



Kelland Homes Ltd

Outline Construction Environmental Management Plan

Clonburriss, County Dublin

604097 R02 (01)

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RSK



RSK GENERAL NOTES

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APPENDICES

APPENDIX 1 – SUPPORTIVE DRAWINGS

1 INTRODUCTION

Introduction

- 1.1 RSK Ireland Ltd has been commissioned by Kelland Homes Ltd., to prepare an outline construction environmental management plan (oCEMP) as part of an application for consent for the development of lands at Clonburris, Co Dublin. The proposed development is located within the Clonburris Strategic Development Planning Scheme Area, as defined by Statutory Instrument No. 604 of 2015.
- 1.2 The oCEMP is intended to form the basis for management of the main environmental aspects of the construction of the development in order to protect residential and local business community in close proximity to the site and the local environment.
- 1.3 The project is currently at planning stage and as such input from the contractor has not been incorporated into the document. Upon appointment of the contractor, this outline document will be issued to further develop into their final CEMP for the project. It will contain the site-specific control measures that will be applied by the Contractor and where relevant their sub-contractors during the construction stages. All works must be carried out in accordance with the mitigation measures as outlined in the individual chapters of the Environmental Impact Assessment Report (EIAR).
- 1.4 A copy of the final CEMP will be provided to each Contractor working on behalf of Kelland Homes Ltd and a copy maintained in the site office for reference by the entire workforce. It must be accessible to all site personnel, subcontractors and representatives of the relevant enforcement authority.

Scope

- 1.5 It is intended that the oCEMP will be expanded and updated by the appointed Contractor prior to construction works commencing. The aims of the CEMP will be to;
 - Ensure construction works and activities are completed in accordance with mitigation and best practice approach presented in the EIAR and any associated planning documentation;
 - Ensure construction works and activities are completed in accordance with all planning conditions for the development and that the CEMP is updated as required;
 - Ensure construction works and activities have minimal impact/disturbance to local landowners and the local community;
 - Ensure construction works and activities have no adverse effect on the integrity of any European Site;
 - Ensure that construction traffic to and from the site is strictly managed to avoid unnecessary traffic movements;

- Identify a dedicated person on site to liaise with the Public regarding any concerns that they may have in relation to the site operation;
- Adopt a sustainable approach to construction; and,
- Provide adequate environmental training and awareness for all project personnel.

Document Structure

1.6 This CEMP is structured as follows:

- Section 1 provides an introduction, with scope of the oCEMP;
- Section 2 describes the project and overview of construction activities;
- Section 3 references contractual and legal requirements;
- Section 4 details key roles and responsibilities;
- Section 5 details the environmental mitigation measures to be employed during the construction phase;
- Section 6 details the methods of communication;
- Section 7 details the details the approach to environmental training, logs and site awareness;
- Section 8 details the emergency response and preparedness procedures in the event of an incident; and
- Section 9 details the approach to monitoring and audit procedures.

2 THE PROJECT

Description of the Development

- 2.1 The proposal is for the development of a c. 6.3 Ha site within the townland of Cappagh, Dublin 22 to provide 294 no. dwellings, crèche and retail / commercial unit. The development will comprise of the following:
- 118 no. 2, 3 & 4 bed, 2 storey semi-detached and terraced houses;
 - 104 no. 2 & 3 bed duplex units accommodated in 10 no. 3 storey buildings;
 - 72 no. 1 & 2 bedroom apartments in 2 no. 4 & 6 storey buildings;
 - 1 no. 2 storey creche (c.520.2m²); and
 - 1 no. 2 storey retail /commercial unit (c.152.1m²).
- 2.2 The proposed development also provides for all associated site development works above and below ground, public and communal open spaces, hard and soft landscaping and boundary treatments, surface car parking, bicycle parking, bin and bicycle storage, public lighting, plant (M&E), utility services & 4 no. ESB sub-stations.
- 2.3 The application is being made in accordance with the Clonburris Strategic Development Zone Planning Scheme 2019 and relates to a proposed development within the Clonburris Strategic Development Planning Scheme Area, as defined by Statutory Instrument No. 604 of 2015.
- 2.4 Car parking will be provided surrounding the proposed development with up to 150 car parking spaces and 45 cycle parking spaces provided throughout. Vehicular access will be provided via two new entranceways on the Ninth Lock Road and the R113 on both the east and west sides of the site. Public transport links are available from the nearby Clondalkin Fonthill Train station located approximately 10 minutes walking distance from the new development.
- 2.5 Landscaping features will be provided throughout the site between the residential units and road network. It is proposed to maintain an existing hedgerow within the central portion of the site. Two storey developments will dominate the northern portion of the site with three storey duplexes located to the southern end of the site. Proposed apartment blocks (4 and 6 storey) will be situated to the western portion of the site.
- 2.6 Cappagh House ruins position in the southeastern corner of the site has a granted permission to be demolished (SDZ20A/0021) and therefore this is excluded from this report.

Site Location and Plan

- 2.7 The proposed development is located west of the Ninth Lock Road, south of the Dublin-Cork railway line, north of Cappaghmore housing estate and Whitton Avenue, and east of an existing carpark / park & ride facility at the Clondalkin Fonthill train station and the

R113 (Fonthill Road). It is also located within the Clonburris Strategic Development Zone (SDZ), within part of the development areas of Clonburris Urban Centre (i.e. CUC-S4) and Clonburris Southeast (i.e. CSE-S1 & CSE-S2), as identified in the Clonburris SDZ Planning Scheme 2019.

- 2.8 The proposed development comprises predominantly greenfield site overlain by grasses with some historical development in the form of a large, dilapidated stone building in the southeast and some hardstanding within the northeast adjacent to the existing railway line to the north of the site... The stone building is heavily overgrown with ivy and the area of woodland that previously existed around the building has been recently cleared. A number of drainage ditches partially filled with stagnant water are present within the centre portion of the site.
- 2.9 The site is centred at Coordinates X 306425 Y 232483. The site has a gradual fall towards the southern portion of the site and lies at an elevation of between c.56 and c.54 metres above ordnance datum (m AOD). A copy of the proposed layout of the development is provided in Appendix 1 and the location of the site is outlined below.

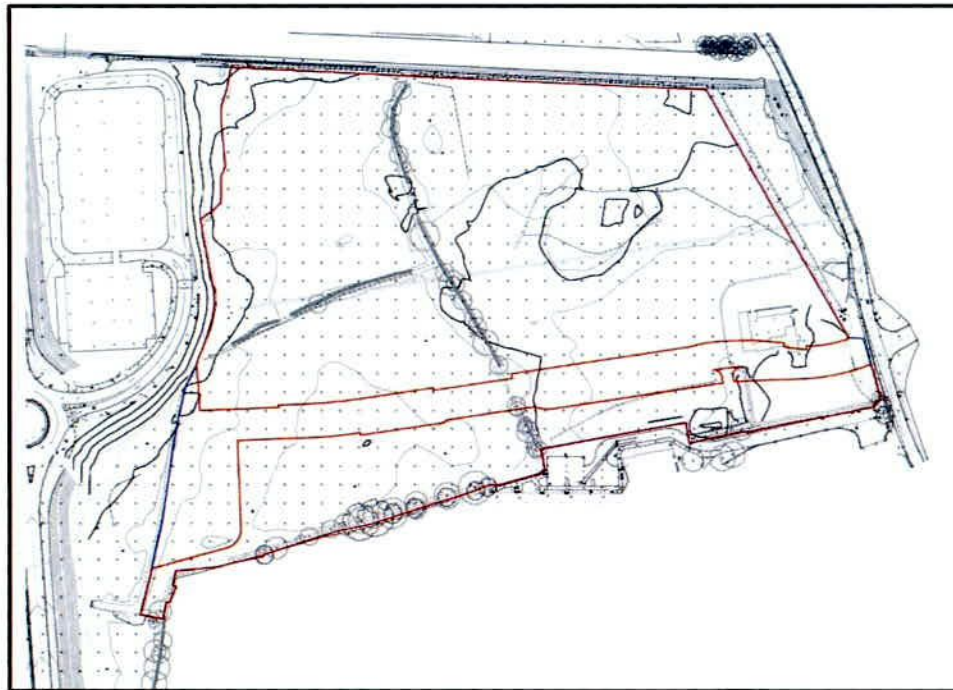


Figure 1: Redline boundary of the Site

- 2.10 Access to the development site will be via the permitted road network (under Ref. SDZ20A/0021) which provides access from the Ninth Lock Road to the east and the R113 (Fonthill Road) to the west.
- 2.11 Surface water runs through drains to join existing stormwater network at the southeastern end of the site, running along Ninth Lock Road to Station Road to discharge into an open watercourse in the industrial estate and ultimately into the Camac River.

- 2.12 The Screening Report for Appropriate Assessment prepared for the site concluded that the proposed development, individually or in-combination with other plans or projects, is not likely to have a significant effect on any European designated site in view of the site's conservation objectives. An appropriate assessment is, therefore determined as not required.
- 2.13 The EIA Screening and Statement prepared for the site, has determined that, based on best scientific knowledge, the proposed development is unlikely to result in significant effects on the environment and, as such, an Environmental Impact Assessment is not required.
- 2.14 There are no public rights of way across any part of the development site.

Project Programme

- 2.15 A procurement process will commence upon full planning approval to appoint a competent and experienced Contractor for the proposed works at the Site.
- 2.16 The Contractor, once appointed, will develop a detailed construction work programme including plans to minimise risks to construction workers and local residents from dust, noise and vibration and to watercourses from pollution. They will also address any restrictions with regards to undertaking certain tasks within sensitive bird breeding seasons/ Retention of existing hedgerow etc. to minimise the impact of the construction of the identified species which use the site and its environs.

Construction Management

- 2.17 The appointed Contractor for the works will be required to comply with this CEMP and any revisions made to the document. A broad overview of the proposed construction methodologies is provided below.

Site set up and Compound

- 2.18 The site compound will be set up as part of the initial site preparation works. The proposed location of the compound will be to the northeast of the site on existing hardstanding. The compound will provide a site office, canteen, first aid room and welfare facilities as well as foul drainage and potable water supply and a designated storage area for materials and wastes. There will also be a designated parking area established for site personnel and contractors.
- 2.19 The Contractor will ensure that the following information is displayed in the compound as a minimum:
- Traffic Management and Site Information/Services Plan;
 - Silt Run-off Prevention and Protection Poster;
 - Noise and dust abatement measures and,
 - Nominated Community Liaison Officer.

- 2.20 Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure.
- 2.21 All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works.

Site Access

- 2.22 Access to the site will be via a newly formed access off the Southern Link Road at the Ninth Lock Road and R113 (Fonthill Road) roadway. Pedestrian access will coincide with vehicular access.
- 2.23 The access points will be sufficient to facilitate all construction traffic and delivery of all construction materials and components. The entrances will be improved/developed as part of the initial enabling works to define its location and surfaced to accommodate articulated deliveries. This will provide a dust free holding area for delivery trucks for the duration of the construction period. Any loads of material leaving site will be evaluated and covered during transportation if deemed necessary.
- 2.24 A set down area for deliveries to the site and temporary storage of construction materials will be established with suitably stable surface to allow the safe removal of material by forklift or mechanical means. The area is to be clearly demarcated and managed to ensure it is well ordered and tidy in line with good site management practice.

Parking

- 2.25 A free area of the site will be dedicated to providing parking for construction personnel. The car park will be temporary in nature and will be created by laying of temporary surface for vehicles. Car parking will be provided for all workers who travel by car in or adjacent to the site compounds. Where possible staff will be encouraged to arrive to site by public transport, walking or cycling to limit the impact of construction traffic on the local network.
- 2.26 No parking shall be permitted by any site personnel on the public road network.

Hoarding and Fencing

- 2.27 Fencing demarcating the boundary of the site will be a combination of double clipped traditional secure heras panels (with feet and rakers) or solid panel hoarding with high/low viewing panels. (Minimum height of 2.0m).
- 2.28 The purpose of the heras fencing will be to reduce unauthorised access to the workings areas, plant and equipment. The fence will be checked daily and maintained as necessary.
- 2.29 Appropriate sight lines / visibility splays will be maintained around the site to ensure safety of both vehicles and pedestrians.
- 2.30 Signs will be erected on the boundary fencing that describes the site as being a construction site, accessible to worker and authorized personnel only, i.e., "Construction Site – Do Not Enter – Authorised Personnel Only".

- 2.31 Display information boards will also be erected detailing out of hours contact details, telephone helpline number (for comments / complaints) and information on the works.
- 2.32 It will be the responsibility of the site manager to open and lock the gates each working day to ensure the site is not left open and unattended at any time.

Security

- 2.33 The Contractor will provide site security that is sufficient and adequate to ensure that the site is secure and protected from unauthorised access and casual trespass for the duration of the works.
- 2.34 The following security measures will be provided:
- Site and compound boundaries i.e., fencing, gates, locks etc;
 - Deterrence of stockpiling materials close to site / compound boundaries, so they cannot be used for unwanted access;
 - Polluting materials to be well secured;
 - Site office positioned in a suitable place to deter unauthorised access;
 - Procedure to inform Garda Síochána about the site and taking their advice on security; and,
 - Procedure for dealing with vandalism, graffiti etc.

Site Lighting

- 2.35 Entry and egress routes to the site will be illuminated via approved street lighting arrangements. Lighting will be positioned so as not to cause a distraction to passing motorists.
- 2.36 Site task lighting will all be low lux level and maintained at a low trajectory only so as to prevent over spill to surrounding properties, ecological receptors or structures used by protected species.
- 2.37 Motion sensor lighting and low energy consumption fittings will be installed to reduce usage and energy consumption.

Working hours

- 2.38 The normal hours of working on any part of the development during the construction period will be:
- 07:00 hours to 19.00 hours Mondays to Fridays; and,
 - 08:00 hours to 14:00 hours on Saturdays.
- 2.39 The following controls will also apply to the works:
- No construction work or operational machinery will be permitted between the hours of 23:00 to 07:00hrs;
 - No work will be permitted on Sundays and on public holidays; and

- There will be no stacking of lorries on the site boundary outside of the working hours.
- 2.40 Any works other than the pumping out of excavations, security and emergency works outside these normal hours will be subject to the requirement to obtain consent from South Dublin County Council. The agreement should include working hours and methods to ensure that the 'best practicable' means to control potential nuisance are included.
- 2.41 Material deliveries will be received on a phased requirement basis, ensuring site works can accommodate deliveries and mitigate risk of delivery trucks queue forming on or outside the site boundary and local roads. No deliveries will be scheduled on Sundays or Bank Holidays.

Construction Activities

- 2.42 Construction activity will involve all the necessary operations to construct the development as described. A high-level overview of the construction activities involved is provided below. This list is not exhaustive and is provided to give an overview of the likely type of activities. Note also that the precise order in which these activities will take place is not known at this stage.

- Site Offices / Staff Welfare Units and Storage Compound;
- Temporary staff parking;
- Site Clearance – isolate and remove any existing utilities, vegetation removal, topsoil stripping, storage of topsoil for future reuse, demolition of structure, breakout and crushing of hardcore and rock,
- Removal of excess material;
- Construction of new units - foundation trenching, establishment of foundations, installation of utilities, SuDS, importation of building materials by HGV, storage of building materials, erection of units, erection of scaffolding, roofing, internal fit out and painting;
- Construction of access routes and parking areas - site levelling, earthworks, soil compaction, installation of road base, kerbing, road drainage, tarmacking and paving surface; and,
- Landscaping and Signage.

Typical Equipment

- 2.43 A list of typical equipment to be used on site during the construction period is summarised below;
- Hand Tools including Hammers, Crow Bars, Shovels, Wheelbarrows;
 - Power Tools including Stihl Saws, Battery Drills, Angle Grinders;
 - Machinery/Plant including excavators, , Generators, Hiab Lorry, mobile Crane, tipper trucks, Forklift, Scaffold including Hop Ups and Aluminium Towers;

- Pumps to enable excavation and service trenches to remain dry;
- Haulage and delivery vehicles articulated and non-articulated; and,
- Fuel tank delivery vehicles.

Demolition

- 2.44 It is anticipated that the development will create c. 200m³ of demolition and construction waste.
- 2.45 An area of existing hardstanding in the northeastern portion of the site will be broken out and retained for subsequent reuse on site where feasible in areas such as under adopted roads across the site; in the sublayer of car park areas or below foundations.
- 2.46 The Contractor will be responsible for ensuring that the segregated material can be processed to a suitable size and grading to meet the specification of road design and car parking if proposed for use in these areas and is chemically tested to deem the material suitable for use.

Site Clearance and Earthworks

- 2.47 It is anticipated that vegetation clearance, Vegetation maintenance, earthworks and ground preparation will be required as part of the development.
- 2.48 All suitable non-hazardous excavated material will be reused on site where possible, i.e., to level out ground in specified areas and/or for landscaping. Any excavated waste that cannot be reused shall be handled and transported from site by an appropriately registered contractor.
- 2.49 Stripping and removal of topsoil will be coordinated with the proposed staging for the development. The extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work area(s) and will be programmed to minimise soil handling / double soil movements.
- 2.50 Disturbed subsoil layers for construction of the road, drainage, pumping station and services will be stabilised as soon as practicable (e.g., backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping).
- 2.51 Weathered rock and bedrock where encountered will be excavated, stored and processed for reuse on site where feasible.
- 2.52 Any infill material/landscaping that is required will be locally sourced and placed and levelled in appropriate lift thicknesses to ensure the material is not over compacted thereby retaining its drainage properties.
- 2.53 Only suitable material will be allowed on site, this may be achieved through chemical testing prior to importation. Provided the imported material is a product with known characteristics, minimal monitoring or validity sampling of imported loads of the



material will be required, however visual inspection of all material in each load will be conducted as a minimum.

- 2.54 The contractor will consider opportunities for importing excavated material arising on separate construction site(s) through Article 27 or similar mechanisms. No material will be accepted until the source site provides a description / classification and evidence of chemical composition of the material.
- 2.55 Temporary stockpiles of imported material will be kept to a minimum.
- 2.56 Upon completion of earthworks, drainage and services to serve the development will be constructed and commissioned. Road construction and building construction will be completed thereafter.

3 ENVIRONMENTAL POLICIES AND LEGAL REQUIREMENTS

- 3.1 All site works shall be undertaken in compliance with the CEMP and with all applicable legal and regulatory requirements.

Environmental Policies

- 3.2 As part of the appointment, the Contractor will provide a copy of their Safety and Environmental Policy. They will ensure that a copy of their Health, Safety and Environmental Policy is clearly displayed on site notice boards during the construction period. All employees are expected to comply with the requirements of the Environmental Policy.
- 3.3 The Contractor will ensure their employees and support staff (contractors, sub-contractors, suppliers etc.) actively promote and administer a strong environmental culture. To achieve this, a number of initiatives will be in operation during the life of the project. This will include the use of poster campaigns to raise awareness of topical subjects, and toolbox talks involving all members of the project team and site workforce.

Health and Safety Management

- 3.4 The Contractor shall be responsible for ensuring that the construction works Health and Safety Plan is implemented and followed on site. The works will be carried out in accordance with all relevant health and safety legislation and Codes of Practice and site rules relating to the works will be observed.

Legislation and other legal requirements

- 3.5 The Contractor shall comply as necessary with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act, The Construction Regulations (SI 291 of 2013), the General Application Regulations (SI 299 of 2007), etc. (and any amendments thereof).
- 3.6 In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage.
- 3.7 A legislation register shall be held by the Contractor and reviewed periodically and updated as necessary. Any legislative changes shall be disseminated to project management immediately, after which the method statements of any affected operations shall be changed accordingly.
- 3.8 A consents and licenses register shall also be held by the Contractor which will contain a schedule of all consent submissions and a tracker to confirm they are in place for the start of works. This will be tracked and managed by the Site Manager and confirmation



and approved documentation will be sent to the HSEQ manager before works begin, when new consents are obtained, or when consent is withdrawn, or terminated.

4 ENVIRONMENTAL IMPLEMENTATION MANAGEMENT

Roles and Responsibilities

- 4.1 The appointed Contractor and all sub-contractors will be responsible for ensuring that the potential risks to the environment and local community are adequately avoided or controlled by the application of measures documented within this CEMP. These will be further developed in their final CEMP and shall be complied with throughout the construction phase. The main organisations and persons involved in the construction stage works are set out below.

The Client

- 4.2 Kelland Homes Ltd shall be responsible for:
- Securing the land including access required for all works;
 - Appointment of the Contractor;
 - Setting and communicating appropriate standards for environmental management and ensuring that their environmental policy is delivered; and,
 - Review and approval of the CEMP.

Appointed Contractor

- 4.3 The Contractor shall be responsible for:
- Appointing a Site Manager / Site Supervisor.

Site Manager / Site Supervisor

- 4.4 The Site Manager shall be responsible for:
- Undertaking weekly Site Compound Checks, and appointing persons to supervise refuelling of tanks and bowsers;
 - Ensuring the required consents are in place before work starts;
 - Ensuring environmental and waste requirements are included on requisitions and in subcontracts and orders;
 - Ensuring oil, including diesel is stored in properly bunded tanks / drip trays;
 - Ensuring Waste Transfer Notes / Waste Consignment Notes are checked against invoices before payment;
 - Liaising with statutory authorities as required and ensuring records of communication (including verbal communication) are kept. Statutory authorities should always be accompanied on site visits;

- Ensuring employees, contractors and subcontractors implement the controls set out in the CEMP;
- Ensuring employees, contractors and subcontractors receive Induction Training (including project environmental issues) and Toolbox Talks, as appropriate;
- Ensuring personnel needed for audits are available when required;
- Verifying actions resulting from Corrective Action Requests and Observations raised during audits are completed by the deadlines;
- Ensuring environmental training is provided;
- Reporting incidents to the immediately, and to statutory authorities where required;
- Logging and monitoring incidents and non-conformances;
- Disseminating information, including changes to legislation, and relay to relevant contractor's employees;
- Identifying employees who require environmental training and maintain training records in line with the contract for the works;
- Providing advice and dealing with queries and correspondence on environmental issues;
- Identifying significant environmental impacts for the project and assist in setting up contracts to include the necessary controls;
- Monitoring the progress in closing out Corrective Action Requests and Observations raised during audits;
- Ensuring all records are retained and readily available; and,
- Carrying out monthly site audits.
- Appointing any third-party specialists as required

All Staff

4.5 All staff have responsibility for the environment, responsibilities include but are not limited to:

- In the case of an incident, stopping work, implementing control procedures and reporting it to the Site Manager;
- Contacting the Waste Representative when waste needs collecting;
- Passing any queries or correspondence on public health or environmental issues to the Site Manager; and,
- Working in accordance with environmental procedures, the CEMP and Method Statements.

The Community Liaison Officer

4.6 The Community Liaison Officer shall be responsible for:

- Responding to telephone and email queries within 48 hours of receipt;
- Sharing key contact information associated with site development with key stakeholders and update these details as required;
- As a general courtesy, alerting the community to any disruptive works one week in advance of commencement, where reasonably practicable;
- Minimising the impact of site traffic and associated parking on the local road network;
- Arranging any necessary meetings that may be requested by community representatives regarding any on-site issues; and,
- Circulating updates as required on the projects progress to include information of relevance and interest to the local community.

5 ENVIRONMENTAL MANAGEMENT OF SITE ACTIVITIES

General

- 5.1 The following outlines how potential impacts from the construction phase of the project will be mitigated.

Air Quality - Dust

- 5.2 During Construction, dust emissions from a site can cause a nuisance for neighbours and contribute to air pollution. The principal activities that have the potential to result in fugitive emissions of dust from site construction works are considered to be excavations, earthworks and the movement of site traffic on paved and unpaved roadways. Dust can be spread onto the public highway and along public access paths by vehicles entering and exiting the site.
- 5.3 Sensitive receptors in the locality of the construction site to potential effects from dust are the residential properties located north, east and south of the developments red boundary line.
- 5.4 The Contractor will prepare a Dust Management Plan (DMP), the elements of which are outlined below.

Table 1: Fugitive Dust Measures

| Issue | Control Measure |
|-----------------|--|
| Site planning | <ul style="list-style-type: none"> • Erect solid barriers to site boundary which should be at least as high as any proposed stockpiles on site. • Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary • All site personnel to be fully trained • Trained and responsible manager on site during working times to maintain logbook and carry out site inspections • Plan site layout - machinery and dust causing activities should be located away from sensitive receptors • Hard surface site haul routes |
| Site Operations | <ul style="list-style-type: none"> • Maintain a complaint logbook for all dust and air quality complaints which includes source(s)/cause(s) and migration measures / controls taken to reduce emissions. • Store the complaints logbook on the site and make available to local authority on request. • Conduct regular dust inspections to monitor compliance with dust management plan, record the findings of the inspection within inspection logbook. Increase the frequency of the inspections |

| Issue | Control Measure |
|-------|--|
| | <p>during prolonged dry and windy conditions or when any activities with higher potential to produce dust are being conducted on site</p> <ul style="list-style-type: none"> • Store the complaints logbook and dust inspection logbook on the site and make available to local authority on request. • If possible, the machinery and dust causing activities should be located as far away as possible from receptors. • If required, operations will be fully enclosed where there is a high potential for dust production, or the activities will take an extensive period to undertake. • Dust suppression techniques should be employed for cutting, grinding or sawing activities. • Earthworks and stockpiles will be sited and managed to avoid adverse effects from dust and to prevent damage to underlying soil. • Only remove the cover in small areas during work and not all at once. • Cover, seed or fence stockpiles to prevent wind 'whipping', where practicable for any long term storage of materials. • Use Hessian, mulches or tackifiers if required, where it is not possible to revegetate or cover with topsoil. • Minimise dropping material from heights from conveyors, loading shovels or handling equipment and use fine water sprays on equipment where appropriate. • All vehicles to switch off engines - no idling vehicles • Site construction vehicles will be retained on site during the construction period. To minimise noise and emissions, all construction machinery will be switched off when not in use and speed limits imposed on internal roads and across the site • Minimise movement of construction traffic around site • If possible, remove materials that have a potential to produce dust from the site as soon as possible. • Deliveries to and removal of plant, equipment, machinery and waste from the site to take place within permitted hours. • Materials deliveries report to site office and unload within materials storage area • Ensure equipment is readily available on site to clean any dry spillages • Use mobile bowsers and water cannons for dust suppressant where applicable. Move around the site as required. • Water should be administered as required (weather and site conditions dependant) • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless required • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems |

| Issue | Control Measure |
|-----------|--|
| | <ul style="list-style-type: none"> • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriate to prevent dust. • All site roads will be swept and sprayed with water in prolonged spells of dry weather to prevent dust causing a nuisance off-site • No site runoff of water or mud • Hard surfacing and effective cleaning of haul routes and appropriate 10mph speed limit around site • Ensure all site fencing, barriers and scaffolding is clean • No bonfires to be permitted on site |
| Track out | <ul style="list-style-type: none"> • Road Sweeping contractor engaged to maintain approach and access roads for trucks entering and leaving the site • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are securely covered to prevent escape of materials during transport. • Record any inspections of haul routes and any subsequent action in the site logbook. |

- 5.5 Dust monitoring will form part of the daily site inspections and will include dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary. Weekly checks will also be undertaken to monitor compliance with the DMP.
- 5.6 Static Monitoring Stations (if required) will be installed in key locations providing weekly reports to the Contactor before, during and following construction works.
- 5.7 The Contractor will consider the feasibility of implementing a rainwater harvesting system on site to provide a more sustainable source of water supply for dust suppressant.

Noise and Vibration

- 5.8 The Contractor shall at all times apply the principles of Best Practicable Means and carry out all construction work in such a manner as to reduce any disturbance from noise and vibration to a minimum.
- 5.9 No construction work will be permitted, nor plant or machinery operated between the hours of 23.00 to 07.00 hrs on any given day.
- 5.10 The appointed Contractor will monitor levels of noise and vibration during critical construction periods at nearby sensitive locations and/or development site boundaries.
- 5.11 The Contractor will erect localised screening if deemed necessary at site compounds, areas of major excavation, structures etc. where potential of exceedance of the construction noise criteria has been identified and in particular around noisy plant such as breaker or drill bit when in operation in close proximity to noise sensitive boundaries.

- 5.12 Site hoarding, minimum 2m height will be appropriately positioned around the perimeter of the construction site for the duration of works where the distance of works is 30m or less to nearby noise sensitive locations to buffer any noise transmitted from plant, equipment and vehicles entering or existing the site.
- 5.13 Noise control audits will be conducted at regular intervals throughout the construction programme. The frequency of the audits may be increased or reduced as deemed necessary.

General Construction Noise

- 5.14 The Contractor shall ensure to comply with BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 Parts 1 and 2 "Code of practice for noise and vibration control on construction and open sites" and Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.
- 5.15 The Contractor shall ensure that all plant has appropriate certification to indicate that it conforms to regulatory limits (where applicable). Where feasible the quietest available plant and machinery will be used.
- 5.16 Generators and other potentially noisy plant will be located away as far from sensitive receptors as is practical. Noisy plant will be screened as appropriate to prevent nuisance. No generators or machinery will be permitted to operate at night (is between the hours of 23:00-07:00hrs).
- 5.17 All appropriate equipment will be fitted with silencers, mufflers or acoustic covers where possible.
- 5.18 Any plant or machinery that will be used intermittently will be shut down when not in use or throttled back to a minimum.
- 5.19 All plant and equipment will be maintained by trained personal to ensure noise emissions are reduced, this may include but not be limited to the proper use any maintenance of tools and equipment, the positing of machinery on site to reduce the emission of noise, the avoidance of unnecessary noise, the protection of persons against noise and the operation of sound measuring equipment.

Vehicle Noise

- 5.20 Vehicles and plant used during construction will be maintained in good and efficient working order. When not in use machinery is to be switched off and not left running. Site vehicles will not be over-revved.
- 5.21 All machinery will be properly maintained and silenced according to manufacturer's instructions.
- 5.22 Acoustic covers will be fitted to appropriate machinery.
- 5.23 All vehicles to observe set speed limits on site and local roads.

- 5.24 Toolbox talks will be communicated to site staff and contractors so that they are fully informed of noise and vibration control.
- 5.25 A *Construction Noise & Vibration Management Plan (CNVMP)* is included in Appendix 1 of this document, for the appointed Contractor to follow and comply with. This Plan shall be followed for the duration of the construction phase, but in particular for the site groundworks phase which includes significant filling of the site to raise the ground levels.

Pollution Control

General

- 5.26 The Contractor will adhere to best practice guidance as detailed below, particularly the CIRIA guidance document C532 Control of water pollution from construction sites. The construction approach will also adhere to the requirements set out in the Inland Fisheries Ireland guidance document Requirements for the Protection of Fisheries Habitat during Construction and Development Works and Development Sites.
- The Good Practice Guidance notes proposed by EA/SEPA/EHS:
 - PPG 1: Understanding your environmental responsibilities - good environmental practices
 - GPP 2: Above ground oil storage tanks
 - PPG 3: Use and design of oil separators in surface water drainage systems
 - GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer
 - GPP 5: Works and maintenance in or near water
 - PPG 6: Working at construction and demolition sites
 - PPG 7: Safe storage - The safe operation of refuelling facilities
 - GPP 8: Safe storage and disposal of used oils
 - GPP 8: Safe storage and disposal of used oils
 - GPP 8: Safe storage and disposal of used oils
 - GPP 19: Vehicles: Service and Repair
 - GPP 21: Pollution incident response planning
 - GPP 22: Dealing with spills
 - GPP 26 Safe storage - drums and intermediate bulk containers
 - PPG 27: Installation, decommissioning and removal of underground storage tanks
 - CIRIA Environmental Good Practice on Site.
 - CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.
 - CIRIA SuDS Manual Technical Guidance C697.
 - Development on Unstable Land. Department of Environment (DOE), UK.

- 5.27 Where possible, hard surfaces that are positively drained will be laid at an early stage in the construction to allow permanent facilities to be used to collect silt and hydrocarbons.
- 5.28 The extent of exposed ground will be minimised at all times during construction and any soil stockpiles outside areas specifically designed for the purpose will be sealed to prevent the creation of contaminated run off. Earth works will be programmed to minimise soil handling / double soil movements.
- 5.29 Wheel wash facilities using recycled water will be provided at all site egress points. The water will be drained through appropriate filter material prior to discharge from the construction site.
- 5.30 Any temporary soil stockpiles will be located >20m from any surface water course covered with a waterproof membrane during periods of heavy rainfall to prevent any material from washing out and flowing north from the project site.
- 5.31 Areas where stockpiles are located will be positively drained through a grit trap or similar where silt will be collected before water is discharged.
- 5.32 Foundations will be constructed in a way that will minimise the risk of contamination of the groundwater caused by pollutants spreading from wet concrete; silt runoff from any deep strip activities and excessive noise generation.
- 5.33 Standard dust suppression measures will be implemented during periods of dry weather. This will avoid any impacts arising from the spread of dust particles during the construction phase

Surface Water Run-off and Silt Mitigation

- 5.34 No pollutants, including sediments will be allowed to enter any surface watercourses/drainage and downstream to the Camac River during construction operations. The Contractor will follow the principles of the CEMP in order to prevent sediment or other contaminants entering any adjacent watercourse. All watercourses drain and potential conduits for silt laden runoff will be identified and where necessary, measures shall be taken to minimise direct sediment run-off from the working site into watercourses. Pollution prevention will be achieved with both physical and procedural measures such as sediment traps and drainage ditches 'in the dry', where required
- 5.35 During construction surface water from across the site will be collected, channelled and/or treated prior to discharge. Measures when required will include silt busters, settlement ponds, silt bags/dewatering bags, sandbags, grips, strawbales, and a series of measures may be required together. Settlement systems will be large enough to function effectively and designed in accordance with Construction Industry Research and Information Association (CIRA) best practice.
- 5.36 The Contractor shall provide dedicated persons to ensure that the required mitigation is installed and maintained to an appropriate standard.
- 5.37 Terram will be placed under new drain covers and in road gullies, where appropriate, in order to intercept silt-laden surface run-off and prevent it from entering the surface water

drainage network. This mitigation will be assessed on a regular basis (especially after heavy rain) and maintained if required.

- 5.38 Areas should only be stripped of cover as short a time as possible in order to limit the amount of time that the soil is exposed. The disturbed area should be re-seeded as appropriate as soon as possible after construction.
- 5.39 Wheel wash and/or road sweeping facilities will be utilised where necessary to control mud deposits at entry and exits to the site and will further reduce the potential for silt pollution on and from the construction site. Any wheel-wash provided will be sufficiently sized and managed to ensure suspended solids and hydrocarbons are not released into the water environment. All pollution prevention measures in accordance with guidance from Inland Fisheries Ireland (2016) will be implemented. This will include the installation of the above construction phase surface water management measures such as sediment traps and drainage ditches 'in the dry', where required.
- 5.40 All surface water infrastructure is to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with Local Authority Requirements.

Water Pumping

- 5.41 If pumping of water is required onsite, this will be done by pumping water over a vegetated area on the site or ditches, through terram and/or through installed silt fencing. These methods will slow the water flow and filter any potential silt from the water.
- 5.42 The requirement for water pumping will be planned in advance (as far as is practicable).
- 5.43 The Contractor will ensure that all necessary discharge consents are in place before commencing any dewatering activities.

Storage of fuels and hazardous materials

- 5.44 Any temporary storage areas for chemicals or fuels will be contained within impermeable bunds constructed in line with current best practice. Pollution Prevention Plans will be prepared, and site staff trained to implement them.
- 5.45 Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity, within the lay down area. The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.
- 5.46 Consideration will be given to the phasing of construction to reduce the time when temporary facilities for storage of chemicals refuelling, and vehicle maintenance are used to a minimum.
- 5.47 Diesel shall be stored in integral bunded fuel bowers. All connections shall be situated within the bund. Fuel shall be stored at least 10 m away from any watercourse, where practicable.

- 5.48 Oils and lubricants used on the site shall be stored in temporary vessels designed to hold 110% of the containers. No oil or lubricants shall be stored within 10m of a watercourse, where practicable.
- 5.49 Refuelling will only take place in designated areas away from surface water drainage systems, on hardstanding, by appropriately trained personnel. The funnels/nozzles used will be appropriate to the equipment being used.
- 5.50 Refuelling on the site shall be undertaken at least 10m from any given watercourses (where practicable); mobile plant shall be pulled back from watercourses for refuelling as far as possible and in line with best practice to ensure protection of the water environment
- 5.51 Tanks will be locked when not in use.
- 5.52 All plant shall be checked for leaks of fuel and lubricants before being allowed onto the site.
- 5.53 Pumps and generators used on the site will have integral drip trays where possible. All items of plant without an integral drip tray shall be stored over a portable drip tray. Drip trays shall be inspected and kept free of accumulated rainwater as necessary. Any oily water shall be disposed of at an appropriate licensed facility.
- 5.54 Any cleaning/arising from drip trays etc. to be disposed of as hazardous waste in accordance with applicable guidance and legislation.

Cement / Concrete

- 5.55 Wet concrete operations will be carried out in dry conditions.
- 5.56 All concrete pours will be carefully planned, and special procedures adopted as required.
- 5.57 Any in-situ concrete work to be lined and areas bunded (where possible) to stop any accidental spillage.
- 5.58 Smaller individual amounts for grouting and patching may need to be mixed on site, as well as larger amounts for general block and brick laying. All washout material and spillage will be contained to prevent cement material from entering the watercourse.
- 5.59 The wash out area will be >10m from any watercourse or surface water drain.
- 5.60 Discharge from any vehicle wheel wash areas is to be directed to onsite settlement ponds.
- 5.61 No wash down or washout of concrete trucks will be undertaken on site. The wash down or washout of trucks will take place off site in an appropriate facility. Washing out of vehicles or equipment will only take place in a controlled area(s). The wash-out will comprise either a lined skip or a pit lined with heavy-gauge polythene.
- 5.62 All vehicles used to transport the cement around the site will be suitable for the amount to be carried. Extra care is to be taken when using site roads and these will be assessed for suitability in transporting large loads.

- 5.63 All staff should be informed of washing procedures.
- 5.64 Concrete batching will take place off site or in a designed area with an impermeable surface.
- 5.65 Excess concrete remaining after a pour will be returned to the batch plant.
- 5.66 At completion of each work section, solidified concrete will be broken out and disposed of in accordance with the Waste Management Plan.

Flood Risk and Drainage Strategy

- 5.67 There is sufficient capacity in the existing drainage and watermain services to meet the demands imposed by the proposed development.
- 5.68 The primary flood risk associated with construction is considered to be the potential increase in surface water runoff associated with the creation of temporary construction roads, site compounds etc and the compaction of the native soils.
- 5.69 A regular maintenance and inspection schedule will be devised to ensure that any potential blockage or restriction within the proposed storm water drainage systems does not occur.

Foul Water Drainage

- 5.70 During construction, foul water flows generated will be managed via the usual method of temporary portable facilities with internal storage. No septic tanks will be utilised. Mess, sanitation and welfare facilities will be located at the construction compound. Foul effluent will make use of chemical facilities with routine removal for offsite disposal.
- 5.71 The foul water drainage network which is to service the Site is to pass through a pumping station that is to be built along the R112 Fonthill Road and from there to connect through a rising main to the existing 9B sewer trunk connection. Foul water will be treated at Ringsend WwTP, which discharges into Dublin Bay.
- 5.72 The proposed wastewater infrastructure will connect into a permitted foul pumping station and pipe network within proposed road corridors to facilitate drainage connections to future wastewater drainage infrastructure within the adjoining SDZ lands (including future Irish Water pumping station permitted under SDZ21A/0006).
- 5.73 All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.

Surface Water Drainage

- 5.74 Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site attenuation pond where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.

- 5.75 The proposed development will connect into the permitted infrastructural works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019) and permitted under Ref. SDZ20A/0021, with the proposed development connecting into the permitted surface water drainage attenuation systems which includes 1 no. pond, 3 no. modular underground storage systems and 1 no. detention basin combined with modular underground storage systems.
- 5.76 Surface water on Site drains to the south-east to existing stormwater networks on Ninth Lock Road. The drainage run continues south on Ninth Lock Road where it splits into parallel runs along Station Road which later merge and discharge to an open watercourse within the industrial estate. The watercourse discharges into the Camac River which joins the River Liffey ca. 8.1 km downstream before entering Dublin Bay another ~7.6 km further downstream.
- 5.77 Runoff from the subject site would be attenuated to greenfield runoff rates. An agreed outflow rate of 3.1 l/s/ha for all events up to the design Q100 event is to be adopted. The above agreed rate from the overall SDZ lands were modelled on behalf of South Dublin County Council and it was concluded that there would be no significant effect on downstream flows. Surface water discharge will pass via a fuel / oil separator.

Ecology / Biodiversity

- 5.78 There are no designated sites within the red boundary line nor in the immediate area adjacent to the site. However, the Site is part of a watershed area that feeds into several Natura 2000 sites.
- 5.79 The hydrological connection of the Site to Dublin Bay is weak and the proposed development is unlikely to have any effect on its water quality. However, bird species from coastal SPAs spend time foraging inland and they utilize the open fields that are subject to regular flooding in winter.
- 5.80 The Site is poorly connected with the wider landscape but does contain a number of internally connecting hedgerows and there is access to the Canal to the south which provides good foraging ground but is unlikely to be used extensively by larger mammals such as badger. It provides nesting and foraging habitat to a range of bird species. A feature of the Site is an old stone building which provides nesting space for birds and potentially roosting space for bats and barn owl. In the event that clearance of areas will be required that have nesting potential for smaller species of birds this will not be undertaken outside the bird nesting season, which runs from 1st March to 31st August inclusive.
- 5.81 There are a number of non-regulated invasive plant species present on the Site, however removal of which is considered as site enhancement in the EclA Report prepared for the site.
- 5.82 A number of compensation measures are proposed in order to mitigate impacts to key ecological receptors. These include the erection of bat and bird boxes, the set aside of an area of land to be managed for wildlife and the compensatory planting of native hedgerows and trees and the creation of pools suitable for amphibians. The Contractor

will ensure that they consult with an appropriately qualified ecologist prior to proceeding with the appropriate mitigation measures.

- 5.83 The Contractor will also consult and take advice from the ecologist in the event that further surveys and/or monitoring for bats, newts, breeding birds and barn owl are required to assess the effectiveness of the proposed mitigation measures.

Archaeology

- 5.84 There is potential for archaeological features to be present beneath the site, particularly related to the overgrown ruin of Cappagh House within the southeast corner of the site. Grounds works associated with the development will therefore have the potential to impact on these features in the absence of measures to protect such features. Permission for the demolition of Cappagh House granted under SDZ20A/002 and not dealt with under our application.
- 5.85 Previous reporting indicates the recommendations for the preservation of feature AA3 (charcoal Production pit).
- 5.86 The Contractor will undertake all ground disturbance works in accordance with the advice provided by the appointed archaeologist. In the event that any archaeological features are identified these will either be integrated into the development plans and preserved in situ or recorded and excavated under archaeological conditions.
- 5.87 In the event that further mitigation measures are required, the Contractor will ensure that no works proceed without prior approval from the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH).

Traffic Management

- 5.88 Construction traffic will consist of the following –
- Private vehicles owned and driven by site staff and management;
 - Construction vehicles e.g., excavation plant, dump trucks; and
 - Haulage and materials delivery vehicles involved in site development works.
- 5.89 The Contractor shall prepare and implement a Traffic Management Plan (TMP) outlining procedures to follow and prescribed routes when working on the site. The TMP shall incorporate any restrictions imposed by the planning consents, National Roads Authority and/or the Garda Síochána. The TMP will include specific routeing for construction traffic to the site via Ninth Lock Road and the R113 (Fonthill Road) and restrictions on construction hours.
- 5.90 The TMP shall be circulated to all parties who are employed or have a legitimate interest in the works.

- 5.91 The Contractor shall ensure that Construction Traffic Routeing Signs are erected prior to works commencing, and that these are maintained in good and clean condition throughout the duration of the works particularly at the main site access.
- 5.92 Management of Construction Traffic shall include the following measures:
- Construction Staff shall be encouraged to arrive before 8:00am and after 18:00pm to avoid the peak hour periods, where feasible;
 - Managed parking shall be provided on site with staff encouraged to travel by sustainable means;
 - Dedicated parking provisions shall be provided to prevent overspill onto surrounding network;
 - Appointment of Construction Manager/Community Liaison Officer;
 - Agreed haulage routes along designated HGV routes;
 - Provision of wheel wash facilities;
 - Road cleaning and sweeping along section of Ninth Lock Road to the east and the R113 (Fonthill Road) to the west of the site;
 - Construction signage at all entrances and exits;
 - HGVs inspected for dirt and mud before exiting onto public road network;
 - Control and timing of deliveries where possible;
 - Entrances and exits manned by flag men during deliveries.
- 5.93 The Contractor will ensure that the importation of any additional subsoil and hardcore fill will be sourced from local quarries and suppliers in order to reduce travel distance and traffic impact.
- 5.94 The Contractor will ensure that deliveries are received on a phased requirement basis, ensuring site works can accommodate deliveries and that queues of delivery trucks do not form on local roads or outside the site boundary.
- 5.95 Drivers of construction vehicles / HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic.

Waste

- 5.96 The construction of the development will lead to the generation of waste. The key to minimising the production of waste is to implement the waste hierarchy of Prevent, Reuse, Recycle, Recover and Dispose. The Contractor will apply the principles in "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and

Demolition Waste Projects" to reduce the amount of materials used thereby minimising use of natural resources and reducing costs.

- 5.97 The Contractor shall further develop and implement the outline Construction and Demolition Waste Management Plan (CDWMP) that has been prepared for the project to deal with waste generation during the construction phase.
- 5.98 The CDWMP will set out the requirements of the project including how the project will:
- Clearly identify all wastes that are likely to be produced during construction and classify them as 'controlled' ('general') or hazardous wastes;
 - Minimise the waste generated;
 - Reuse or recycle wherever possible;
 - Collect, separate, store and contain securely and label all wastes;
 - Allocate responsibility for waste management on site;
 - Employ suitable licensed waste contractor(s) and audit their licence(s); and,
 - Monitor and periodically audit the waste management scheme and activities.
- 5.99 The CDWMP will ensure the site meets and maintains the legal waste requirements for the site and will be regularly updated by the Contractor throughout the duration of the development.
- 5.100 All waste will be classified in line with current waste legislation and guidance (including, soils through WM3 and WAC assessment). The waste will be removed from site by an appropriately licensed contractor; and disposed of at an appropriately licenced landfill or soil recovery facility.
- 5.101 A waste register will be maintained to collate all waste management Duty of Care documentation such as waste transfer notes and consignment notes and waste classification documentation, where applicable.

Contaminated Land

- 5.102 No areas of contaminated ground were identified within the subject site during the previous intrusive investigations undertaken. Samples from the majority of exploratory holes indicate that soils would be classed as inert under the Environmental Protection Agency Waste Acceptance.
- 5.103 In the event that any significant unsuspected contamination is identified during the development of the site this shall be brought to the immediate attention of Kelland Homes Limited and where necessary the appropriate statutory authority and works in connection with the unsuspected contamination shall cease until such time as a remediation scheme has been submitted to and approved in writing by the Planning Service. The agreed remediation measures shall then be implemented in their entirety and appropriately verified in accordance with the planning consent for the site.



Energy Strategy & Sustainability

- 5.104 The Contractor will be pro-active to implement measures to address the procurement of materials, the environmental impact of materials and the sourcing of materials. All imported material will be sourced from suppliers within a 14km radius of the site.
- 5.105 The target will be to have 10%, by value, of construction materials to be of a reused or recycled source.

6 COMMUNICATION

Internal Communication

- 6.1 Environmental mitigation measures shall be incorporated into the Risk Assessments and Method Statements (RAMS) prepared by all contractors. All RAMS shall be communicated to the workforce by the Site Manager.
- 6.2 Weekly construction meetings shall be held during the construction phase. These meetings shall include health, safety and environmental matters such as
- Works activities underway and planned;
 - Mitigation measures required to be implemented;
 - Results of weekly inspections and any audit results/ feedback;
 - Any corrective and preventive actions required to be implemented;
 - Identification of areas for continual improvement;
 - Status of staff competence and training needs; and,
 - Status of the CEMP and of any required consents and approvals and the need for review and updating.
- 6.3 Any issues resulting from daily or weekly audits shall be discussed with appropriate corrective actions agreed. A 'weekly look ahead' shall be provided at the construction meeting where any environmental constraints or special requirements can be discussed and agreed in advance, where required.
- 6.4 The Site Manager shall conduct daily construction briefings, as required, to ensure site personnel are advised of any specific environmental requirements and constraints.
- 6.5 Toolbox talks will be scheduled as and when necessary, over the duration of the project.
- 6.6 The Contractor will directly and promptly communicate any environmental issues with the relevant body/department via phone or email.
- 6.7 Site notice boards will display the Environmental Policy of the Client, emergency contacts list, relevant statutory and non-statutory advice and guidance; and any other relevant information. These environmental notice boards will be situated in prominent positions including the main reception area of the site office / compound.

External Communication

- 6.8 Prior to works commencing on site information leaflets may be circulated to inform local residents, and/or their representatives of each phase of the development with particular emphasis on safety, traffic management and the control of noise and dust throughout the construction period. Communications should take place at a minimum 2-weeks in

advance of the works commencement for each construction phase. The contractor will promote and maintain excellent relationships with adjacent local residents, businesses, occupiers and the general public through regular communication and updates on construction activities that may affect them.

- 6.9 All communications received by the Contractor that are relevant to the works in site, including enquiries and complaints, shall be passed to the Site Manager.
- 6.10 If required by the Client any relevant contractors shall attend community engagement events, meetings, etc details of which shall be communicated to stakeholders in advance.
- 6.11 The Site Manager shall serve as the point of contact for the regulatory authorities for their specific activities. Communications from the regulatory authorities received at the site by the Site Manager shall be immediately reported to the Client.
- 6.12 The Contractor shall maintain a record of all communications.
- 6.13 Through the induction all members of the workforce shall be made aware that any direct approaches from members of the public should be directed to their Site Manager. The Site Manager shall record all approaches made by members of the public and shall advise the Client's Project Team of all comments received at the worksite from members of the public.

Public Liaison

- 6.14 The Contractor will establish early community relations with the surrounding residents and local community. All local residents and where relevant businesses shall be notified in advance of works commencing on site.
- 6.15 A Community Liaison Officer will be appointed for the duration of the project and will be responsible for complaint management, public consultation and liaison with the public.
- 6.16 The Community Liaison Officer will manage any complaints from the community in a fair and efficient manner and share key information associated with site development such as potential disruptive works as and when necessary.

Complaints Procedure

- 6.17 The Contractor shall put in place a system for recording, and responding to, all complaints received from third parties. The system shall include the timely reporting of all such complaints.
- 6.18 As a minimum the activity leading to the complaint should be stopped immediately; or where not possible to entirely stop the activity reduce it to the lowest possible level e.g., shut off all non-essential plant.
- 6.19 All complaints will be acknowledged by the Contractor or Kelland Homes Limited on receipt and assessed to determine what information is required from all parties in order to formulate a response. The complainant will be called on the same day if a phone

number is provided. Where a phone number is not provided an email response shall be given within three days. All complaints shall be recorded and investigated.

- 6.20 The Contractor will ensure that the complaints log is made available to the local authority if requested.

Documentation

- 6.21 The Site Manager shall be responsible for documenting and retaining safe all suitable records relating to environmental issues at the site and/or arising from site operations. Documents shall be stored in a suitable manner and backups created to safeguard the records. This CEMP shall be a controlled document and authorised latest version shall be signed and dated by the responsible person[s]. Other site data records and environmental management documentation would include, but not necessarily be limited to the following:

- Copies of relevant consents, permissions, or other approvals/ authorisations;
- Environmental data records including waste transfer notes/ records of waste collection and treatment/disposal;
- Records of any environmental incidents including actions taken and resolution;
- Records of complaints including actions taken and resolution;
- Records of all plant / equipment entering / leaving site together with any relevant compliance documentation (for instance in respect of noise or air pollutant emissions class);
- Copies of any enforcement notices or instructions issued by the local authority or any statutory regulatory body;
- Record of any prosecutions pending or resolved, and any penalties enforced;
- Records of daily site inspections;
- Records of weekly/monthly audits and minutes of environmental team briefings; and,
- Records of staff training including site inductions and toolbox talks.

7 ENVIRONMENTAL TRAINING AND AWARENESS

Inductions

- 7.1 All project personnel and sub-contractors shall receive an Environmental Induction Presentation, prior to commencement of works onsite. No personnel, including sub-contractors, shall be permitted to commence employment on site without prior attendance at an induction.
- 7.2 Environmental topics covered in the induction shall include but will not be limited to:
- Water resources;
 - Pollution prevention;
 - Emergency response procedures;
 - Waste management and housekeeping;
 - Management structure;
 - Duties and responsibilities;
 - Relevant procedures;
 - Ecologically sensitive areas;
 - Incident reporting;
 - Consents and licenses;
 - Legislation; and,
 - Environmental best practice.

Toolbox Talks

- 7.3 Regular 'Tool-Box Talks' on specialised topics shall supplement the induction course. Toolbox talks shall be used to highlight issues of concern and to disseminate new information not previously provided. They will also offer site personnel with the opportunity to provide feedback.
- 7.4 Tool-Box Talks shall include, but will not be limited to, instances where:
- There is a change to existing legislation, which requires an operational change;
 - Site inspections or audits have identified corrective actions which require rolling out;
 - Work is being undertaken in environmentally sensitive areas;
 - There are significant changes in environmental conditions, i.e., heavy rainfall.

- 7.5 The frequency and topics of the Toolbox Talks shall depend upon the phase of construction. They shall be provided as often as necessary to address site-specific environmental requirements.
- 7.6 Toolbox talk topics for environmental management shall include, but will not be limited to:
- Control of noise and dust emissions.
 - Environmental incident and reporting.
 - Silt and water management.
 - Waste management and segregation.
- 7.7 Records of all 'Tool-Box Talks' and attendance shall be kept in the site offices.

Specialist training

- 7.8 Specialist training for specific members of the construction crews will be provided as required. This may include, but will not be limited to:
- Emergency environmental crews.
 - Environmental Monitoring.
 - Waste representatives.
 - Fuel tanker drivers.

8 EMERGENCY PREPAREDNESS AND RESPONSE

Emergency Response Plan

- 8.1 An outline Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides procedures to be followed in the event of an emergency in terms of site health and safety and environmental protection.
- 8.2 The ERP is a working document and will require updating and submissions from the contractor/PSCS throughout the various stages of the project. Where sub-contractors that are contracted on site are governed by their own emergency response procedure, arrangements will be made to allow for inclusion of the sub-contractor's ERP within this document.

Roles and Responsibilities

- 8.3 The Site Manager will be responsible for activating and coordinating the emergency response procedure. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command.

Spill Kits

- 8.4 Spill kits capable of dealing with hydrocarbon and chemical spills shall be available at appropriate locations on site. Each storage location shall be clearly visible to the workforce, for instance by deploying clear signage.
- 8.5 The spill kit contents shall include absorbent pads, absorbent booms, absorbent granules and hazardous waste disposal sacks as a minimum. Regular checks of the spill kits shall be completed to ensure they remain adequately stocked to deal with environmental incidents.
- 8.6 Spill drills shall be performed periodically to confirm that the workforce can effectively contain and clear up potentially polluting spillages. All drills will be documented, and details kept on record for the duration of the works.

Fire Prevention

- 8.7 Means to raise the alarm in the event of a fire such as a siren or foghorn shall be available at the points of work. An assembly point marked with a sign shall be designated a safe distance from the active works locations and will be communicated to all members of the workforce before works commence.
- 8.8 The workforce shall assemble at the point for a rollcall to be carried out by the Site Security Officer. The Site Manager will decide the appropriate course of and will advise all personnel accordingly.

8.9 All individuals on site, including visitors, will be obliged to immediately sign in on arrival.

Extreme Weather

8.10 The Site Manager shall register to receive Met Eireann weather warnings. All warnings issued by Met Eireann with the potential to impact upon the works shall be communicated by the Site Manager to the workforce in a timely manner so that measures can be implemented where necessary.

8.11 The Contractor shall maintain provisions to deal with extreme hot weather events. Measures shall include provision of safe drinking water and adequate shade.

8.12 Seasonable variations will be monitored to take account of potential wet weather when planning stripping of topsoil and excavations to minimise soil erosion and run off.

Incident Reporting and Investigation

8.13 All incidents, including near misses, shall be classified according to the categories outlined below. All categories of environmental incident shall be reported by the Contractor to Kelland Homes Limited as outlined in Table 2 below.

Table 2: Incident Reporting and Investigation

| Incident Classification | Definition |
|------------------------------|---|
| Near Miss | An event, controlled through implementation of an effective incident control measure (e.g., drip tray used, effective use of noise barrier). |
| Minor Environmental Incident | Incidents that have caused minor harm or damage to the environment e.g. <ul style="list-style-type: none"> • a minor fuel spill below 20 litres onto ground which is immediately cleared; • a minor spill of a chemical not classified as presenting an ecotoxic risk; • exceeding noise levels; • silt runoff from site which does not enter into a surface water feature; or • excess dust emissions. |
| Major Environmental Incident | Incidents that have caused or may cause significant harm or damage to the environment e.g. <ul style="list-style-type: none"> • a minor fuel spill which impacts a sensitive land feature, a water body, or drains; • a major fuel spillage over 20 litres; • any spillage of a chemical which is classified as presenting an ecotoxic risk; • silt runoff from site which enters a water feature; or • receipt of a nuisance complaint. |

The Contractor shall prepare an investigation report for all environmental incidents. The report is to include:

- Summary of the environmental incident, describing the:
 - nature of the incident;
 - details of any pollutant released including the type and quantity of pollutant released; and,
 - location for the incident (e.g., grid reference);
- Receptors that were or could have been impacted;
- An analysis of what led to the incident occurring;
- Summary of immediate actions taken to mitigate the incident;
- Summary of any remedial action required; and,
- Lessons learned and future measures or actions to be implemented.

8.14 The Contractor shall report all environmental incidents that are required to be reported to the relevant statutory or regulatory bodies.

The Contractor shall prepare an investigation report for all environmental incidents. The report is to include:

- Summary of the environmental incident, describing the:
 - nature of the incident;
 - details of any pollutant released including the type and quantity of pollutant released; and,
 - location for the incident (e.g., grid reference);
- Receptors that were or could have been impacted;
- An analysis of what led to the incident occurring;
- Summary of immediate actions taken to mitigate the incident;
- Summary of any remedial action required; and,
- Lessons learned and future measures or actions to be implemented.

8.15 The Contractor will verify the incident investigation and agree with their contractors any further actions which are to be implemented to prevent a reoccurrence of comparable incidents. A timeline for the implementation of all actions shall be established and the Contractor shall provide details of when they have been implemented.

8.16 An incident investigation shall be complete when all details have been recorded on file.

Emergency Contacts

8.17 In the event of an emergency occurrence at the Site, the Contractor shall determine the relevant statutory and regulatory bodies that must be notified. Notification shall be in accordance with the measures outlined above.

8.18 A list of emergency contacts is presented in Table 3. A copy of these contacts will be included in the Site Safety Manual and in the site office.

Table 3: List of emergency contacts

| Emergency Contacts | |
|---|---------------------------|
| Contact | Contact details |
| Client – Kelland Homes Limited | TBC prior to commencement |
| Project Supervisor Construction Stage (PSCS) | TBC prior to commencement |
| Project Supervisor Design Stage (PSDS) | TBC prior to commencement |
| EPA (Dublin) | 01 268 0100 |
| National Parks and Wildlife Service's regional office | 076 100 2557 |
| National Environmental Complaints Line (NECL) | 1850 365 121 |
| Health and Safety Authority | 1890 289 389 |
| South Dublin County Council – environmental health | 01 414 9000 |
| Emergency Services – Ambulance, Fire, Gardai | 999 / 112 |
| Hospital – Tallaght University Hospital | 1 414 2000 |
| Bord Gáis Emergency | 1850 20 50 50 |
| Water & Wastewater Services @ CCC | 1850 278 278 |
| Clondalkin Garda Station | 1 666 7600 |

Incident Response

- 8.19 All pollution incidents should be managed through the STOP - CONTAIN - NOTIFY concept.
- 8.20 As soon as an incident is identified, the first action should be to STOP and prevent further discharge to drainage/river/ground.
- 8.21 **CONTAIN** may constitute control of discharge in the event of a spill, or cessation of works if it is the works that are resulting in the incident, e.g., halting excavations until silt runoff is contained. It is recognised that due to personal health and safety risks it may not always be safe to stop the source of the spill, for instance if a significant volume of an unidentified substance has been released.
- 8.22 **NOTIFICATION** should take place as soon as practicable, and frequently can take place while further release is being stopped or while a spill is being contained.

Oil, fuel or chemical spill to ground

- i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.
- ii. If the spill is migrating, create a temporary bund to prevent further spread by using spill kit materials / sandbags.
- iii. If drains or field ditches are located nearby, install drain seals/ deploy additional spill kit materials to prevent the spill discharging to the drain or ditch.
- iv. Apply absorbent granules or pads (available from spill kit) to the affected area.
- v. Contractor will notify the local authority regarding the nature and scale of incident. The following information should be included in the notification:
 - o Time of discharge;
 - o Type/quantity of material discharged;
 - o Location of discharge; and
 - o Site contact details.
- vi. Contractor will notify Kelland Homes Limited of the incident and communicate the information provided to the local authority.
- vii. Containment measures should remain in place until the nature and extent of the contamination can be assessed and a remediation strategy must be prepared.

All impacted materials shall be disposed of in accordance with relevant legislative and regulatory requirements and Duty of Care requirements.

Discovery of unexpected contamination

- i. On the discovery of unexpected contamination, the Contractor will immediately halt works in the area.
- ii. If impacted materials have already been removed, they shall be returned to the excavation or placed on to a membrane, e.g., terram, to prevent migration of the contaminant to another area.
- iii. Contractor to report the situation to Kelland Homes Limited.
- iv. Arrangements will be made between the Contractor and Kelland Homes Limited for samples of the contamination to be collected and tested on fast turnaround.
- v. Contractor to only continue with works in the area once the test results have confirmed the contaminant and a safe means of working has been established.

The Contractor shall be free to continue works in areas unaffected by the contamination but will not speculatively continue to excavate material to find the extent of the contamination without supervision from a geo-environmental engineer.

All impacted materials will be disposed of in accordance with relevant legislative and regulatory requirements as well as relevant Duty of Care requirements.

Oil, fuel or chemical spill to surface water feature

- i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.
- ii. If source not readily identifiable, contain first (see below) then identify and prevent further release at source.
- iii. Immediately deploy appropriately sized boom from nearest spill kit across affected surface water feature. Use stakes to attach it to the sides of the surface water feature. Tie booms together to increase length if required.
- iv. Supplement with additional booms across the surface water feature, as required, to contain any migration of the spill not halted by the first installation.
- v. Contractor shall notify the local authority regarding the nature and scale of incident. The following information should be included in the notification:
 - o Time of discharge;
 - o Type/quantity of material discharged to surface water feature;
 - o Location of discharge; and
 - o Site contact details.
- vi. Contractor shall notify Kelland Homes Limited of the incident and communicate the information provided to the local authority.

All impacted materials will be disposed of in accordance with relevant legislative and regulatory requirements and relevant Duty of Care requirements.

Oil, fuel or chemical spill to drainage system

- i. Wear protective clothing, prevent further release at source e.g., switch off tap/ valve, correct leaking drum and make safe the area.
- ii. If source is not readily identifiable, contain the visible pollutant first, then identify and prevent further release at source.
- iii. Immediately deploy appropriate drain cover(s) to affected gullies.
- iv. Supplement with booms around the gully to contain any migration of the spill.
- v. The Contractor shall notify the local authority and the relevant water company regarding the nature and scale of incident. The following information should be included in the notification:
 - o Time of discharge;
 - o Type/quantity of material discharged to the drain;
 - o Location of discharge, specifically which drain; and
 - o Site contact details.
- vi. The Contractor shall notify Kelland Homes Limited of the incident and communicate the information provided to the local authority.

All impacted materials shall be disposed of in accordance with relevant legislative and regulatory requirements and relevant Duty of Care requirements.

Explosion / Fire Procedure

Explosion/fire incidents should also be dealt with through health and safety procedures. In the event that a fire is detected, or an explosion occurs:

- i. Notify the emergency services and evacuate the area.
- ii. Attempt to tackle the fire with site equipment only when it is safe to do so.
- iii. Ensure that pollution of nearby water bodies including surface water drainage from fire control water or other substances is minimised. Where possible and safe to do so, any site drainage systems should be protected through the deployment of drain seals/ spill kit materials to ensure any firefighting waters are captured and can be disposed of appropriately.
- iv. At a time when it is acceptable to do so, the local authority shall be notified regarding the nature and scale of incident. The following information should be included in the notification:
 - o Nature of the incident;
 - o Time and date of the incident;
 - o Quantity of fire control water discharged to surface water feature/drainage, where relevant;
 - o Location of discharge; and
 - o Site contact details.

Discharge of Silt

In the event of an unexpected discharge of silty water, then:

- i. Prevent further release at source e.g., cease dewatering the excavations.
- ii. Contain silt and protect sensitive receptors from further discharge:
 - If a drain is located nearby, install drain seals or deploy spill kit materials to prevent discharge.
 - If silt flow is in the direction of surface water features deploy hay bales around surface the feature.
 - If silt is being generated by runoff from stockpiles deploy spill kit materials, silt fencing or move soil to form a bund at the base to prevent further silt laden runoff from the stockpile.
- iii. If silt is discharged without prior approval the Environment Protection Agency shall be notified. If the silt discharge enters the drainage system, the relevant water company shall also be notified regarding the nature and scale of incident. The following information should be included in all notifications:
 - o Time of discharge;
 - o Type/quantity of material discharged;
 - o Location of discharge, e.g., which drain or surface water feature; and
 - o Site contact details.

Contamination of or by waste materials

- i. Assess whether the area needs to be evacuated, such as if fumes are being given off.
- ii. Assess whether the damage can be undone through segregation.
- iii. Complete a risk assessment for the task including consideration of any COSHH risks.
- iv. If it is safe to do so segregate the waste. If it is not safe to do so, then the full waste quantity is to be consigned as hazardous waste.
- v. Contractor to report the incident to the client.
- vi. Waste to be collected from site in accordance with normal practice.

Discovery of archaeological artefact or heritage feature

- i. Immediately stop works in the area of the artefact or feature.
- ii. Ensure the area is isolated from interference by erecting fencing around the discovery. Prevent vehicles from navigating through this area.
- iii. Provide a safe means for pedestrians; and if possible, vehicles, to move around the isolated area.
- iv. Contractor shall report the find to the client.
- v. Client to arrange for the find to be assessed by a qualified heritage or archaeological specialist. Contractor to prevent tampering with the find until it has been assessed.
- vi. Works to proceed in accordance with the recommendations given by the heritage or archaeological specialist.

Ecological discovery or damage

- i. Immediately stop works in the area.
- ii. Contractor to immediately report the incident to the client.
- iii. Client to arrange for a qualified ecologist to assess the discovery or damage caused.
- iv. Works to proceed in accordance with the advice received from the ecologist.

Vandalism/theft procedure

Acts of theft and vandalism present the risk that damage may be caused to equipment containing hazardous substances that could cause pollution, or damage may be caused to measures which have been installed to prevent the release of pollution. On identifying an act of vandalism or theft:

- i. The Contractor shall notify Garda Síochána of the incident.
- ii. Inspect all fuel storage tanks/drums and equipment to ensure there has been no release of the fuel or other hazardous substances, e.g., hydraulic fluid.



- iii. If a spill is identified follow the procedures for Oil, fuel or chemical spills.
- iv. Inspect pollution protection measures, e.g., drainage or silt protection, to ensure it has not been interfered with. Where it is possible, correct any issues identified without causing further release.
- v. Inspect site boundaries to identify the access point if not immediately clear and secure the site.

9 MONITORING AND AUDITING

Introduction

- 9.1 Appropriate monitoring of the environmental effects of construction enables the effectiveness of environmental mitigation to be evaluated. It also allows environmental problems to be identified and responded to at an early stage. Monitoring will also help the Contractor to identify and implement environmental improvements, which will contribute to the overall environmental performance of the project.
- 9.2 The Contractor will carry out appropriate environmental inspections and monitoring of environmental performance in the form of daily inspections, monthly audits and if required appropriate equipment.
- 9.3 Where problems are recognised, the corrective action will be identified by the inspector and subsequent corrective action undertaken within a defined time frame.

Daily Inspections

- 9.4 Daily inspections shall be undertaken and recorded as follows:
- i. Visual inspection of the site perimeter to check for dust deposition (evident as soiling and marking) on vegetation, cars, windowsills and other objects.
 - ii. Visual inspection of the local haul roads to check their condition to ensure there is no build-up of dust or earth deposits liable to cause dust emissions as vehicles pass.
 - iii. Vehicle, equipment and plant inspections shall be completed to check the absence of damage or maintenance issues and that it is correctly functioning.
 - iv. Visual inspection of all acoustic barriers / screening to check they are present and in good condition.
 - v. Visual inspection of waste containers and waste storage areas to verify wastes are being correctly segregated and to confirm the absence of mixing of hazardous and non-hazardous wastes.
 - vi. Visual inspection of all site areas to ensure there is no deposited or wind-blown litter.
 - vii. If a waste collection is made, a check shall be made of the Waste Transfer Note / Hazardous Waste Consignment Note provided for the collection.
- 9.5 On all days when potentially dust emitting activities are being conducted, the level of dust generation shall be kept under constant review. A record shall be added to the official site diary when such activities are conducted, the dust emission conditions observed and; when necessary, the mitigation measures taken.
- 9.6 Any elements of the site management found to be in an unsatisfactory condition during the site inspection shall be addressed on the day. In the event it is not possible to address

the matter on the day it is raised; a note of the reason why shall be made on the inspection record sheet.

Environmental Audits

- 9.7 Formal audits will be against an audit checklist, which will provide a mechanism to monitor and assess compliance against all project performance requirements and standards.
- 9.8 Only suitably trained and competent staff will be authorised to perform environmental audits at a suitable frequency to be determined by the nature / duration of the work.
- 9.9 All aspects of the environmental management at the site shall be assessed against this CEMP.
- 9.10 The audit shall include checks of the site records including the daily inspection record sheets, vehicle arrival logs and waste disposal paperwork. All audits shall be documented; where audit actions are raised, close out of these actions shall be assessed at the following audit.

Environmental Monitoring

- 9.11 Environmental monitoring including water quality monitoring shall be carried out as necessary and requirements for environmental monitoring shall be reviewed as consents are received and consultations completed.
- 9.12 Key parameters that will require environmental monitoring include:
- Energy use arising from construction site activities;
 - Water use arising from construction site activities;
 - Waste generation during construction; to be monitored as part of the Site Waste Management Plan to ensure the appropriate treatment, handling, management and disposal measures are applied. Records shall be kept of quantities and types of waste handled;
 - Inspections of the surface water course;
 - The site compound including fuel storage and spill control equipment;
 - Construction Plant and Equipment; and,
 - Dust and noise pollution arising from construction site activities.
- 9.13 In the unlikely event that noisy plant or machinery are to be operated that may have the potential to exceed the daily noise target (70 dB $L_{Aeq,1hr}$) or following a complaint, spot checks and/or continuous monitoring may be undertaken using a sound level meter to assess noise levels during such activities. This shall be kept under review and appropriate mitigation measures instigated if necessary.
- 9.14 Baseline water quality samples will be collected prior to the commencement of construction to establish baseline water quality in the stream. Routine monitoring will then

be undertaken throughout the construction phase. The monitoring will include a daily visual assessment of conditions at the discharge point. The results of the daily visual inspections will be maintained in an inspection log.

- 9.15 Physio-chemical water quality analysis of the River Blackwater immediately downstream of the surface water outfall will be completed on a fortnightly basis. This will involve measuring total dissolved solids, total suspended solids, pH, temperature, electrical conductivity and salinity using a water quality field probe.
- 9.16 Documentation from environmental monitoring shall be maintained and made available as appropriate.
- 9.17 The Contractor shall be responsible for monitoring all site works.

Environmental incident and corrective action reporting

- 9.18 All environmental incidents and near misses shall be reported and investigated by the Contractor. All environmental incidents shall be reported as soon as possible. Where relevant, the appropriate statutory authority (e.g., EPA) shall be informed immediately. Copies of incident investigation reports shall be supplied by the Contractor and action taken to prevent recurrence.
- 9.19 All corrective action, incident and near miss report forms shall be held in a register maintained at the construction site office.

Non-conformity and corrective action

- 9.20 Where the client has a concern or raises an issue for resolution, or where potential issues are raised from an inspection or audit of the site/ operations, or by a regulatory authority, the Contractor shall investigate the root cause and any implications arising from the issue and shall if necessary following discussion with the client implement measures to rectify the problem.
- 9.21 The Contractor shall monitor the effectiveness of the corrective action and report the outcome to the client and where relevant the regulatory authority. The Contractor shall retain all documentation of the issue/ event and corrective action/ outcome.
- 9.22 Where necessary the CEMP and any associated documentation shall be revised and re-issued to avoid recurrence of the issue/ problem.

Review and updates to the CEMP

- 9.23 The final CEMP will be reviewed on a monthly basis; or following any significant change to the work activities, client requirements, legislation or guidance and updated accordingly. Therefore, the final CEMP will be continuously updated as required.



APPENDIX 1 SUPPORTIVE DRAWINGS

Landscape Plan Scale (1/500)



LEGEND

BOUNDARY LINES

- Proposed Site Boundary
- Proposed Street Boundary
- Proposed Hedge Boundary
- Proposed Parking Boundary
- Proposed Homezone Boundary
- Proposed Urban Plaza Boundary
- Proposed Entrance Signage Boundary
- Proposed Attenuation Pond Boundary

VEGETATION

- Existing Hedge to be Retained
- New Native Hedge proposed
- Existing Hedge to be Retained, where necessary existing hedge will be enhanced with native hedge
- Homezone Area
- Urban Plaza
- Entrance Signage
- Attenuation Pond

PAVING

- Proposed Paving
- Proposed Parking
- Proposed Homezone Paving
- Proposed Urban Plaza Paving
- Proposed Entrance Signage Paving
- Proposed Attenuation Pond Paving

STRUCTURES

- Proposed Building Footprints
- Proposed Parking
- Proposed Homezone Buildings
- Proposed Urban Plaza Buildings
- Proposed Entrance Signage
- Proposed Attenuation Pond

UTILITIES

- Proposed Stormwater
- Proposed Sewer
- Proposed Water
- Proposed Gas
- Proposed Electrical
- Proposed Telecommunications

