

14. Schedule of Environmental Commitments

All mitigation and monitoring commitments detailed within this EIAR have been included in a separate compendium and are presented in Table 14.1 and 14.2 below. Together these tables form the Schedule of Environmental Commitments which will be implemented as required during the construction and operational phases of the proposed residential development at Blackrock, Dundalk, Co. Louth.

In addition, the following reinstatement commitments must be fully implemented upon completion of the construction phase:

- All temporary construction compounds are to be removed upon completion of the construction phase. Such areas are to be reinstated in accordance with the landscape architects plan and engineer's drawings.
- All construction waste and / or scrapped building materials are to be removed from Site on completion of the construction phase.
- Oil, fuel etc. storage areas are to be decommissioned on completion of the construction phase.
- Any remaining liquids are to be removed from Site and disposed of at an appropriate licenced facility.

All of the mitigation and monitoring commitments detailed below have been incorporated into the Outline Construction Environmental Management Plan (CEMP) submitted as part of this planning application; this is a live document which will be further developed into a project specific Detailed CEMP prepared by the Contractor and will include any future additional mitigation measures as may be required.

Table 14.1 - Schedule of Environmental Commitments – Mitigation Measures (Construction and Operational Phases)

Item Ref.	Environmental Topic	Schedule of Environmental Commitments – Mitigation Measures	Construction Phase	Operational Phase
1.1	Chapter 3 - Population and Human Health	<p>The following mitigation measures will be put in place and implemented during the construction phase of the development;</p> <ul style="list-style-type: none"> • All standard Safety and Health procedures will be implemented at every stage of this project including the preparation of a Preliminary Safety & Health Plan, and a project specific Risk Assessment and Method Statement prepared by the Contractor which will address the health and safety steps that will be put in place and implemented by all Site operatives. • The proposed transport routes of all machinery entering and egressing the Site, for the full duration of the five year phased construction period shall be through the proposed entrance off the R172, as presented above in Figure 2.6. All construction activities will be managed and directed by a Construction Traffic Management Plan (CTMP). The details of the CTMP will be agreed with the roads department of the Local Authority in advance of construction activities commencing on-Site. • The construction of the proposed development will be in accordance with the Outline Construction Environmental Management Plan (CEMP) which takes account of the Schedule of Environmental Commitments presented within this EIAR and is submitted as part of this planning application. This live document will be further detailed within the project specific Detailed CEMP prepared by the Contractor. • An Emergency Response Plan will be prepared by the Contractor and will be kept on Site for the duration of the construction phase. • The residual risks of flooding can be further managed by incorporation of good building practice in the detailed design and construction of the development. • The following mitigation measures will be applied which will fully address identified risks to human health receptors during the construction phase; <p>Chapter 6 – Air Quality and Climate</p> <ul style="list-style-type: none"> - Mitigation measures during the construction phase, as set out in mitigation section of this Chapter will apply to the proposed development. A review of construction phase traffic has been undertaken to assess the impact of the development with reference to EU ambient air quality standards which are based on the protection of human health. Reviewing this with respect to baseline background concentrations of air pollution and with all National and EU ambient air quality limit values it is predicted that the impact of the proposed development will not result in a significant impact on human health. 	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

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**Chapter 3 -
Population and
Human Health
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- When the dust minimisation measures detailed in the mitigation section of this Chapter are implemented, residual fugitive emissions of dust from the Site will be insignificant and pose no nuisance at nearby receptors. Therefore, the overall impact of the construction phase is considered short-term, negative and not significant. Nonetheless, it is recommended that dust monitoring (Bergerhoff Method) should be conducted during the construction phase as this will ensure the efficiency of the dust mitigation measures and will also highlight when more measures may need to be implemented. ✓

Chapter 7 – Noise and Vibration

- Mitigation measures during the construction phase, as set out in mitigation section of this Chapter will apply to the proposed development. ✓
- The construction phase is short term and therefore any elevated levels of noise to off-Site receptors will be temporary and, as a result, are not expected to pose any risk to human health. In terms of the noise exposure of construction workers and potential hearing damage that may be caused due to exposure to high levels of noise, the Safety, Health and Welfare at Work (General Application) Regulations 2007 (Statutory Instrument No. 299 of 2007) provides guidance in terms of allowable workplace noise exposure levels for employees. The Regulations specify two noise Action Levels at which the employer is legally obliged to reduce the risk of exposure to noise. The appointed contractor will be required to comply with the Regulations and provide appropriate noise exposure mitigation measures where necessary. The noise exposure level to off-Site receptors during the construction phase will be below the lower Action Level and therefore the risk of noise exposure resulting in potential hearing damage to off-Site receptors is minimal. Nonetheless, it is good practice for the appointed contractor to monitor levels of noise and vibration during critical construction periods at nearby sensitive locations and/or development Site boundaries. ✓

Chapter 9 – Land, Soils and Geology

- Mitigation measures during the construction phase, as set out in mitigation section of this Chapter will apply to the proposed development. ✓
- Based on all available evidence, current soil quality beneath the greenfield Site are not considered to pose an unacceptable risk to human health, building and services, environmental receptors or third-party Sites. ✓
- During the construction phase, soils and bedrock may be at risk of becoming contaminated through Site construction activity; in particular the risk of fuel spillages and leakage. There is a risk of direct contact, ingestion or inhalation of volatile hydrocarbons from localised contamination (to onsite construction workers) via. potential onsite leaks. When the industry standard construction management and Health and Safety practices detailed in the mitigation section of this Chapter are implemented, the potential risk of human health impacts to construction workers arising from construction activities will be minimised. The potential overall impact of the ✓

1.2	Chapter 3 - Population and Human Health (continued)	<p>construction phase with regards to human health is therefore considered to be short-term, and slight negative.</p> <ul style="list-style-type: none"> The residual risks of flooding can be further managed by incorporation of good building practice in the detailed design and construction of the development and by maintenance and management of the property (e.g. routine drainage infrastructure maintenance, landscape maintenance and early identification of any condition surveys or repairs as may be required during the lifetime of the development). The following mitigation measures will be applied which will fully address identified risks to human health receptors during the operational phase; <p>Chapter 10 – Water</p> <ul style="list-style-type: none"> Mitigation measures during the operational phase, as set out in mitigation section of this Chapter will apply to the proposed development. During the operational phase, there is a potential risk of direct contact with contaminated storm water (to onsite maintenance workers) via. potential onsite leaks / spills during routine maintenance, or in the unlikely occurrence of unplanned events (traffic collision, emergency onsite fuel / oil spill, fire water arising from a property fire or SuDS failure). Taking account of the baseline environmental setting and proposed mitigation measures during both the construction and operational phases, any human health risks to onsite or offsite receptors as a result of groundwater or surface water impacts will be imperceptible. No human health risks associated with long term exposure to contaminants (via. surface water or groundwater pathways) resulting from the proposed development are anticipated. 	✓	✓	✓
1.3	Chapter 4 - Biodiversity	<p>Construction Environmental Management Plan (CEMP)</p> <p>A project specific Detailed Construction Environmental Management Plan (CEMP), based on the schedule of commitments presented in the EIAR (and NIS), will be prepared for the construction phase. An Outline CEMP has been prepared for submission with the planning application.</p> <p>The CEMP collates and sets out the environmental control measures required to minimise, and control adverse environmental impacts associated with the development. It is intended that the CEMP will be a live document, which will capture all construction-phase environmental mitigation measures included within the EIAR and any other measures which become apparent through the EIA consultation process and/or are prescribed through planning conditions etc. The CEMP will include enabling decommissioning works. The outline document provides a framework for the contractor to develop further as the project moves into the construction phase.</p> <p>The specific measures required for the protection of Dundalk Bay SPA & SAC, as set out in the NIS and Chapter 4 of this EIAR, are as follows:</p>	✓	✓	

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- • All construction and operations are to be carefully planned and implemented with a series of environmental management and control procedures. The CEMP details the general pollution prevention principles and measures which are to be implemented, water and sediment management measures to prevent pollution during the construction phase and measures to ensure the potential for pollution fuel, oil, chemicals and other construction materials is minimised. ✓
- The Contractor shall engage a suitably experienced ecologist, the Project Ecologist, who will be a full member of a relevant professional institute such as the Chartered Institute of Ecology and Environmental Management (CIEEM), have relevant experience in the management of ecological constraints during construction, and hold or have held a protected species licence(s). The Project Ecologist shall be appointed sufficiently in advance of construction to arrange for any mitigation requirements to be incorporated into the CEMP and any Site-specific method statements. ✓
- In advance of commencement of the construction phase, the disused existing onsite well, securely located within a pump house in the north-western portion of the Site will be fully decommissioned by an experienced borehole specialist in accordance with relevant guidelines, 'Good practice for decommissioning redundant boreholes and wells' (UK Environment Agency, 2012). This will ensure that redundant well is made both safe and structurally stable and will be suitably backfilled or sealed to prevent groundwater pollution and flow of water between different aquifer units. ✓
- The construction management of the Site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guides 'Control of Water Pollution from Construction Sites' and 'Groundwater control - design and practice' to minimise as far as possible the risk of pollution. ✓
- All of the mitigation measures (for the protection of soils and geology) listed in Chapter 9 will be implemented onsite during the construction phase. ✓
- The Contractor shall take all necessary precautions to prevent pollution or silting from construction activities. The following management, control and mitigation measures will be implemented:
 - Any groundwater temporarily dewatered during the construction of the infiltration basin, wastewater pumping station and any deep building foundations in localised areas in the eastern portion of the Site will be treated via. the installation of a temporary in-situ water treatment system; ✓
 - This system should be designed and sized to ensure that all pumped groundwater water is treated prior to discharge to a selected onsite location (via. a temporary soakaway). ✓
 - The Contractor will be required to provide a Site-specific dewatering plan, clearly setting out proposed excavation methodology, estimated dewatering rates, details of the proposed treatment system, and discharge location. ✓
 - Surface water attenuation measures are to be designed which will not be overwhelmed by one-off adverse precipitation events. ✓
 - Where practical, cut-off V drains will be utilised to divert water entering Site and reduce the amount of water to be managed on-Site. Attention will be given to the maintenance and protection ✓

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- of all drains and temporary channels to minimise scour and the mobilisation of suspended solids (e.g. lining with hessian or clean stone, check dams, silt fencing etc.). ✓
- Mud will be controlled at entry and exits to the Site using wheel washes and/or road sweepers, and tools and plant will be washed out and cleaned in designated areas. Wheel washings will be contained and treated prior to discharge. ✓
- Runoff will be directed to and intercepted by temporary settlement lagoons. The size of the settlement lagoon will be determined from predicted flow rates and retention times based on sediment particle size and density. ✓
- Neither groundwater nor surface water runoff from the working areas will be permitted to discharge directly to the environment. Runoff generated within the Site during construction will be filtered and treated to remove hydrocarbons and sediment. Total Suspended Solids (TSS), pH/EC and colour will be monitored daily and outlets from sedimentation ponds will incorporate a turbidity monitor with alarm at a high level. ✓
- Subject to consent, water that is unpolluted, aside from its silt content, may be pumped out over adjacent vegetated ground, where appropriate, with consideration given to groundwater level and saturation, wildlife importance and proximity to drainage channels. ✓
- In the event of surface water failing to meet the required standards water will be recirculated to the inlet of the sediment pond to provide further time for settlement. A penstock valve will be provided on the outlet from the sediment pond to control discharge from the Site. ✓
- The performance of the surface water drainage network will be maintained and monitored throughout the construction of the proposed development, noting that the proposed storm water system will include permanent hydrocarbon separators. ✓
- Where the Contractor utilises pumping to drain works areas, a back-up pump and generator must be provided on Site for use in the event of the primary pump failing. ✓
- Procedures are to be put in place to ensure the identification, remediation and correct reporting of any silt or other pollution incidents that may occur. ✓
- During localised construction works around the northern and eastern drainage channels (to facilitate the installation of the proposed 2no. outfalls/headwalls), any minor volumes of stripped soils should be stockpiled a minimum distance of 10m from each channel and should be appropriately covered. A temporary stormwater management system should be implemented by the Contractor. ✓
- Areas should be designated where stockpiles will be established in order to facilitate the efficient transfers of material within the Site. Stockpiles will be stabilised as soon as possible (e.g. sealed, closed over, seeded or covered using geotextile mats), and bunded by earth or silt fences at the toe to intercept silt-laden runoff during rainfall events. ✓
- Appropriate working practices to avoid the repetitive handling of excavated substrates, minimise vehicle movements, limit the size, number and frequency of stockpiles, reduce the compaction

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- and erosion of soils etc. and control the generation of dust. The implementation of a construction traffic management plan and controls on the locations of plant and materials will minimise the compaction and erosion of soil. Excavation is to be restricted during high winds and heavy rainfall to minimise dust generation and contaminated surface runoff. ✓
- Excavated materials are to be inspected for signs of possible contamination, such as staining or strong odours. Should any be noticed, substrates are to be segregated and samples analysed for contaminants to determine an appropriate means of disposal to licensed/permitted facilities appropriate for the waste classification. ✓
- In order to prevent any potential surface water/groundwater impacts via. release of hydrocarbon/chemical contaminants the following standard measures will be implemented:
 - The Contractor will ensure all Site personnel are trained in the handling of materials, the sensitive nature of the receiving environment, the drainage system and the consequences of accidental spillages. ✓
 - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, and paints, will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice; ✓
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the proposed development for disposal or recycling; ✓
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the proposed development and properly disposed of; ✓
 - All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area; ✓
 - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of groundwater becoming contaminated through Site activity; ✓
 - All oil stored on Site for construction vehicles will be kept in a locked and bunded area; ✓
 - Generators, pumps and similar plant will be placed on drip-trays to prevent contamination; ✓
 - All Site vehicles used will be refuelled in bunded areas; ✓
 - All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on Site in close proximity to any fuel storage tanks or bowsers during proposed Site development works; ✓
 - All fuel/oil deliveries to on-Site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes; ✓

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- Fixed plant shall be self-bunded; mobile plant shall be in good working order, kept clean, fitted with drip trays where appropriate and subject to regular inspection. Drip trays will be covered, emptied regularly as required and disposed of off-Site having regard for relevant waste management legislation; ✓
- Spill kits and oil absorbent material shall be carried with mobile plant and located at vulnerable locations around the Site to reduce the risk of spillages entering the sub-surface or groundwater environment; booms shall be held on-Site for works near drains or dewatering points; and, ✓
- Procedures are to be put in place to ensure the identification, remediation and correct reporting of any fuel, oil, chemical or other pollution incidents that may occur. ✓
- In order to prevent any potential surface water/groundwater impacts via. release of cementitious materials the following measures will be implemented:
 - No mixing of concrete will be carried out on Site. The measures detailed below will be employed where poured concrete is being used in the construction process; ✓
 - The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on Site and therefore these aspects will not pose a risk to the waterbodies present, namely any temporarily exposed groundwater, or local drainage channels, wetlands or Dundalk Bay; ✓
 - Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed; ✓
 - Any spillages will be cleaned up and disposed of correctly; ✓
 - Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening; ✓
 - Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete; and, ✓
 - Surplus concrete will be returned to batch plant after completion of a pour. ✓
 - The Contractor will dispose of all alkaline wastewaters and contaminated stormwater off-Site having regard for waste management legislation. ✓
- The Contractor will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance. ✓
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the Site in order to ensure that it is of a reputable origin and that it is “clean” (i.e. it will not contaminate the environment). ✓

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- • All material to be disposed of off-Site to a facility licensed having regard for relevant waste management legislation. Where material is to be stockpiled on Site prior to disposal, the Contractor will control all run-off to prevent contamination of surrounding watercourses. ✓
- The project specific Detailed CEMP will include an Emergency Response Plan (ERP) based on the Contractor's Risk Assessment, to be reviewed and approved by the Project Ecologist. The ERP will include (but not limited to): ✓
 - training of relevant staff, including cover staff, in the implementation of the ERP and the use of spill kits; ✓
 - procedures to be undertaken in the event of the release of any sediment into a watercourse, or any spillage of chemicals, fuel, oil or other hazardous materials or wastes; ✓
 - procedures to be undertaken in the event of any non-compliance incidents with any permit or licence, or other such risks that could lead to a pollution incident, including flood risks; ✓
 - the number, specification and location of all spill kits which shall be carried/kept on the Site; ✓
 - information on clean-up and reporting procedures; etc. ✓
 - While it is expected that the Site drainage system will be installed and commissioned early in the Site construction programme, and will, therefore, be operational for much of the construction phase, there will be a period of the construction phase during which the Site drainage system will not be operational. The project specific Detailed Construction Environmental Management Plan (CEMP) is required to cover this period and to deal with other issues during the construction phase. ✓
- Construction Programme** ✓

The project specific Detailed CEMP will include a section setting out the construction programme and will include all the environmental control measures required to avoid disturbance to SPA species, as set out below. The project specific Detailed CEMP will also set out general measures to manage noise and vibration from construction activities that may be employed at the Site.

All rock breaking, blasting and other high-intensity construction activities as may be required within the Site are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided. ✓

All discrete elements of Site construction close to the shore of Dundalk Bay (establishment of the main Site access and installation of infrastructure for Site drainage and discharge) are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided. ✓

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Sustainable Drainage Systems (SuDS)

The storm/surface drainage system for the operational phase has been designed based on Sustainable Drainage Systems (SuDS) principles and incorporated into the development proposals. The specific aspects of the drainage design required for the protection of Dundalk Bay SPA and SAC, as set out in the NIS and Chapter 4 of this EIAR, are as follows.

The SUDS scheme has been designed, through iterative project design and assessment, with the habitat features and conservation objectives of the SPA and SAC in mind. Storm and surface water arising from the Site will ultimately discharge to the SPA/SAC; the SUDS system has been designed to collect and attenuate storm/surface water arising from the Site and conduct the allowable greenfield runoff to the discharge points alongside the R172, on the edge of Dundalk Bay and to the degraded wetland alongside the main Site entrance. No outfalls are proposed within the designated area and maximum discharges are limited to pre-development greenfield runoff rates, further reduced, retarded and diffused through additional measures designed into the system. ✓

The system includes four separate networks, an infiltration basin, a box culvert at the outlet and a several other features designed to reduce the velocity of the discharge flow in the receiving channel and therefore prevent any erosion or degradation of semi-natural habitat areas within Dundalk Bay. The design of the discharge, into an existing open channel from a box culvert, is such that there will be no structures or development on the foreshore and no direct discharge to any area within the SAC/SPA boundaries. ✓

Two of the four networks serve that part of the development Site where the new residential units will be constructed, Networks 1 & 2, which serve 96% of the new development, collect surface water to the stormwater infiltration basin, from where it can be retained prior to discharge (or diverted in an emergency, as detailed further below). Network 3 is the gravity pipeline which conveys the allowable greenfield runoff to the discharge channel along the R172. Network 4 is a separate drainage network that serves the main Site access roadway; the topography of this area of the Site is such that the runoff will discharge to the degraded wetland alongside the main Site entrance. The north-eastern section of the Site, which contains 20 no. units includes a stormwater infiltration basin. Site investigations have confirmed capacity in the sub-soil for surface water runoff infiltration in this area – this will have the impact of reducing the volume of surface water runoff from the developed Site. Network 3 also conducts runoff from this area to the box culvert outfall. ✓

The volume of surface water runoff held within the infiltration basin will vary in response to preceding precipitation; the provision of a penstock valve on the outlet allows discharge flow to the box culvert and receiving channel to be controlled and limited. ✓

The section of the box culvert (1.0 m wide x 0.75 m high), which conducts the discharge flow to the existing receiving channel, will be laid at a flat gradient and will be partially submerged, to provide a depth of water ✓

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- within the base. This will ensure that the velocity of water flow from the outlet will be less than 0.5 ms⁻¹. Discharge velocity will be further reduced by stone riprap at the outlet, which will also diffuse the flow into the receiving channel.

The ultimate transfer of storm/surface water arising from the Site will occur via infiltration, at a rate of flow less than 0.5 ms⁻¹, to semi-natural habitats within Dundalk Bay, on the shore side of the R172, but well outside the SAC and SPA boundaries. There will, therefore, be no outfall or any appreciable flow of water directly to natural habitats within Dundalk Bay SPA/SAC, and no potential for any habitat loss or fragmentation through degradation or erosion.

✓

Silt Traps & Hydrocarbon Interceptors

As is set out in the NIS and Chapter 4 of this EIAR, the SuDS design includes silt removal traps and Class 1 hydrocarbon separators within each of the four networks. This is the primary mechanism for preventing contaminated surface water runoff entering Dundalk Bay during the operational phase.

✓

For Networks 1 & 2, the silt traps and hydrocarbon separators are to be installed prior to discharge to the stormwater infiltration basin. For Network 3, a separate silt trap and interceptor is provided to treat runoff from the north-eastern section of the Site. Similarly, for Network 4, a separate silt trap and hydrocarbon separator will be installed on the line before discharge to the wetland area.

✓

The traps and separators have been designed specifically to the capacity/flow for each network with a minimum retention time of 6 minutes to allow immiscible hydrocarbon pollutants to accumulate on the surface and suspended solids to sink to the bottom of the unit.

✓

The most likely sources of contamination of the surface and storm runoff are general grit and silt arising from gardens and hard surfaces, hydrocarbons from vehicle exhausts and fuels or oil spills and leaks, vehicle tyre wear, burning plastics, wastewater from washing cars, pesticides etc. used for gardening and materials used in home maintenance. While the risks to the designated Sites from these forms of contamination are significant, the likely volumes are expected to be low and to remain within the design capacity of the traps and interceptors, maintained and cleaned in line with the manufacturer's recommendations.

✓

All storm/surface water will, therefore, be treated prior to discharge. As the Network 1 & 2 traps and separators are to be installed in line before the infiltration basin, 96% of surface/stormwater arising from the development will also be subject to the contingency arrangements detailed below for failure and overloading. These arrangements will ensure that any contamination within surface water that may arise on the Site will be removed and prevented from discharging to Dundalk Bay SPA/SAC. All surface and storm waters discharging to ground or more directly to Dundalk Bay will be clean and clear.

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Habitats & Flora

Phasing, Landscaping Replanting & Maturation (Trees & Hedgerows)

Significant levels of boundary and internal landscape planting are proposed which will enhance retained vegetation and offset the minor and incidental losses required to implement the proposed development. Proposed new landscaping and planting will enhance and strengthen hedgerow boundaries and increase the woodland/scrub resource within the Site. The loss of the small wetland area to the construction of the main Site access will be further compensated by the creation of new attenuation pond/wetland area. The scheme will be developed in phases, as illustrated by the phasing plan. Overall losses will be experienced gradually, allowing time for new planting to establish and develop.



Bats

Phasing, Landscaping Replanting & Maturation (Trees & Hedgerows)

The scheme will be developed in phases, as illustrated by the phasing plan. Overall losses will be experienced gradually, allowing time for commuting and foraging to be re-established along Site boundaries and within the range of the species affected.



The detailed landscaping scheme shows significant levels of new internal landscape and boundary planting which will enhance and strengthen hedgerow boundaries and increase the woodland/scrub resource within the Site. The creation of a new wetland/attenuation pond area within zoned open space in the eastern section of the Site may enhance the overall habitat utility of the Site for bats.



Lighting Design

At present, most of the Site retains high levels of nocturnal darkness, with just sporadic illumination around the boundaries from dwellings on adjoining lands. It will be necessary to design Site lighting, both temporary lighting required for the construction phase and the permanent public amenity scheme, to ensure minimal spillage onto the Site boundaries.



Terrestrial Mammals – Badgers

Phased Development

The scheme will be developed in phases, as illustrated by the phasing plan. Overall habitat losses will be experienced gradually, allowing time for commuting routes and foraging to be established elsewhere within the territory of the local social group.



Badger Underpass

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- A badger underpass will help maintain the local commuting route along the eastern Site boundary, particularly during the winter when badger activity is more frequent in this area and animals are active earlier in the evening. The specific design of the underpass, and associated fencing/planting etc. will be in accordance with relevant best practice standards. The approximate position of badger trails along the eastern Site boundary is indicated in Chapter 4 of the EIAR. The location of the proposed underpass is to be micro-Sited in advance of the commencement of the construction phase within the constraints of road alignment and open space in the immediate vicinity.











Construction phase Management & Protection

Noting that the scheme will be developed in phases, the Site will be resurveyed for badger activity and the presence of setts by the project ecologist during the autumn/winter prior to the commencement of each phase of development, with walkover verification and check surveys completed in the 4 weeks prior to commencement of each new phase and periodically during construction works. Any new setts that may be established within the Site can be managed through the wildlife licensing process.



The following standard management and protection measures will be implemented during the construction works and monitored by the project ecologist.

- Prior to works commencing, all personnel are to be briefed about the presence of badgers in the area and the management and protection measures to be implemented. 
- The Site, ongoing development/construction operations and any badger management/protection measures are to be checked periodically by the project ecologist to ensure best practice and compliance. Badger activity within and around the Site will be monitored by the project ecologist to ensure that no significant perturbations or disturbances to the local social group with remedial mitigation designed and implemented as necessary. 
- No excavations are to be left uncovered overnight or without a means of egress (e.g. a ramp or sloped plank) to prevent badgers from falling in or entering in search of food and becoming trapped. 
- No buildings or storage units are to be left open overnight to prevent badgers from entering in search of food and becoming trapped. 
- All food waste is to be properly secured and disposed of to avoid attracting badgers to the Site. 
- No toxic, poisonous or potentially harmful substances or materials are to be left unsecured overnight. 
- Should any new badger setts or mammal burrows be discovered within the Site or immediately adjoining areas the project ecologist is to be contacted for immediate inspection, advice and liaison with NPWS as necessary. 
- Should any sick, injured or dead badgers be encountered or discovered, or should any badgers be sighted within the Site during daylight, the project ecologist is to be contacted for immediate inspection, advice and liaison with NPWS. 

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Terrestrial Mammal – Hedgehogs

Phased Development

The scheme will be developed in phases, as illustrated by the phasing plan. Overall habitat losses will be experienced gradually, allowing time for the local population to habituate to the reconfigured habitat resource.



Hibernacula/Refugia

It is recommended that habitat niches suitable for hedgehog refuge and hibernation, for example, piles of logs and cut branches, are created at suitable locations within planted areas around the Site boundaries where these adjoin undeveloped lands. The specific design and situation to be determined, and installation undertaken, by the project ecologist within the constraints and opportunities presented by the phased construction of the scheme.



Construction phase Management & Protection

Noting that the scheme will be developed in phases, the Site will be resurveyed for hedgehogs by the project ecologist during the late summer or autumn prior to the commencement of each phase of development, with walkover verification and check surveys completed in the 4 weeks prior to commencement and periodically during construction works. Specific attention is to be paid to potential hibernation Sites during the winter months. Any hedgehogs discovered can be removed to a safe location or into care by a qualified and experienced mammal handler and through the wildlife licensing process.



The following standard management and protection measures will be implemented during the construction works and monitored by the project ecologist.



- Prior to works commencing, all personnel are to be briefed about the presence of hedgehogs in the area and the management and protection measures to be implemented.
- The Site, ongoing development/construction operations and any hedgehog management/protection measures are to be checked periodically by the project ecologist to ensure best practice and compliance.
- Site operations should avoid leaving piles of cut branches or vegetation, which might attract hedgehogs for refuge, in areas away from the Site boundaries. Any such piles which must be moved are to be checked for hedgehogs by the project ecologist.
- No excavations are to be left uncovered overnight or without a means of egress (e.g. a ramp or sloped plank) to prevent hedgehogs from falling in or entering in search of food and becoming trapped.
- No buildings or storage units are to be left open overnight to prevent hedgehogs from entering in search of food and becoming trapped.
- All food waste is to be properly secured and disposed of.



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<ul style="list-style-type: none"> No toxic, poisonous or potentially harmful substances or materials are to be left unsecured overnight. Should any sick, injured or dead hedgehogs be encountered or discovered, or should any hedgehogs be sighted within the Site during daylight, the project ecologist is to be contacted for immediate inspection, advice and liaison with NPWS. 	<p>✓</p>
<p>Terrestrial Mammal – Hares</p> <p><i>Phased Development</i></p> <p>The scheme will be developed in phases, as illustrated by the phasing plan. Overall habitat losses will be experienced gradually, allowing time for the local population to habituate to the reconfigured habitat resource.</p>	<p>✓</p>
<p><i>Construction phase Management & Protection</i></p> <p>Noting that the scheme will be developed in phases, the Site will be resurveyed for hares by the project ecologist prior to the commencement of each phase of development, with walkover verification and check surveys completed periodically during construction works.</p>	<p>✓</p>
<p>Should any sick, injured or dead hares be encountered or discovered, or should any hares be sighted within the Site during daylight, the project ecologist is to be contacted for immediate inspection, advice and liaison with NPWS.</p>	<p>✓</p>
<p>Any leverets encountered should not be handled or moved and must be left undisturbed until retrieved by the mother. The project ecologist is to be contacted for immediate inspection, advice and monitoring (and liaison with NPWS if required).</p>	<p>✓</p>
<p>Herpetofauna – Frogs</p> <p><i>Landscaping (Ponds)</i></p> <p>The loss of the small wetland area to the construction of the main Site access will be compensated by the creation of a new attenuation pond/wetland area.</p>	<p>✓</p>
<p><i>Construction phase Management & Protection</i></p> <p>The wetland area will be surveyed for breeding frogs and spawn by the project ecologist during the late winter and early spring prior to the commencement of Site access works. Any breeding population of frogs/spawn can be removed to a safe location and/or managed through the wildlife licensing process.</p>	<p>✓</p>
<p>Avifauna – Breeding/Nesting Assemblage</p> <p><i>Phasing, Landscaping Replanting & Maturation (Trees & Hedgerows)</i></p>	<p>✓</p>

1.3
(continued)

Chapter 4
Biodiversity
(continued)

- The scheme will be developed in phases, as illustrated by the phasing plan. Overall losses will be experienced gradually, allowing time for nesting and foraging to be re-established along Site boundaries and within the Site as development progresses.

The detailed landscaping scheme shows significant levels of new internal landscape and boundary planting which will enhance and strengthen hedgerow boundaries and increase the woodland/scrub resource within the Site.



Construction Programme

All incidental vegetation clearance/removal will be implemented in the winter months, outside the bird breeding season, to ensure that no active nests are destroyed, damaged or disturbed. Where this is not possible, works will be undertaken under the supervision of the project ecologist, once it has been established that vegetation is free from active nests.



Avifauna – Wintering Assemblage

Construction Programme

All rock breaking, blasting and other high-intensity construction activities as may be required within the Site are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided.



All discrete elements of Site construction close to the shore of Dundalk Bay (establishment of the main Site access and installation of infrastructure for Site drainage and discharge) are to be programmed to take place outside the wintering season for SPA feature species (i.e. to take place between May and September) to ensure that disturbance to wintering species is avoided.



The Construction Programme will be set out in the project specific Detailed Construction Environmental Management Plan (CEMP) and will include these constraints. The project specific Detailed CEMP will also set out general measures to manage noise and vibration from construction activities that may be employed at the Site.



The project ecologist will monitor wintering bird numbers and behaviour within and around the Site and along that section of the foreshore of Dundalk Bay close to the Site on a monthly basis during each wintering season while construction is on-going. Additional monitoring will be undertaken prior to and during any activity which may disturb local populations of any SPA feature species.



1.4

Chapter 4
Biodiversity
(continued)

For the operational phase, the SuDS drainage system includes several measures for maintenance and management and contingency for emergencies and failure.

- The Drainage Assessment sets out a detailed schedule for inspection and maintenance/cleaning of the silt traps and hydrocarbon separators through the construction phase, the initial operational phase and thereafter, with the longer-term schedule to be defined following the first 6 months of Site experience.
- All silt traps and hydrocarbon separators will be located in areas where they will be easily accessible for maintenance and cleaning. All will be fitted with an alarm system that will activate when the level of hydrocarbon pollutants reach a pre-determined level where maintenance and cleaning will then be required.

While the risk of contamination from expected/design volumes of contamination will be removed by the traps and interceptors functioning normally and maintained and cleaned in line with the manufacturer's recommendations, larger scale incidents such as a property fire will generate larger volumes of contaminated water which will enter the drainage system. As the traps and separators are unlikely, in such cases, to remove all the contaminants it is proposed that a pipeline is installed, connecting the infiltration basin to the nearby foul sewerage pumping station, and fitted with a penstock valve. This would allow larger volumes of contaminated surface water runoff to be held in the infiltration basin (which is designed with considerable additional capacity) while a decision to be made on how to satisfactorily deal with the incident and the option to divert to the public foul sewerage network for treatment in the municipal plant before discharge. A second penstock valve would also be fitted on the outlet pipeline (Network 3) to close the discharge to Dundalk Bay while contaminated flows are diverted. These procedures will ensure that in emergency situations larger volumes of contaminated water can be prevented from discharging to Dundalk Bay SAP/SAC.

Foul Disposal

As is set out in the NIS and Chapter 4 of this EIAR, mains infrastructure for foul sewage disposal has been designed in accordance with Irish Water Code of Practice. All wastewater streams will be collected within a gravity network and will be transferred to public mains via. an on-Site foul sewerage pumping station with rising main from where it will connect to the public gravity mains at a stand-off manhole located at the N52 junction with the Crowne Plaza Hotel/ DKIT entrance, and to the municipal Dundalk Wastewater Treatment Plant (WWTP). The proposed onsite wastewater pumping station which will be a closed system, located along the eastern boundary of the Site, with capacity for minimum 12-hour emergency storage. Irish Water has confirmed that the existing foul network has sufficient capacity to meet the combined wastewater discharge volumes expected from the proposed development, once operational.



1.4
(continued)

Chapter 4 -
Biodiversity
(continued)

Site-Specific Environmental Management Plan (EMP)

The following mitigation measures, which should form part of a Site-specific Environmental Management Plan (EMP) during the operational phase, are proposed:

- All plant and equipment utilised onsite during maintenance works should be checked and in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site;
- Any minor volumes of fuel, oil or chemicals required during routine maintenance works will be brought to and from the Site by the maintenance contractor. While temporarily onsite all chemicals will be kept in secure and bunded areas, with relevant Material Safety Data Sheets available onsite. Any fuel/oil tanks temporarily stored on Site will be located in a suitably bunded area and all tanks will be double skinned, with oil/chemical absorbent materials held onsite in close proximity to the tanks;
- In the unlikely event of a fuel/oil or chemical spill/leak during routine maintenance works, emergency spill response measures will be implemented with the aim of limiting the volume spilled and recovering as much of the lost product as possible;
- A detailed Site Management Plan should be put in place for the operational phase of the development. This plan should clearly outline standard operating procedures for each of the following:
 - Maintenance of newly installed stormwater drainage system including all newly installed gullies, silt trap and Class 1 petrol/oil separators, infiltration basin, emergency penstock valves, and outfalls. Routine inspections of all silt traps and silt trap and Class 1 petrol/oil separators will minimise the potential risk of equipment failure;
 - Maintenance of newly installed foul drainage system including the newly commissioned wastewater pumping station, rising main, pump (and back-up pump), and emergency storage tank;
 - Emergency response in the unlikely event of a major fuel/oil spill onsite;
 - Emergency response in the unlikely event of a major fire at any of the newly constructed properties;
 - Action response in the unlikely event of a deterioration in stormwater quality discharging from the Site; and,
 - Waste management
- The management plan should include all health and safety and environmental management procedures associated with the above tasks and should also identify when routine equipment

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1.4 (continued)	Chapter 4 - Biodiversity (continued)	<p>maintenance and checks will be carried out (as per the relevant manufacturer's requirements and industry standards).</p> <ul style="list-style-type: none"> • A nominated person (Site maintenance manager) should be responsible for ensuring that all required equipment maintenance, checks and repairs are carried out as and when required and will keep an up to date maintenance record for the Site. Contact details of an alternative Site maintenance contact should be included within the management plan. • The roles, responsibilities, and contact details for all Site maintenance operators and emergency services should be contained within the management plan, along with reporting and notification procedures for management, regulators and stakeholders. • The Site maintenance manager will be responsible for ensuring that, in the unlikely event of either a SuDs failure (e.g. overloading of silt trap and Class 1 petrol/oil separator) or a major onsite contamination incident (e.g. fire water run-off following major property fire) all emergency penstock valves will be immediately closed, resulting in all stormwater from the Site being either diverted, or held within the onsite infiltration basin, as per the engineering design. • All contaminated water should be disposed of to a suitably licenced offsite waste facility, in accordance with all relevant waste management legislation. This will ensure that there is no risk of any contaminated stormwater impacting Dundalk Bay SAC/ SPA. Procedures and checks would have to be put in place to ensure that the valves are returned to their normal states once the contaminated volume of stormwater is removed from the basin and storm drainage network. <p>Lighting Design</p> <p>As is set out in Chapter 5 of the EIAR, detailed lighting will be designed in accordance with relevant best practice standards and current technology, to satisfy all statutory and planning requirements. The Bat Conservation Trust (BCT) provides detailed guidance¹⁴ on lighting design which will be applied.</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	
1.5	Chapter 5 - Landscape and Visual	<p>The current development plan for the subject Site includes a significant area of open space (3.7Ha) which would effectively form a central spine in an east-west direction. This open space broadly separates the development Site into three main parts, with residential areas along the northern and the southern boundaries, and open space dominating the central portion.</p> <p>In landscape and visual terms this offers very positive outcomes for the development Site by avoiding uniform, uninterrupted spread of built development across the entire application area. This large open space also offers potential to accommodate significant vertical landscape elements such as woodland,</p>	<p>✓</p> <p>✓</p>	

¹⁴ Available from: <https://www.bats.org.uk/our-work/buildings-planning-and-development/lighting>

1.5
(continued)

**Chapter 5 -
Landscape and
Visual
(continued)**

hedgerows, earthworks and individual parkland trees which greatly enhance the potential to screen and integrate built elements of the development.

Phasing

There are 11no. preliminary development phases proposed for this Site (refer to Chapter 2 – Project Description), which would be implemented over a five year period. This development timeframe therefore offers an opportunity for mitigation through the establishment of advanced boundary and structure planting (i.e. planting at the earliest opportunity). For example, along the Bóthar Maol boundary to the north, the preliminary phasing suggests 4no. phases (Phase 7, 9, 10 and 11). Therefore, based on the above assumptions, development in this part of the Site could commence towards the end of the construction phase, in which case any advanced structure / screening planting would be established.



Residential Amenity

Figures 5.13 to 5.17 (Appendix D of EIAR) have been prepared to consider outline residential amenity for existing properties surrounding the subject Site, (particularly along Bóthar Maol). As these figures illustrate the majority of properties adjacent and near to the subject Site are bound by robust hedgerows, fences and walls. However, a small number have open uninterrupted views into the development Site. In these locations additional advanced landscape treatment would be introduced to create visual screening and preserve privacy.



Existing planting would be retained along these boundaries and all major proposed planting would be comprised predominantly of native indigenous plant species to facilitate the absorption of the proposed development within the host landscape. Grass seeding and tree planting should occur at the earliest possible stage within the construction program.



Lighting

Consideration of potential impacts arising from lighting both during the construction phase and following implementation (i.e. lighting associated with the ongoing development) forms an important aspect of the landscape and visual assessment.



Lighting Construction phase

The principal lighting impacts which are often associated with construction Sites and would be relevant at this location are as follows:

- Temporary floodlighting particularly during the winter months;
- Temporary security lighting;
- Lighting at height associated with construction of structures;
- Lighting in the contractors compound and car parking areas;
- Light spill and glare towards surrounding residential receptor areas predominantly along Bóthar Maol;



1.5
 (continued)

 Chapter 5 -
 Landscape and
 Visual
 (continued)

- Light spill eastwards over Dundalk Bay and the Cooley Peninsula; and
- Glare from illuminated advertisements.

✓

The key opportunities to mitigate lighting impacts by implementing best practice during construction will include:

- Specified working hours, uses of lighting, location of temporary floodlights and construction compound to be agreed with the Local Authority; ✓
- Lighting to be switched off when not required specifically for construction activities or required for security or health and safety; ✓
- The programme of works will take into account the location of sensitive receptors, particularly to the North (Bóthar Maol) and east of the Site (Dundalk Bay/ Cooley Peninsula) ✓
- Glare caused by poorly directed security and flood lighting will be minimised by positioning lights to <70 degrees and directing into the centre of the Site, in a generally west and southward direction. ✓
- Light spill will be minimised by avoiding poorly sighted lights on the boundary of the development; ✓
- Sky glow will be minimised by use of modern flood lights with appropriate shields to avoid light spilling upwards; and, ✓
- Should any illuminated advertising be installed to advertise the development during construction, the signage should be carefully illuminated in order to minimise glare and follow best practice guidelines. ✓

All of the above measures will be incorporated into the Outline Construction Environmental Management Plan (CEMP) submitted as part of this planning application and will be developed further by the Contractor within the project specific Detailed CEMP which will be prepared for the construction phase of the proposed development. ✓

1.6

Lighting Post Construction (Operational)

The future detailed lighting will be designed in accordance with relevant best practice standards and current technology, to satisfy all statutory and planning requirements. Additionally, the proposals for the development include a comprehensive landscaping strategy which will further reduce potential impacts of any lighting installed by providing screening. It is important to note that the proposed land uses (predominantly residential) are typically lit with a lighting specification unlikely to trigger nuisance complaints. In addition to this, the open space areas will not be floodlit. The impacts of the external lighting will be minimised by the installation of lighting to the minimum specification required to provide a safe night-time environment for residents and others using onsite facilities e.g. creche. Therefore, lighting will be designed to comply with the minimum luminance levels given within the appropriate guidance.

✓

1.6 (continued)	Chapter 5 - Landscape and Visual (continued)	<p>Sky glow is limited in the areas surrounding the Site, however, it is visible directly to the north and to the east in the direction of Dundalk Bay and Cooley Peninsula; therefore, it is recommended that luminaries typical of a rural town or village location are installed. This would require luminaires that permit up to 2.5% sky glow upward lighting ratio; however, it would be prudent to choose a high specification where possible. Such a specification would have a better performance than the majority of existing light fittings in residential areas surrounding the Site.</p> <p>All lamps used for external lighting should be high pressure sodium lamps of the same colour and temperature. The whiter light emitted by high pressure sodium lamps provide superior colour rendering to the more orange low-pressure sodium lamps, and additionally reduce impacts on the night time scene (due to their poor performance, low pressure sodium lights have now been phased out for new developments or lighting upgrades). Additionally, care should be taken to minimise glare from any luminaires installed, by ensuring the correct luminaire is selected and installed correctly.</p> <p>The following mitigation measures will also apply:</p> <ul style="list-style-type: none"> • Where practicable, switch off lights when not required for safety, security or enhancement of the night-time scene (this could be achieved through automatic timer in appropriate locations); • The lighting design prepared at the detailed design stage should utilise low light pollution flat glass luminaires throughout to ensure adherence with rural environmental standards; and, • Low level bollard lights could be proposed as a subtle alternative to taller columns along the footpaths and cycle routes, particularly through the central zoned open space. 	 	
1.7	Chapter 6 - Air Quality and Climate	<p>The greatest potential impact on air quality during the construction phase is from construction dust emissions, PM10/PM2.5 emissions and the potential for nuisance dust. In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of a dust minimisation plan. Due to the sensitivity of the current residential receptors to the Site additional mitigation measures recommended in the Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction (2014) for sensitive receptors have been included. Provided the dust minimisation measures outlined in the Dust Plan (see Appendix E of EIAR) and Outline Construction Environmental Management Plan are adhered to, the air quality impacts during the construction phase should be not be significant.</p> <p>In summary the measures which will be implemented will include:</p> <ul style="list-style-type: none"> • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential Site traffic. • Furthermore, any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions. 	 	

		<ul style="list-style-type: none"> • Situate any noisy plant as far away from sensitive properties as is reasonably practicable and the use of vibration isolated support structures where necessary • Establishing channels of communication between the contractor/developer, Local Authority and residents, and; • Appointing a Site representative responsible for matters relating to noise and vibration. 	<p>✓</p> <p>✓</p> <p>✓</p>	
1.9	Chapter 8 - Traffic	<p>The following mitigation measure shall apply:</p> <ul style="list-style-type: none"> • All construction activities will be managed and directed by a Construction Traffic Management Plan (CTMP). The details of the CTMP will be agreed with the roads department of the Local Authority in advance of construction activities commencing on-Site. 	<p>✓</p>	
1.10	Chapter 9 - Land, Soils and Geology	<p>Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas. Topsoil stockpiles will be protected for the duration of the works and will be located so as not to necessitate double handling.</p> <p>The design of road levels and finished floor levels has been carried out in such a way as to minimise cut/fill type earthworks operations. The duration that subsoil layers are exposed to the impacts of weather will be minimised. Disturbed subsoil layers 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). Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material will be protected for the duration of the works. Stockpiles of subsoil material will be located separately from topsoil stockpiles.</p> <p>The excavation of material will be minimised as much as possible to reduce the impact on soils and geology. Topsoil and any native soils that can be used for amenity purposes will be stockpiled on the proposed development area for use as required in the final landscaping of the development.</p> <p>Any surplus material, or materials which are deemed not suitable for onsite reuse will be managed, transported and disposed of in accordance with the requirements of the Waste Management Act 1996, as amended, and the Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste. A project specific Detailed Waste Management Plan will be fully implemented onsite for the duration of the project.</p> <p>The mitigation measures for prevention of soil / bedrock contamination during construction are proposed below. Mitigation measures outlined in Chapter 10 - Water are also applicable to the protection of soils and geology during the construction phase;</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>	

1.10
(continued)

Chapter 9 -
Land, Soils and
Geology
(continued)

- Earthworks plant and vehicles delivering construction materials to Site will be confined to predetermined haul routes around the Site. ✓
- Vehicle wheel wash facilities will be installed in the vicinity of any Site entrances and road sweeping implemented as necessary in order to maintain the road network in the immediate vicinity of the Site. ✓
- Dust suppression measures (e.g. dampening down) will be implemented as necessary during dry periods. ✓
- The employment of good construction management practices will serve to minimise the risk of pollution from construction activities at the proposed development in line with the Construction Industry Research and Information Association (CIRIA) publication entitled, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, CIRIA - C532 (2001) which are also detailed in Chapter 10 - Water. Specifically, with regard to soils and geology, the following will be adhered to: ✓
 - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice; ✓
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the proposed development for disposal or re-cycling; ✓
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the proposed development and properly disposed of; ✓
 - All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area. ✓
 - All plant and machinery will be serviced before being mobilised to Site; ✓
 - No plant maintenance will be completed on Site, any broken-down plant will be removed from Site to be fixed; ✓
 - Refuelling will be completed in a controlled manner using drip trays at all times; ✓
 - Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water; ✓
 - Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores; ✓
 - Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored; ✓
 - Ancillary equipment such as hoses and pipes will be contained within the bund; ✓
 - Taps, nozzles or valves will be fitted with a lock system; ✓
 - Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage; ✓

1.10 (continued)	Chapter 9 - Land, Soils and Geology (continued)	<ul style="list-style-type: none"> - Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills; ✓ - Only designated trained operators will be authorised to refuel plant on Site; ✓ - Procedures and contingency plans will be set up to deal with emergency accidents or spills; and, ✓ - An emergency spill kit with oil boom, absorbers etc. will be kept on-Site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment. ✓ - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of soils and bedrock becoming contaminated through Site activity. ✓ - Highest standards of Site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the Site and surrounding environment during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the Site to ensure that they are operating safely and effectively. ✓ <ul style="list-style-type: none"> • All Site workers will use appropriate PPE if required to clean up any potential fuel spillage onsite including gloves and dust masks to minimise contact with contaminated soil. ✓ • All excavated materials will be stored away from the excavations, in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m. ✓ • A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the Site. ✓ <p>All of the above mitigation measures will form part of a site-specific Detailed Construction Environmental Management Plan (CEMP) which will be in operation during the construction phase. ✓</p>		
1.11	Chapter 10 - Water	<p>With regard to groundwater and surface water quality impacts the following mitigation measures are proposed;</p> <ul style="list-style-type: none"> • In advance of commencement of the construction phase, the disused existing onsite well, securely located within a pump house in the north-western portion of the Site will be fully decommissioned by an experienced borehole specialist in accordance with relevant guidelines, 'Good practice for decommissioning redundant boreholes and wells' (UK Environment Agency, 2012). This will ensure that redundant well is made both safe and structurally stable and will be suitably backfilled or sealed to prevent groundwater pollution and flow of water between different aquifer units. ✓ • The construction management of the Site will take account of the recommendations of the Construction Industry Research and Information Association (CIRIA) guides 'Control of Water' ✓ 		

1.11
(continued)

Chapter 10 –
Water
(continued)

Pollution from Construction Sites' and 'Groundwater control - design and practice' to minimise as far as possible the risk of pollution.

- All of the mitigation measures (for the protection of soils and geology) listed in Chapter 9 will be implemented onsite during the construction phase. ✓
- During localised construction works around the northern and eastern drainage channels (to facilitate the installation of the proposed 2no. outfalls / headwalls), any minor volumes of stripped soils should be stockpiled a minimum distance of 10m from each channel and should be appropriately covered. A temporary storm water management system should be implemented by the Contractor. ✓
- Any groundwater temporarily dewatered during the construction of the infiltration basin, wastewater pumping station and any deep building foundations in localised areas in the eastern portion of the Site will be treated via. the installation of a temporary in-situ water treatment system;
 - This system should be designed and sized to ensure that all pumped groundwater water is treated via. a temporary attenuation pond, prior to discharge to a selected onsite location (via. a temporary soakaway). ✓
 - The Contractor will be required to provide a Site-specific dewatering plan, clearly setting out proposed excavation methodology, estimated dewatering rates, details of proposed treatment system, and discharge location. ✓
- In order to prevent any potential surface water / groundwater impacts via. release of hydrocarbon / chemical contaminants the following standard measures will be implemented:
 - Fuels, lubricants and hydraulic fluids for equipment used on the construction Site, as well as any solvents, oils, and paints will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice; ✓
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the proposed development for disposal or re-cycling; ✓
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the proposed development and properly disposed of; ✓
 - All Site vehicles used will be refuelled in bunded and adequately sealed and covered areas in the construction compound area. ✓
 - Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-Site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Site. This will minimise the risk of groundwater becoming contaminated through Site activity. ✓
 - All oil stored on Site for construction vehicles will be kept in a locked and bunded area; ✓
 - Generators, pumps and similar plant will be placed on drip-trays to prevent contamination; ✓

1.11
(continued)

Chapter 10 –
Water
(continued)

- All Site vehicles used will be refuelled in bunded areas;
 - All temporary construction fuel tanks will also be located in a suitably bunded area and all tanks will be double skinned. Relevant Material Safety Data Sheets along with oil absorbent materials will be kept on Site in close proximity to any fuel storage tanks or bowsers during proposed Site development works; and,
 - All fuel / oil deliveries to on-Site oil storage tanks will be supervised, and records will be kept of delivery dates and volumes. ✓
 - In order to prevent any potential surface water / groundwater impacts via. release of cementitious materials the following measures will be implemented:
 - All proposed outfall structures and headwalls along the northern and eastern drains will be precast. Poured concrete will not be used in these sensitive areas. ✓
 - The measures detailed below will be employed where poured concrete is being used on the main Site in the construction process; ✓
 - The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on Site and therefore these aspects will not pose a risk to the waterbodies present, namely any temporarily exposed groundwater, or local drainage channels, wetlands or Dundalk Bay; ✓
 - Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed; ✓
 - Any spillages will be cleaned up and disposed of correctly; ✓
 - Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening; ✓
 - Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete; and, ✓
 - Surplus concrete will be returned to batch plant after completion of a pour. ✓
- The above mitigation measures will form part of the Outline Construction Environmental Management Plan (CEMP) submitted as part of this planning application, and which will be further developed by the Contractor within the project-specific Detailed CEMP which will be in operation during the construction phase. ✓

1.12

Taking account of the engineering design of the proposed development (which has been duly informed by the receiving environment), the risk of potential water impacts at the proposed development Site are considered lower during the operational phase. However, given the sensitivity of the receiving environment to groundwater and surface water impacts, the following mitigation measures are proposed during the operational phase; ✓

1.12 (continued)	Chapter 10 - Water (continued)	<p>The Site maintenance manager will be responsible for ensuring that, in the unlikely event of either a SuDs failure (e.g. overloading of silt trap and Class 1 petrol/oil separator) or a major onsite contamination incident (e.g. fire water run-off following major property fire) all emergency penstock valves will be immediately closed, resulting in all storm water from the Site being either diverted, or held within the onsite infiltration basin, as per the engineering design. All contaminated water should be disposed of to a suitably licenced offsite waste facility, in accordance with all relevant waste management legislation. This will ensure that there is no risk of any contaminated storm water impacting Dundalk Bay SAC/ SPA. Procedures and checks would have to be put in place to ensure that the valves are returned to their normal states once the contaminated volume of storm water is removed from the basin and storm drainage network.</p> <p>Contact details of an alternative Site maintenance contact should be included within the management plan. In the event that the nominated Site maintenance manager is unavailable, this contact will be tasked with the responsibility of ensuring all emergency penstock valves are immediately closed should either a SuDs failure, or major onsite contamination incident occur, and will be responsible for ensuring all contaminated water is appropriately removed and disposed of offsite in accordance with all relevant waste management legislation.</p> <p>These mitigation measures should form part of a Site-specific Environmental Management Plan (EMP) during the operational phase.</p>	✓	✓	✓
1.13	Chapter 11 - Cultural Heritage	<p>While no archaeological material was recorded during this assessment, it is noted that the Site is large in scale and could potentially contain buried archaeological deposits at locations which were not subject to test trench assessment in the course of this study. It is therefore recommended that any future development works carried out at the subject Site be monitored by a suitably qualified archaeologist under licence to the Department of Culture, Heritage and the Gaeltacht in consultation with the National Museum of Ireland. Particular attention will be paid to those areas adjacent to and covering the laneway to the north of the Site which may potentially be the location of an ancient roadway.</p>	✓		
1.14	Chapter 12 - Material Assets	<p>The following mitigation measures will be implemented during the construction phase;</p> <ul style="list-style-type: none"> • A project-specific Detailed Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor prior to the commencement of construction works. This document will take account of, and further develop, all of the environmental considerations (including water, dust and noise nuisance control; soil / stockpile management; temporary groundwater management; appropriate Site management of compound area; fuel, oil and chemical storage and use; and waste management) set out in the Outline CEMP submitted as part of this planning application. • The construction compound will include adequate temporary welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the compound will be removed off Site to an 	✓		✓

1.14
(continued)

Chapter 12 -
Material Assets
(continued)

appropriately licensed facility for disposal until a connection to the public foul drainage network has been established.

- All newly installed utilities/ services should be assessed, tested and certified as required prior to being fully commissioned. ✓
- Connections to the existing networks will be coordinated with the relevant utility provider. ✓
- A copy of all available existing, and as built utility plans will be maintained on Site during the construction of Phase1 through to Phase 11 of the proposed development. The overhead power lines which currently traverse the Site will be clearly marked and all Site personnel will be made aware of the known location of any onsite underground or over ground services during the construction phase. ✓

The following mitigation measures will be implemented during the construction phase:

- All waste management procedures implemented onsite during the construction phase will be in accordance with the Outline C&D WMP (Atkins, 2019) submitted as part of this planning application. In advance of commencement onsite, the Contractor will prepare a project specific Detailed C&D WMP which will further develop this outline plan, and will provide specific details in terms of proposed permitted haulage contractors, and permitted / licenced waste disposal / recovery facilities; ✓
- Scheduling and planning the delivery of materials will be carried out on an 'as needed' basis to limit any surplus materials; ✓
- Materials will be ordered in sufficient dimensions so as to optimise the use of these materials onsite, and will be carefully handled and stored so as to limit the potential for any damage; ✓
- Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste; ✓
- All loaded trucks entering and exiting the Site will be appropriately secured and covered; and, ✓
- Mud will be controlled at entry and exits to the Site using wheel washes and/or road sweepers, and tools and plant will be washed out and cleaned in designated areas. Wheel washings will be contained and treated prior to discharge. ✓

1.15

Waste management during the operational phase of the development will be undertaken by private waste contractors (in accordance with statutory waste management and environmental requirements, regional waste related policy, and best practice waste management guidance), and regulated by Louth County Council. Therefore, no further mitigation measures are required with regard to the transport and disposal or recovery of all waste streams which will be generated during the operational phase.

The following mitigation measures will be implemented during the construction phase in order to minimise the potential impact of litter pollution;

✓

- Suitably sized waste receptacles will be provided in communal areas within the residential development and crèche by private waste contractors;
- During the operational phase waste shall be collected on a weekly basis; and,
- It will be the responsibility of residents, crèche users and maintenance workers to ensure that all waste generated is disposed of appropriately and responsibly, in accordance with the 'polluter pays principle' as set out thin the Louth Development Plan 2015-2021 (LCC)



Table 14.2 - Schedule of Environmental Commitments – Environmental Monitoring (Construction and Operational Phases)

Item Ref.	Environmental Topic	Schedule of Environmental Commitments – Monitoring Requirements	Construction Phase	Operational Phase
2.1	Chapter 3 - Population and Human Health	<p>It is recommended that dust monitoring (Bergerhoff Method) should be conducted during the construction phase as this will ensure the efficiency of the dust mitigation measures and will also highlight when more measures may need to be implemented.</p> <p>It is good practice for the appointed contractor to monitor levels of noise and vibration during critical construction periods at nearby sensitive locations and/or development Site boundaries</p>	<p>✓</p> <p>✓</p>	
2.2	Chapter 4 - Biodiversity	<p>Monitoring by Project Ecologist as detailed in Table 14.1 of the EIAR – Schedule of Environmental Commitments – Mitigation Measures.</p> <p>Pre-construction and in-construction surveying and monitoring requirements for wildlife are set out in the mitigation section of Chapter 4 of the EIAR and are incorporated into the Outline CEMP submitted as part of this planning application.</p> <p>Monitoring requirements to confirm the effectiveness of construction phase environmental management and pollution control measures are set out in the mitigation section above and are incorporated into the Outline CEMP submitted as part of this planning application.</p> <p>Monitoring requirements to confirm the effectiveness of operational phase environmental management and pollution control measures are set out in Chapter 10 of the EIAR.</p>	<p>✓</p> <p>✓</p> <p>✓</p>	<p>✓</p>
2.3	Chapter 5 - Landscape and Visual	N/A		
2.4	Chapter 6 - Air and Climate	<p>The Site is within close proximity of a number of sensitive receptors, therefore it is recommended that dust monitoring (Bergerhoff Method) should be conducted during the construction phase as this will ensure the efficiency of the dust mitigation measures and will also highlight when more measures may need to be implemented.</p> <p>Dust emissions resulting from Site activities can potentially have a substantial temporary impact on local air quality. Dust emissions from this particular Site would mainly be associated with earth excavation, loading/unloading of material and HGV traffic entering and leaving the Site. Dust emissions often vary from day to day, depending on the level of activity, the specific operations, and the prevailing meteorological conditions. Emissions from any single Site can be expected to have a definable beginning</p>	<p>✓</p> <p>✓</p>	

		<p>and an end, and also to vary substantially due to varying Site activity. Meteorological conditions significantly affect the level of dust emissions and subsequent deposition downwind of the source. Dust monitoring should be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/(m²*day) during the monitoring period between 28-32 days.</p> <p>There is no monitoring requirement for the operational phase of the proposed development.</p>		
2.5	Chapter 7 - Noise and Vibration	<p>It is good practice for the appointed contractor to monitor levels of noise and vibration during critical construction periods at nearby sensitive locations and/or development Site boundaries.</p> <p>No additional monitoring is proposed for the operational phase of the proposed development and no noise mitigation measures are required for the operational phase.</p>	✓	
2.6	Chapter 8 - Traffic	N/A		
2.7	Chapter 9 - Land, Soils and Geology	A comprehensive monitoring and supervisory regime including monitoring of all excavations and stability assessments as required will be put in place to ensure that the proposed construction works do not constitute a risk to the stability of the Site.	✓	
2.8	Chapter 10 - Water	<p>Routine inspections of all silt traps and Class 1 petrol/oil separators within the proposed development should be carried out as part of the proposed Site management plan, on a quarterly basis. During each inspection, all associated equipment should be checked, and a visual inspection of water quality in the final chamber (post treatment) should be carried out.</p> <p>Surface water sampling should be carried out at the following locations, on an annual basis, and in the unlikely event of a major onsite fuel / oil spill or fire:</p> <ul style="list-style-type: none"> • Infiltration basin (1no. sample); • Manhole located in north-eastern corner of the Site (treated storm water prior to offsite discharge to the northern channel and Dundalk Bay SAC/ SPA) (1no. sample); and, • Manhole located in eastern portion of the Site (treated storm water prior to offsite discharge to the eastern channel, wetlands and Dundalk Bay SAC/ SPA) (1no. sample). 		<p>✓</p> <p>✓</p>

		All 3no. samples should be analysed for a representative suite of hydrocarbon parameters, and the results evaluated to assess any potential deterioration in storm water quality arising from the Site. Should any potential issues be identified during this review, appropriate actions will be undertaken, in accordance with the detailed Site management plan.	
2.9	Chapter 11 - Cultural Heritage	All future archaeological works will be carried out in accordance with the requirements of the DCHG and the planning authority and under licence to the DCHG in consultation with the National Museum of Ireland.	✓
2.10	Chapter 12 - Material Assets	<p>As detailed within the Outline C&D WMP (Atkins, 2019) prepared as part of this planning application, the Contractor will be responsible for maintaining waste records and documentation for the full duration of the construction phase. The Contractor will track and monitor all waste volumes transported offsite. All waste records will be maintained onsite throughout the project and will be made available for viewing by the Client, Employer's Representative and statutory consultees (LCC, EPA) as required.</p> <p>No monitoring is required during the operational phase of the proposed development.</p>	✓

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