

16. SCHEDULE OF MITIGATION

16.1 Introduction

All mitigation measures relating to the pre-commencement and construction phases of the proposed development are set out in the relevant chapters of the EIAR and associated documents submitted as part of this strategic housing development (SHD) application.

It is intended that the CEMP will be updated where required prior to the commencement of the development, to include all mitigations measures, conditions and or alterations to the EIAR and application documents should they emerge during the course of the planning process and would be submitted to the Planning Authority for written approval.

All mitigation measures proposed for the project are outlined in Table 16-1. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

- > Construction Management
- > Drainage and Surface Water Quality
- > Biodiversity
- > Air Quality and Dust Control
- > Noise and Vibration
- > Material Assets including Traffic
- > Cultural Heritage
- > Environmental Management

The mitigation and monitoring proposals are set out in separate tables in the CEMP (Appendix 4-2) for clarity and tracking of the pre-commencement survey requirements. Where particular monitoring proposed is considered to be a measure of mitigation, it has been included in the consolidated table for all mitigation measures proposed (Table 16-1)

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The proposal for site inspections and environmental audits are set out in the Construction and Environmental Management Plan (CEMP) which is included as Appendix 4-2 of this EIAR.

Table 16-1 Mitigation Measures

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase			
1	All measures identified in this Construction Environmental Management Plan, which will be finalised subsequent to any permission granted by An Bord Pleanála and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement, construction and operational phases of the proposed development.		
2	Construction Manager engaged who will also fulfil the role of Environmental Manager (EM), and to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
3	<p>Prior to the commencement of any excavation or construction activities, the works area will be clearly demarcated with fencing and no works will take place outside the fences.</p> <p>Where potential for run off from the site is identified (i.e. along the stream to the east) a silt fence will be attached to the fencing and buried beneath the ground to filter any runoff that may occur as a result of the proposed works.</p>		
4	The compound for the site will be of adequate size to accommodate site staff parking appropriate to the level of site activity anticipated for a site of this scale.		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
5	Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken prior to construction at two locations on the Truskey stream.		
6	An environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to will be assigned to the project.		
Construction Phase			
Construction Management			
7	A site-specific Health and Safety Plan will be in place for the proposed facility. In the event that Covid-19 restrictions are in place at the commencement of the construction phase, the Health and Safety Plan will include provisions regarding compliance with relevant Covid-19 restrictions. All site staff will be made aware of and adhere to the Health and Safety Plan		
8	A Site Induction Process for all site staff will be maintained which will also ensure all staff will have current 'Safe Pass' cards		
9	Only appropriately qualified and trained personnel will be permitted to operate machinery onsite.		
10	The proposed development site will not be accessible to members of the public. Appropriate barriers and signage will be used. The site will also be secured to prevent the risk of trespass through signage and provision of barriers.		
11	Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. No batching of wet-cement products will occur on site.		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
12	No washing out of any plant used in concrete transport or concreting operations will be allowed on-site;		
13	Whilst significant inundation of surface or ground water is not anticipated, any such water arisings that require pumping out during construction will be discharged to ground within the site through a silt bag at a distance of over 30m from the Trusky Stream. There will be no direct discharge of construction waters to any watercourse.		
Drainage and Surface Water Quality			
14	<ul style="list-style-type: none"> ➤ All plant and machinery will be serviced before being mobilised to site. ➤ No refuelling of machinery or overnight parking of machinery is permitted in areas adjacent to watercourses or on-site drainage infrastructure. ➤ On-site refuelling will only take place at distances greater than 50 metres from nearest water courses or site drainage infrastructure. ➤ On-site refuelling of machinery will be carried out using an oil company vehicle sourced from a local supplier. Only dedicated trained and competent personnel will carry out refuelling operations. A spill kit and drip tray shall be on site at all times and available for all refuelling operations. Equipment shall not be left unattended during refuelling. ➤ Spill kits shall be available in each item of plant required. ➤ Care will be taken at all times to avoid contamination of the environment with contaminants other than hydrocarbons, such as uncured concrete or other chemicals. The plant refuelling procedures described above shall be detailed in the method statements. 		
15	<ul style="list-style-type: none"> ➤ A solid boundary fence will be constructed around the construction footprint in order to create a defined perimeter for the proposed works, leaving a natural vegetation buffer between the construction footprint and the Trusky stream and its 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<p>associated riparian habitat. No works will be undertaken outside the confines of this fence with the exception of the installation of the two surface water outfalls, which will be undertaken as a separate element of the development that is described below.</p> <ul style="list-style-type: none"> ➤ A silt fence will also be attached to this boundary fence. This will protect the stream from any potential sediment laden surface water run-off generated during construction activities. ➤ The silt fence will comprise a geotextile membrane that will be buried beneath the ground to filter any run-off that may occur as a result of the proposed works. The silt fence will be monitored throughout the proposed works and will remain in place after the works are completed and until the exposed earth has re-vegetated. ➤ As construction advances there may be a small requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground; ➤ Discharge onto ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire discharge area from silt bags will be enclosed by a perimeter of double silt fencing; ➤ Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present; ➤ Daily monitoring and inspections of site drainage during construction will be completed; ➤ Earthworks will take place during periods of low rainfall to reduce run-off and potential siltation of watercourses; and, ➤ Good construction practices such as wheel washers and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. 		
16	<p>The following best practice construction measures will be followed to ensure that there are no significant effects on the Trusky Stream as a result of the proposed works:</p>		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Prior to the outset of these works, small defined works areas will be fenced off at the location of each of the storm water outfalls (between the main construction site and the Trusky Stream). Silt fences will be attached to these fences. The silt fence will provide a solid barrier between the proposed pipelaying works and the Trusky Stream. ➤ The necessary pipelaying works will be undertaken within this defined area. ➤ Following the installation of the pipework and reinstatement of the ground, the small section of the silt fence that protects the Trusky Stream will be removed to facilitate the construction of the outfall. ➤ No instream works will take place outside the period July 1st – September 31st in line with Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. ➤ Short sections of the Trusky Stream will be temporarily dammed with sandbags at times of low water. One dam will be constructed immediately downstream of the outfall point and the other, immediately upstream. ➤ A submersible pump will be used to overpump any flow within the stream from upstream to downstream of the dammed area. ➤ Any remaining surface water within the dammed area will be pumped to a discharge point over 30m from the Trusky Stream and within the main construction site. It will pass through a silt bag before discharge to ground. ➤ Machinery will not enter the water, the construction of the outfall will only occur after the dry working area is created. ➤ The bankside will be excavated and a small pre-cast concrete headwall installed (with outfall pipe included). ➤ The banks and channel bed will be reinstated to avoid erosion or run off of silt. ➤ Following this the dams will be removed. ➤ Each surface water discharge point is likely to take less than one day to install. 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<p>Biosecurity measures will be strictly adhered to throughout the proposed works. Measures will be in accordance with IFI (2010) Biosecurity Protocol for Field Survey Work. Where staff are working instream, staff footwear and PPE will be inspected on daily completion of the works and vegetation or debris removed. Footwear will be dipped in or scrubbed with a disinfectant solution (e.g. 1% solution of Virkron Aquatic or another proprietary disinfection product) and thoroughly dried afterwards. Sand bags placed instream will not be re-used in other watercourses.</p>		
17	<p>The works will be supervised by a suitably qualified ecologist (ECoW) on a regular basis. An audit of the works will be undertaken during the visits and it will be ensured that the prescribed methods are employed. Any potential impacts additional to those predicted will be highlighted and if necessary, additional measures put in place to prevent them. Any deviance from the agreed methodology will be highlighted and if necessary rectified.</p>		
18	<p>The works associated with the construction of the stormwater outfalls will require full time, on-site supervision from the ECoW. The ECoW will be responsible for:</p> <ul style="list-style-type: none"> ➤ Ensuring that the works are carried out in accordance with the approved method statements. ➤ Highlighting and discussing any deviations from the agreed plan. Deviations will be agreed with the relevant authorities and the project team in advance of adoption. ➤ Taking water samples and turbidity readings as appropriate. Discussing works and preparations with the site staff to ensure that works can be completed as per agreed method statements. <p>Stop works if there are any effects on the Trusky Stream.</p>		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
19	<p>Gross pollutants, sediments, hydrocarbons, and other impurities, will be removed at source with the following provisions:</p> <ul style="list-style-type: none"> ➤ Permeable Paving to all in-curtilage car parking areas; ➤ Intensive landscaping, where practicable; ➤ Silt-traps prior to attenuation storage area. ➤ All road gullies are to be trapped; ➤ Fuel separator prior to discharge from the development. 		
20	<p>Attenuation storage is to be provided for the 100-year return period rainfall event (including an increased 20% rainfall intensity; to allow for climate change). Discharge from site is to be achieved through the use of a vortex flow control device (e.g. Hydro-Brake Optimum, by Hydro-International, or similar approved), which will reduce the risk of blockage present with other flow devices.</p>		
21	<p>To mitigate for the potential disturbance of fauna during construction the applicable mitigation measures set out in the CEMP, including the following measures, will be implemented:</p> <ul style="list-style-type: none"> ➤ Plant and machinery will be turned off when not in use. ➤ All works will be completed during daylight hours and there will be no requirement for artificial lighting at any stage of the proposed construction works. This will avoid any potential impacts on crepuscular or nocturnal species including bat species. ➤ Vegetation removal will be conducted in line with the provision of the Wildlife Act to avoid nesting songbirds ➤ The Trusky Stream will be fenced off during construction (with the exception of short term works associated with the construction of the 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	surface water outfalls) with no disturbance to the stream or the riparian area.		
22	<ul style="list-style-type: none"> ➤ Works shall not take place at periods of high rainfall, and shall be scaled back or suspended if heavy rain is forecast; ➤ Machinery deliveries shall be arranged using existing structures along the existing road; ➤ Any excess construction material shall be immediately removed from the area and sent to an authorized waste recovery facility; ➤ Spill kits shall be available in each item of plant required; ➤ Discharge onto ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire discharge area from silt bags will be enclosed by a perimeter of double silt fencing; ➤ Prior to the commencement of earthwork silt fencing will be placed down-gradient of the construction areas where drains or drainage pathways are present 		
23	<ul style="list-style-type: none"> ➤ No instream/bankside works will take place outside the period July 1st – September 31st in line with Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. ➤ Works associated with the headwalls construction will be supervised by an ecologist. ➤ The headwalls will be installed in the dry, either by damming the stream upstream and downstream of the headwall locations and over pumping from upstream to downstream, or by using sand-bags to create a dry area where works can occur, whilst still allowing the stream to flow. ➤ Any remaining surface water within the bunded area will be pumped from within the bund using a suitably sized de-watering pump. A screen will be placed on the suction end of the pump to prevent coarse material/sediment being pumped. The pumped water will be discharged to ground at a location over 30m from the watercourse and will be filtered through a silt bag prior to discharge. 		

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	<ul style="list-style-type: none"> ➤ Machinery will not enter the water, the minor excavations will be undertaken from the bank and the pre-cast concrete headwalls will be placed into the stream bank. 		
24	Surface and/or ground water generated from the works during construction will be discharged to ground on the site through a silt bag. There will be no direct discharge of construction waters to any watercourse.		
25	<p>Management of excavation seepages and subsequent treatment prior to discharge into the site drainage network will be undertaken as follows:</p> <ul style="list-style-type: none"> ➤ Appropriate temporary interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place, as required; ➤ If required, pumping of excavation inflows will prevent build-up of water in the excavation; ➤ The pumped water volumes will be discharged to ground within the site through a silt bag at a distance of over 30m from the Trusky Stream. ➤ There will be no direct discharge to any water body, and therefore no risk of hydraulic loading or contamination will occur. 		
26	<ul style="list-style-type: none"> ➤ A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works; and, ➤ No wastewater will be discharged on-site during either the construction or operational phase. 		
27	<ul style="list-style-type: none"> ➤ No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place; 		

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	<ul style="list-style-type: none"> ➤ No washing out of any plant used in concrete transport or concreting operations will be allowed on-site; ➤ Where concrete is delivered on site, only the chute need be cleaned, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water is to be tanked and removed from the site to a suitable, non-polluting, discharge location; ➤ Use weather forecasting to plan dry days for pouring concrete; and, ➤ Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event. 		
28	<ul style="list-style-type: none"> ➤ Excavated (existing) overburden material will be reused on site, where possible; ➤ A minimal volume of topsoil and subsoil will be removed to allow for infrastructural work to take place due to optimisation of the layout by mitigation by design; and, ➤ Construction of service trenching, and surface water attenuation features will generate excess material, and all excess material will be used locally within the site for achieving building formation levels and landscaping. 		
29	<ul style="list-style-type: none"> ➤ 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; 		

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	<ul style="list-style-type: none"> ➤ 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; ➤ 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. 		
30	<p>During the construction phase, field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for the adjacent Truskey stream</p>		
31	<ul style="list-style-type: none"> ➤ Daily general visual inspections of site operations and inspections of all watercourses within the site and in the surrounding area by the Environmental Manager or a suitably qualified and competent person as delegated; ➤ Inspections to include all elements of drainage infrastructure to ensure the system is operating correctly and to identify and maintenance that is required. Any changes, such as discolouration, odour, oily sheen or litter should be noted and corrective action should be implemented. High risk locations such as settlement ponds will be inspected daily. Daily inspections checks will be completed on plant and equipment, and whether materials such as straw bales or oil absorbent materials need replacement; ➤ Event based inspections by the ECoW as follows: <ul style="list-style-type: none"> ○ >10 mm/hr (i.e. high intensity localised rainfall event); 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ○ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, <p>Rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week).</p>		
32	Sondes will be put in place in the Trusky Stream upstream and downstream of the works area. These will continuously measure turbidity throughout the construction period. If there is a 10% or greater difference between upstream and downstream turbidity, an alarm will sound and a message will be sent to the site foreman and the ECoW. Works will be ceased until the cause of the difference is identified and (if it is associated with the works) rectified		
33	Water quality risks are mitigated by the use of hydrocarbon interceptors and silt traps.		
34	The risk of pluvial and or fluvial flooding is minimised by the incorporation of a properly designed surface drainage and gravity sewer network, and by using underground attenuation tanks for drainage management which will control discharge to the Trusky Stream at pre-development greenfield rates.		
35	<p>The risk of uncontrolled emissions is minimized by the collection, treatment and discharge of storm water to the Trusky Stream via silt traps, attenuation tanks and petrol/oil interceptors as described above. It is also proposed to retain and enhance the existing riparian zone which will act as a buffer between the development and that stream.</p> <p>Waste water will be directed to an EPA regulated waste water treatment plant.</p>		
36	During the operational phase all surface water arising on site will drain to attenuation tanks and a Hydro-Brake flow restrictor and hydrocarbon interceptor prior to		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	discharging to the Trusky Stream. Groundwater quality risks are reduced during the operational phase by use of paved areas as well as the hydrocarbon interceptors, attenuation tanks and silt traps prior to discharge.		
37	<p>The underlying in-situ soils and subsoils will be subject to a certain amount of compaction, but this will be unavoidable.</p> <p>Any infill material/landscaping that is required will be placed and levelled in appropriate lift thicknesses to ensure the material is not over compacted thereby retaining its drainage properties. This will be relevant along the proposed linear park and landscaped areas of the site.</p>		
Biodiversity			
38	The proposed development has been designed to maintain connectivity through the site and along the Trusky Stream with no works proposed within over 10 metres of it (with the exception of the construction of two surface water outfalls and some minor landscaping works).		
39	A landscape plan has been prepared for the development. The landscape plan allows for the planting of woodland, treeline, hedgerow and wildflower meadows consisting of a mix of native and naturalised species, as well as pollinator friendly species. A hedgerow consisting of a mix of native and naturalised species will be planted along the southern and eastern boundaries of the site, separating the development from the Trusky stream.		
40	The landscape plan also provides for the creation of additional green spaces including herbaceous lawns, which will contribute to reduce the ecological footprint of the development.		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
41	Trees within private gardens adjacent to the development site will be protected in accordance with BS: 5837 (Trees in relation to Construction).		
42	If stone or topsoil is imported onto the site, the source material will be screened by a suitably qualified ecologist to verify it is free from any Third Schedule invasive species before transportation to the site.		
43	<ul style="list-style-type: none"> ➤ All machinery will be thoroughly cleaned, dried and disinfected prior to arrival on site and before removal from site post-works using Virkon 1% biocide and departure from the site to prevent the spread of invasive species such as Asian Clam, Zebra Mussel, Crayfish plague. ➤ Where staff are working instream (only for the installation of the stormwater outfalls), staff footwear and PPE will be inspected on daily completion of the works and vegetation or debris removed. Footwear will be dipped in or scrubbed with a disinfectant solution (e.g. 1% solution of Virkon Aquatic or another proprietary disinfection product) and thoroughly dried afterwards. Machinery that has been working within the channel and other equipment used in channel including PPE will be wiped down with 1% solution of Virkon Aquatic or another proprietary disinfection product. This will be carried out daily on completion of the works and/or prior to staff and machinery moving off site. Sand bags placed instream will not be re-used in other watercourses. ➤ Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Rhododendron, Japanese Knotweed, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site. ➤ Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present. 		

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44	<p>To mitigate for any potential disturbance during the operational phase, the site lighting has been designed to limit the environmental impact of artificial lighting on existing flora and fauna in the area.</p> <p>The luminaire specified is an LED pole mounted luminaire with NEMA socket and photocell, this fitting was selected for the following reasons:</p> <ul style="list-style-type: none"> ➤ Low level lighting ➤ Minimal upward light spill ➤ Low voltage LED light will be in use to reduce impacts on fauna 		
45	<p>As part of the landscape plan, the introduction of a wildflower meadow to encourage biodiversity and create a micro-climate atmosphere is proposed. The landscape plan also outlines that the proposed development will encourage the use of native, naturalised and indigenous species throughout much of the landscaped areas. Landscape mitigation measures arising from the proposed development outlined in the landscape plan, will create a positive natural aesthetic quality to the area.</p>		
Air Quality and Dust Control			
46	<p>On-road vehicles to comply to set emission standards. All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and be regularly serviced.</p>		
47	<p>Hard surfacing and effective cleaning of haul routes and appropriate speed limit around site</p>		
48	<ul style="list-style-type: none"> ➤ The Contractor shall ensure that adequate provision is made to damp down areas where activities are likely to create dust. Measures shall include the spraying by 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<p>pressure hoses to suppress dust and also the provision of bowsers and suction road sweepers where appropriate.</p> <ul style="list-style-type: none"> ➤ Plant shall be sited and screened where necessary to minimise dust emission to adjoining areas. ➤ All stockpiles shall be covered to prevent the generation of dust. ➤ The Contractor shall ensure that off-site observations and monitoring of dust takes place to confirm that steps are successful in minimising dust release from site. ➤ The Contractor shall take all measures necessary to prevent spillage onto public roads adjoining the Site and all roads forming part of the Site. ➤ The Contractor shall, using wheel washing equipment or other methods as approved by the Employer's Representative, prevent mud from the site being carried onto any surface or facilities in use by the public. In the event of mud or site material being deposited on a public road surface, the Contractor shall take all necessary steps to ensure the roads are cleaned immediately using road vacuum sweepers, or similar methods to be approved by the Employer's Representative, without adversely affecting public traffic. ➤ The Contractor shall clean the public gullies in the vicinity of the site before the works commence, at regular intervals during the works, and upon completion of the works. That Contractor shall also undertake to replace road markings in the immediate vicinity of the site as and when the need for such replacement arises. 		
49	<p>The following measures will be enforced to ensure that dust nuisance during the construction phase beyond the site boundary is minimised:</p> <ul style="list-style-type: none"> ➤ If dust levels become an issue, then all dust generating activities on site will cease until such time as weather conditions improve (e.g. wind levels drop or rain falls) or mitigation measures such as damping down of the ground are completed. ➤ Overburden will be progressively removed from the working area in advance of construction. 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Dampening down the dust at the source by the use of barriers such as debris netting on scaffolding around the building to block dust escaping where the building is within 10m of the site boundary where residential properties exist. ➤ Site road ways will be maintained in a stoned hard core condition not allowing soil to accumulate which when dry can create dust. ➤ Wheel wash equipment will be set up at the site exit gate for all construction vehicles to pass through prior to leaving the site thus ensuring that no dirt etc. is transported outside the site onto the roadways. ➤ Plant and equipment that have the potential to create volumes of dust will have appropriate attachments to allow water source to dampen dust to not allow it to get airborne. ➤ Deploy Road Sweeper as required on External Roads. <p>The above mitigation measures relating to dust and air quality will be implemented to minimise potential impacts on Human Health during the construction phase</p>		
50	<ul style="list-style-type: none"> ➤ All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise. ➤ Machinery were switched off when not in use. <p>Aggregate materials for the construction infrastructure will be sourced onsite from the proposed cut areas, where possible, which further reduced potential emissions.</p>		
51	<ul style="list-style-type: none"> ➤ All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise. ➤ Overburden will be progressively removed from the working area in advance of construction. 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Dampening down the dust at the source by the use of barriers such as debris netting on scaffolding around the building to block dust escaping where the building is within 10m of the site boundary where residential properties exist. ➤ Site roadways will be maintained in a stoned hard core condition not allowing soil to accumulate which when dry can create dust. ➤ Wheel wash equipment will be set up at the site exit gate for all construction vehicles to pass through prior to leaving the site thus ensuring that no dirt etc. is transported outside the site onto the roadways. ➤ Plant and equipment that have the potential to create volumes of dust will have appropriate attachments to allow water source to dampen dust to not allow it to get airborne. ➤ Deploy Road Sweeper as required on External Roads. ➤ Dust levels will be monitored visually, on a daily basis by the project Environmental Manager. If dust levels become an issue, then all dust generating activities on site will cease until such time as weather conditions improve (e.g. wind levels drop or rain falls) or mitigation measures such as damping down of the ground are completed. 		
Noise			
52	All vehicles to switch off engines when not in use – no idling vehicles		
53	<p>Best practice measures for noise control will be adhered to onsite during the construction phase of the proposed development. The measures include:</p> <ul style="list-style-type: none"> ➤ Construction operations will in general be confined to the period Monday-Friday 0800-1900 h, and Saturday 0800-1600 h. ➤ Where it is proposed to operate plant during the period 0700-0800 h, standard ‘beeper’ reversing alarms will be replaced with flat spectrum alarms. 		

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	<ul style="list-style-type: none"> ➤ Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times. ➤ Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced. ➤ Queuing of trucks outside the site entrance will be prohibited. ➤ A site representative will be appointed as a liaison officer with the local community. Prior to commencement of construction, contact details for the officer will be circulated to all local residents. The officer will notify local residents of upcoming works phases and likely noise sources. ➤ All complaints of noise received during the construction phase will be logged in a register and investigated immediately. Details of follow-up action will be included in the register. ➤ Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance. ➤ Guidance set out in BS 5228-1:2009+A1:2014 with respect to noise control will be applied throughout the construction phase. ➤ Throughout the construction phase, vehicles accessing the site will be subjected to a low speed restriction through Cnoc Fraoigh in order to reduce traffic noise. <p>The above mitigation measures relating to noise will be implemented to minimise potential impacts on Human Health during the construction phase</p>		
54	<ul style="list-style-type: none"> ➤ Diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts. 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All construction plant and equipment to be used on-site will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1998, and any subsequent amendments. ➤ Regular maintenance of plant will be carried out in order to minimise noise emissions. ➤ All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works. ➤ Compressors will be of the “sound reduced” models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. ➤ Machines, which are used intermittently, will be shut down during those periods when they are not in use. <p>Training will be provided by the site management to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation.</p>		
55	<ul style="list-style-type: none"> ➤ All vehicles and mechanical equipment shall be maintained in good and efficient working order and shall be fitted with effective exhaust silencers; ➤ All compressors shall be “sound reduced” models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers; ➤ Machines in intermittent use shall be shut down in the intervening periods between works or throttled down to a minimum. Generators, or any other plant, shall not be left running / operational after hours unless in an emergency, and agreed with the Employer’s Representative; ➤ Where practicable, plant with directional noise characteristics shall be positioned to minimise noise at adjacent properties; 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Static machines shall be sited as far away as practicable from inhabited buildings; ➤ Where it is necessary to provide power for the running of traffic signals, pumps etc., at any time outside normal working hours, then the sources of such power shall be from mains electricity except if the Employer's Representative agrees in writing that alternative plant may be used, after consultation with Galway County Council; ➤ Good relations with people living and working in the vicinity of the roadworks are important. People who are likely to be affected by the noise shall be informed, by letter drop or other appropriate means, of any works to be carried out outside normal working hours. Notification of the public shall take place at least one week prior to the commencement of Site works; ➤ The Contractor shall organise his operations with regard to the positioning of plant and the location of haul routes etc., so that it minimises construction noise to adjacent properties; ➤ The period referred to as 'night' for the purposes of the Contract shall be from 18:00 hours to 08:00 hours. 		
Material Assets			
56	All construction activities will be managed and directed by a Traffic Management Plan (TMP). The details of the TMP will be agreed with the roads department of the Local Authority in advance of construction activities commencing on-site.		
57	<ul style="list-style-type: none"> ➤ Warning signs / Advanced warning signs will be installed at appropriate locations in advance of the construction access; ➤ Construction and delivery vehicles will be instructed to use only the approved routes for access and movement; ➤ Appropriate vehicles and equipment will be used to minimise environmental impacts from transporting construction material; 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds within and adjacent the site; ➤ Parking of site vehicles will be managed, and will not be permitted on public roads, unless otherwise agreed with the Local Authority subject to traffic management measures; ➤ A road sweeper will be employed to clean the public roads adjacent to the site of any residual debris that may be deposited on the public road leading away from the construction site; ➤ On site wheel washing will be undertaken for construction trucks and vehicles to remove any debris prior to leaving the site, to remove any potential debris on the local roads; ➤ All vehicles will be suitably serviced and maintained to avoid leaks or spillage of oil, petrol or diesel; ➤ Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footway. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users and mobility impaired persons. 		
58	<p>The following provisions shall be made in terms of traffic management at construction access points:</p> <ul style="list-style-type: none"> ➤ Advance warning signage of construction access points shall be adequately signed on the L1321, ➤ including local side roads and the existing residential access road, i.e. “Caution site entrance ahead”; ➤ Construction access gates shall remain closed when not in use; ➤ A site safety notice shall be erected at construction access points; ➤ Temporary traffic management measures deployed during the hours of darkness shall serve to highlight 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<ul style="list-style-type: none"> ➤ the precise location of the construction access. Such measures could include additional traffic cones, road danger lamps and/or reflectorized signage; ➤ Routine inspection shall be carried out to ensure that signage and visibility splays are not obstructed; ➤ The road network immediately outside the site access shall be regularly inspected for cleanliness and cleaned as necessary. Any damage to the L1321 or residential roads caused by construction traffic shall be repaired as necessary; and ➤ Within the site, sufficient space shall be allocated to allow vehicles to turn around safely on-site. 		
59	<ul style="list-style-type: none"> ➤ The proposed development incorporates extensive site permeability with high quality footpaths and streets appropriate for mixed traffic cycling, with high quality cycle parking and car parking all in line with the County Development Plan and national standards and best practice. ➤ The internal roads layout is designed to ensure vehicular speeds are low. The road alignment consists of smooth horizontal curves which are complemented with raised tables at specific locations to ensure that speeds are self-regulated below 30kph. Internal junctions operate under priority control and generally consist of small radius curves to encourage slow approach speeds. ➤ The development incorporates upgrades to the local road network, namely the L1321 creating a high quality direct pedestrian and cyclist link towards the town centre of Bearna and ensuring integration with existing walking, cycling, public transport provisions and local amenities. ➤ Demand Management is also underpinned by the co-location of residential, childcare and leisure and amenity facilities. ➤ The propensity for car ownership and car use is managed through measures that include reduced residential parking provision and increased cycle parking 		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	<p>provision in line with the County Development Plan and national standards and best practice</p> <ul style="list-style-type: none"> ➤ The development contains the required infrastructure to provide electric charging to all car parking spaces. 		
60	<ul style="list-style-type: none"> ➤ Any area where excavations are planned will be surveyed and all existing services will be identified prior to commencement of any works. ➤ Liaison will be had with the relevant sections of the Local Authority including all the relevant area engineers to ensure all services are identified. ➤ Excavation permits will be completed and all plant operators and general operatives will be inducted and informed as to the location of any services. 		
61	<ul style="list-style-type: none"> ➤ The Cnoc Fraoigh wastewater network will be connected to the completed wastewater network of the proposed development via a new pumping system, and from there to the public sewer system, in advance of the decommissioning of the existing wastewater treatment plant. ➤ This will ensure continuity of wastewater service for the residents of Cnoc Fraoigh. <p>This proposed wastewater pumping system will be a Type 3 system (greater than 20nr. houses), which will be designed and installed in accordance with Irish Water's Code of Practice for Wastewater Infrastructure, and is to serve the existing 21nr. residential units along with the proposed single residential unit nr. 121.</p> <p>The pumping system is to be sited at a distance greater than 15m from any residential property, as noted on the design drawings, and in accordance with Irish Water's requirements.</p>		

Mitigation Measure	Mitigation Measure	Audit Result	Action Required
Cultural Heritage			
62	<ul style="list-style-type: none"> ➤ All cultural heritage items which are to be removed to facilitate the Proposed Development will be recorded by means of photographs, written descriptions and scale drawings if necessary prior to removal. ➤ Groundworks at all locations shall be monitored and any sub-surface traces of the cultural heritage items shall be recorded by means of photographs, written descriptions and scale drawings if necessary. 		
63	<p>Archaeological monitoring of groundworks during construction will take place. A report on the results of monitoring shall be compiled and submitted to the relevant authorities on completion of the project. If any sites are detected during the pre-construction monitoring, they will be preserved by record (archaeologically excavated) or preserved in-situ (avoidance) and therefore a full record made of same.</p>		
Environmental Management			
64	<p>Effective vehicle cleaning and wheel washing on leaving site and damping down of haul routes</p>		
65	<p>The machinery used to install the outfalls to the Trusky Stream will be thoroughly cleaned, dried and disinfected prior to arrival on site and before relocating to another site post-works using Virkon 1% biocide and departure from the site to prevent the spread of invasive species such as Asian Clam, Zebra Mussel, Crayfish plague. This process will be detailed in the method statement.</p>		
66	<p>All operatives working on the site will be made fully aware of the environmental responsibilities, conditions and requirements along with a full description of the methods</p>		



Mitigation Measure	Mitigation Measure	Audit Result	Action Required
	to be employed. This information will be imparted at a dedicated site induction prior to commencing work on the site.		
67	The construction management team will be regularly monitoring the works and will be fully briefed and aware of the environmental constraints and protection measures to be employed.		
68	A checklist will be filled in on a weekly basis to show how the measures above have been complied with. Any environmental incidents or non-compliance issues will immediately be reported to the project team.		