastic as appropriate. Smaller wheelie bins will be provided for recyclable cardboard and paper waste generated in the site offices and food waste from the canteen. A leak proof container will be made available for storage of contaminated spill kit absorbents.

All non-hazardous and hazardous waste materials will be collected from the site by appropriately permitted waste contractors in accordance with the requirements of the *Waste Management (Collection Permit) Regulations 2007* as amended. Waste will be taken to suitably permitted or licensed waste facilities for recovery or disposal as appropriate.

Hard copies of waste collection permits and waste facility licenses/permits for all the appointed waste hauliers and facilities will be held by the main contractor on site and records of each waste movement off-site will be maintained. Authorised persons in Kildare County Council will be provided access to inspect and review all waste records at any time.

The Project Environmental Manager will have responsibility for waste management and will ensure maximum segregation of waste materials on-site. The Project Environmental Manager will ensure signage is erected on skips to show what waste types can be placed within and will maintain waste records.

8.8.1 Anticipated Hazardous Waste Arising

Due to the age and construction of the buildings present on site, some hazardous materials are anticipated within the existing building fabric. All asbestos-containing materials must be identified prior to any demolition works proceeding. Once identified, the materials containing asbestos must be handled by specialist contractors who must be engaged to carry out the works required to remove these products or to demolish asbestos products, particularly those that are worn or damaged.

In the case of asbestos products where the fibres are tightly bound (for example, in asbestos cement roof products), and if the material area in good condition, specialist asbestos removal contractors may not always be necessary once the Main Contractor follows appropriate safe methods of work to handle these materials.

Appropriate precautions must be taken when dealing with asbestos and the appointed Main Contractor should contact the Health and Safety Authority (HSA) for specific advice.

All asbestos materials must be suitably stacked on pallets, double-wrapped in heavy gauge polythene and clearly marked for removal off-site to a facility licenced by the EPA. Hazardous waste transfer stations can accept asbestos waste and then arrange to have it disposed of at an appropriate facility here in Ireland or abroad.

There must be strict adherence to any instructions given by the local authority or waste collection permit holder regarding the packaging of the waste for removal. Asbestos waste must only be surrendered to local authority waste collectors or to an authorised waste collection permit holder. Operators of facilities that are authorised to accept waste asbestos should contact the EPA to have their details added to the approved list. For information on waste collection permit holders authorised to collect asbestos waste, please contact the National Waste Collection Permit Office or the Environment Office of Kildare County Council.

8.8.2 Contaminated Lands

The legislation sets out strict criteria for classification of polluted soil and the treatments permitted depend on the classification.

The risk-based approach in the EPA guidance document is considered best practice for the assessment and remediation of contaminated land. This consistent approach will ensure that the standard of works undertaken is adequate, that issues are understood and dealt with appropriately and that both operators and the EPA achieve the aim of closing issues out in an efficient manner.

The risk assessment methodology follows a staged approach, designed to ensure that key elements are addressed in succession and only as needed. The three main stages are:

- STAGE 1: Site Characterisation & Assessment
- STAGE 2: Corrective Action Feasibility & Design
- STAGE 3: Corrective Action Implementation & Aftercare.

A critical element of the methodology and something that underpins the entire process is the establishment and use of a Conceptual Site Model (CSM) for the land and groundwater environment.

Most brownfield sites are likely to contain soil that will fall into several different categories depending on the underlying cause of the pollution, and the nature and extent of the contamination. Various treatment and disposal solutions are available. These include licensed landfills, thermal treatment and soil washing.

It is noted that there is an undefined amount of contaminated soil from a leaking manhole in the northeast of the site.

A full site assessment must be carried out to confirm if there are any areas which are contaminated with oils or hydrocarbons. If areas are identified to be contaminated then soil samples should be taken for a full chemical analysis and the oil/hydrocarbons must be classified as hazardous, non-hazardous or inert and assigned the relevant EWC code. Based on the waste classification, a specialist licenced waste handler must be appointed by the main contractor/client to recommend the appropriate treatment or recovery process available and

suitable. Understanding the soil properties and contamination levels are essential to minimise the costs associated with treating these areas.

There are many technologies available for treatment of oil contaminated soils. The decision about choosing the specific method and equipment is made with consideration for site characteristic, soil condition, type and amount of contaminant, age of contamination, regulatory requirements, costs and time.

Contaminated soil can be treated using a combination of processes, which include:

- Bio-remediation – Living organisms are used to remove pollutants, including hydrocarbons, from the soil. This soil remediation treatment can be carried out ex-situ allowing for the immediate removal of soil and ensuring that site development can continue as planned and on schedule.
- Stabilisation – Soil stabilisation is a chemical and physical immobilisation technique, incorporating the use of specially formulated reagents that cause a chemical reaction in organic and inorganic pollutants.
- Soil and aggregate washing

A licenced waste oils handler must be engaged to deal with all works relating to the remediation of the affected areas including all logistics, transfer forms and Trans Frontier Shipping (TFS) documentation associated with the transfer of contaminated soils. Full traceability of waste from start to finish of the recovery process must be provided to the client upon completion to include:

- Chain of custody documentation
- Hazardous waste transfer forms
- Trans-Frontier Shipment notifications & supporting documentation required for the export of hazardous waste
- Disposal / Recovery certification

The Contractors appointed Environmental Manager will be the single point of contact for the administration and approval for this work and must provide the required certification that the site area is clear of all contaminated soils before construction works proceed.

9. RECORD KEEPING

The Site Manager will appoint a competent person(s) to act as Project Environmental Manager and carry out environmental monitoring and maintain records for the duration of the works. The appointed person(s) will be familiar with the environmental mitigation and monitoring measures outlined in this CEMP and will carry out the relevant inspections and assessments on a regular basis. The Project Environmental Manager will report to the Site Manager.

Daily inspections of the silt fences and watercourses will be logged and recorded in a site folder. Any water sampling results from field testing and laboratory testing will also be maintained in the site folder.

A record of all waste movements from the site will also be maintained and copies of the waste transfer dockets will be held on site. The Project Environmental Manager will ensure that all waste haulage vehicles are identified on the waste collection permit and that the waste description and associated List of Waste code stated on the waste transfer docket are correct.

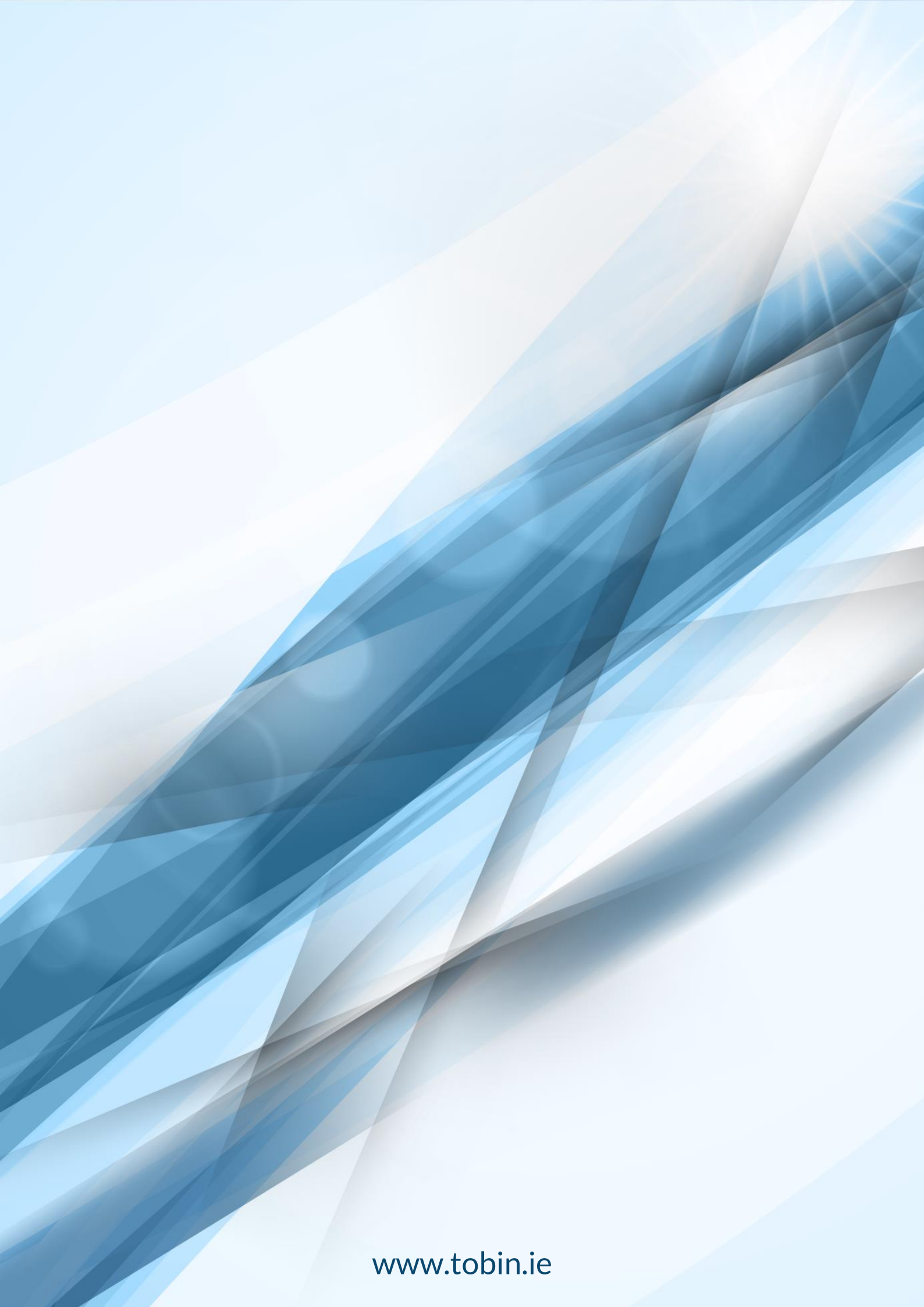
Any incidents resulting in a potential negative impact on soils or groundwater will be notified immediately to the Project Environmental Manager and the Site Manager. Spill kits will be used where possible to clean up any release and measures taken to ensure that any release does not reach a watercourse or surface water drain. Kildare County Council will be notified of any such incident which has the potential to cause a negative impact.

A record of any complaints received in relation to construction works will also be maintained and categorised (e.g., noise, property damage, traffic, dust etc.) within a central Site Complaints Log. The log will include the following key details:

- Name, address and contact details of the complainant (with the complainant's permission);
- Brief outline of the complaint;
- Date of complaint;
- Name of person receiving complaint details; and
- Agreed timeline for response to the complaint.

Any complaints made will be notified to the Site Manager and the Project Environmental Manager immediately and a plan put in place to investigate and seek to resolve the complaint. The Site Manager will also notify the Developer of complaints received. The complainant, Developer and other stakeholders will be kept informed of the progress in resolving the issue.

Hard copy folders will be maintained on site for inspection by the planning authority at any time.



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