19 SUMMARY OF MITIGATION MEASURES

19.1 INTRODUCTION

This Chapter of the EIAR collates and summarise the mitigation measures recommended for each of the environmental topics examined in Chapters 5 – 19 of this EIAR.

These mitigation measures and any associated monitoring comprise what would be implemented during the Construction and Operational Phase to reduce the potential for significant adverse impact of the proposed development on the environment.

This chapter does not expand on the reasoning or expected effectiveness of the proposed mitigation or monitoring measures. For such descriptions, we refer to each of the individual chapters of the EIAR. A number of the recommended mitigation measures would be expected to be required as a condition of any grant of permission by Fingal County Council.

This chapter has been prepared by Richard Kealey, Senior Planner and Ana Jovanovic of Stephen Little & Associates. Richard has c. 9 years' professional experience in the planning in both the public sector and private consultancy, has a BSc in Geography and a MSc in Sustainable Development. Ana has c. 1 year of professional experience in the planning field, has a Bachelor of Science (Honours) (City Planning & Environmental Policy, MRUP (Regional & Urban Planning).

19.2 PROPOSED MITIGATION MEASURES

19.2.1 Population and Human Health (Chapter 5)

Mitigation measures relating to health impacts arising from the construction and operation of the Proposed Development which are based on other technical disciplines within this EIAR are outlined in each respective chapter. Standard best practice and mitigation measures are recommended throughout in order to ensure any impacts are minimised as far as possible.

Mitigation measures proposed to minimise the potential impacts on human health in terms of air quality, landscape & visual impact and noise & vibration are discussed in the relevant sections of Chapters 9: Climate (Air Quality), Chapter 10: Climate (Climate Change), Chapter 12: Air (Noise & Vibration) and Chapter 13: Landscape & Visual Impact respectively.

Chapter 14: Material Assets (Transportation), addresses mitigation measures proposed to reduce the impact of additional traffic movements to and from the Proposed Development.

19.2.2 Biodiversity (Chapter 6)

Previous works

As part of the Phase 1A development, and again in accordance with the provisions of the LAP, now expired, significant mitigation measures were put in place, both within the Phase 1A land itself, and within the wider lands covered by Portmarnock South LAP. These included the following, which were designed to mitigate any potential impacts on the Special Conservation Interests and Qualifying Interests of Baldoyle Bay SPA and SAC resulting from residential development to be delivered as part of the Portmarnock South Local Area Plan:

- Provision of a large area of Ecological buffer/parkland, located between residential zoned lands within the LAP to the west and the boundary with Coast Road to the east and with Mayne Road to the south;
- Provision of a 'Quiet Zone' for birds, in the southern part of the Portmarnock South Local Area Plan lands;
- Provision of an arable plot and retention of an existing small attenuation pond located between the above 'Bird Quiet Zone' and Mayne Road;

- Clearing of bramble scrub and reseeding of areas to grassland within the Murragh Spit east of the R106 Coast Road (within Baldoyle Bay SAC and SPA), undertaken in 2016 and 2017. This was undertaken, in agreement with Fingal County Council and NPWS, to provide additional areas of foraging habitat for bird species, in particular overwintering light-bellied Brent geese;
- Treatment of invasive species listed on Schedule 3 of the Birds and Habitats Regulations, SI. 477/2011 as amended, specifically a small area of Japanese knotweed (*Reynoutria japonica*) on the Murragh Spit and giant hogweed (Heracleum *mantegazzianum*) located within the Phase 1A lands. No growth of these species has been observed in recent years, nevertheless the Site will continue to be managed during future Construction Phases to ensure full and permanent eradication of these plants.

These measures have all been implemented and are subject to ongoing management, including mowing of the reseeded grass areas within the Murragh so as to ensure that the sward length is suitable for foraging light-bellied Brent geese.

Failed sections of the hawthorn hedging that was planted around the perimeter of the Bird Quiet Zone were replanted in early 2024.

In compliance with planning conditions for the Phase 1A and Phase 1B developments, the ecological buffer lands have been handed over to Fingal County Council. This has enabled Fingal County Council to take full charge of the long-term management of the ecological buffer area and bird quiet zone.

Proposed Development

Construction Phase

Designated Conservation Areas

Specific mitigation measures for the European sites are contained within the accompanying NIS (see Section 4.4 of the NIS) and the Construction and Environmental Management Plan (prepared by Quintain Developments Ireland Ltd) for the Proposed Development. These include strict measures to ensure the protection of water quality as well as measures to ensure no impact outside the working area and in particular on the habitats and bird species that form the Qualifying Interests and Special Conservation Interests of Baldoyle Bay SAC and SPA.

No mitigation measures are required to prevent any impacts on Sluice Marsh pNHA.

Water Quality, Dust and other Emissions

Where applicable the following measures will be implemented for stripping of topsoil, excavation of subsoil layers, surface water runoff, dust suppression and accidental spills and leaks: These will reduce the potential for *temporary, slight, negative* impacts to *temporary, not significant* and *neutral*.

- Stripped topsoil and excavated subsoil stockpiles will be protected for the duration of the works and located away from the areas where sediment laden runoff has potential to enter the existing ditches. Typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimising soil erosion and silt generation.
- Measures such as sediment retention ponds, silt fencing, hydrocarbon interceptors, surface water inlet protection and earth bunding adjacent to open drainage ditches will be implemented to capture and treat sediment laden surface water runoff.
- Surface water runoff from areas stripped of topsoil, surface water collected in excavations or discharge from any vehicle wheel wash areas will be directed to on-site settlement ponds / settlement tanks where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate. On-site settlement ponds are to include geotextile liners and rip-rapped inlets and outlets to prevent scour and erosion.

Monitoring of these sediment control measures will be undertaken throughout the Construction Phase.

- Wash down and wash out of concrete trucks will take place off-site.
- All oils, fuels, paints and other chemicals will be stored in a secure, bunded, hardstand area. These areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Refuelling and servicing of construction machinery will take place in a designated hardstand area that is also remote from any surface water inlets (when not possible to carry out such activities off-site). A response procedure will be put in place to deal with any accidental pollution events. Spill kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment. Monitoring of all fuel / oil storage areas will be undertaken.
- Foul drainage discharge from the construction compound will be tinkered off-site to a licensed facility until a connection to the public foul drainage network has been established.
- To prevent emissions to air, vehicle wheel wash facilities will be installed in the vicinity of any site entrances and road sweeping will be implemented, as necessary, in order to maintain the road network in the immediate vicinity of the Site. Also, dust suppression measures (e.g. dampening down) will be implemented, as necessary, during dry periods.
- Further, material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

Habitat Loss Add Disturbance to Species

All construction works will comply with legislative requirements and best practice as well as the Fingal Development Plan 2023 – 2029. All works will be in compliance with the Outline Habitat Management Plan (see Appendix 6.3) and the Landscape Design Statement (prepared by Brady Shipman Martin and submitted separately).

All site clearance and landscaping works will comply with current legislative requirements and best practice. In particular, where it is intended to retain trees within the development, that is along the townland boundary, trees to be retained will be treated in accordance with British Standard *BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations*, with protective fencing being installed prior to commencement of development.

The planting proposed for the development will, wherever possible, comprise an appropriate mixture of native trees and shrubs, preferably of local provenance (refer to the accompanying drawings: Brady Shipman Martin drawing no. 7173-300 series). The planting will also incorporate a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the All-Ireland Pollinator Plan 2021-2025[1].

All planting plans and landscaping proposals will ensure that no invasive species (in particular Japanese knotweed and giant hogweed) are introduced, either deliberately or inadvertently, to the Site. The planting will, over time, provide additional habitat of benefit to bats and birds that will continue to use the Site, reducing the potential impact from *long term to permanent, slight to moderate negative* to *permanent, slight* and *neutral.*

[1] https://pollinators.ie/wp-content/uploads/2021/03/FINAL-All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf

No bat roosts will be removed as part of the Proposed Development and it will not be necessary to apply for a derogation licence under Regulation 54 or 55 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

The clearance of any vegetation that may be suitable for use by nesting birds will be undertaken outside the bird nesting season (avoiding the period 1 March to 31 August). Should the construction programme require vegetation clearance between March and August, and this is unavoidable, bird nesting surveys will be undertaken by suitably qualified ecologists. If no active nests are recorded, vegetation clearance will take place within 24 hours. In the event that active nests are observed, an appropriately sized buffer zone (up to 5 m radius around the nest) will be maintained around the nest until such time as all the eggs have hatched and the birds have fledged – a period that may be three weeks from the date of the survey. Once it is confirmed that the birds have fledged and no further nests have been built or occupied, vegetation clearance may take place immediately;

These measures will reduce the potential impact from *long term to permanent* and *slight to moderate* to *permanent, not significant* and *neutral* at the Site level.

The suitability of the Phase 1F lands for nesting meadow pipit and skylark is very limited and its use by, for example roosting lapwing and curlew, or by foraging snipe is not significant. As the ground continues to be disturbed by excavators and other construction activity there is a likelihood that gulls of several species may still be attracted to the 1F lands to forage as would be seen when a field is ploughed. This gull activity would however be expected to be short lived during earthworks phases only.

Given the species recorded and the amount of bird activity that exists within the Phase 1F lands and the wider (former) LAP lands, and considering the habitats present (a construction compound and grassland) the seasonal restriction for vegetation clearance relates to the grassland area only, and to the scrub to the south of Mayne Road, where the rising main will be located.

The construction zone and the area to be cleared of vegetation will be clearly demarcated and will not extend outside the red line boundary of the Phase 1F development. The proposed development of Phase 1F will not impact in any way on the existing ecological buffer lands at Portmarnock South, or on the Bird Quiet Zone or the ecological lands to the south (i.e. the lands to the north of Moyne Road). No additional buffering is necessary.

Operational Phase

Loss of, or Disturbance to Habitats within the Site

As detailed in the Landscape Design Rationale Report (prepared by Brady Shipman Martin and submitted under separate cover as part of this application), The landscape approach for the Proposed Development is in accordance with the requirements of Portmarnock South LAP (now expired) and builds on the delivery of open space and biodiversity enhancement as set out under previous permissions.

Overall, the project will incorporate a wide range of biodiversity and climate-focused planting as part of the public open space provision for Phase 1F. This will include, among other things, the following:

- The planting palette for Phase 1F will prioritise pollinator-friendly planting (of all types – flowering plants as well as bushes / shrubs and trees). Although native planting is preferred, the planting will necessarily include some carefully chosen planting that will also adapt to climate change;
- The landscape areas will include some areas of bare ground – left to encourage solitary bees and an element of natural regeneration;
- Bat and bird boxes and insect hotels will be provided in suitable locations within the landscape. These features are not required for mitigation, but they provide both additional habitat and a focus for biodiversity education for residents and local people;

- The development will adhere to sustainable drainage (SuDS) principles. Where appropriate and feasible – and where sufficient water exists, wetland planting (native) will be included.

The proposed landscaping and other interventions will reduce the potential impact from *long term to permanent* and *moderate* to *permanent* and *neutral or slight positive*.

Lighting

Although the LAP has expired, the lighting design remains in compliance with Section 5.7 and Objective PL 1 of the LAP, which requires light intensity zones for the plan lands to ensure that environmental impact is minimised as far as possible in development schemes. The proposed lighting for the Proposed Development has been designed in accordance with the following guidelines: -

- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010)[2];
- Bats and Artificial Lighting at Night, Institute of Lighting Professionals, 2023[3];
- Guidance Notes for the Reduction of Obtrusive Light GN01-21 (Institute of Lighting Professionals, 2021)[4];
- Dark Sky Ireland's Environmentally Friendly Lighting Guide[5].
- Guidelines for consideration of bats in lighting projects (Eurobats Publication Series No 8, 2018)[6].

The proposed lighting will have the following characteristics: -

- The minimum level of lighting will be provided within the developed areas, within the lux level criteria required by Fingal County Council.
- The light temperature of all fittings will comply with the requirements of Fingal County Council.
- No flood lighting will be provided within the Proposed Development and all light fittings will be LED and are designed to shine downwards and will avoid sky glow and light spill.
- Lighting will be directed onto the roadways and paths – and away from the retained hedgerows and open space network.

The lighting proposed will reduce the potential *permanent, moderate, negative impact* upon bats to *long term, slight negative*.

A total of five bat boxes (Schwegler 2F) were installed in the tree lines to the south and west of the Proposed Development area, as part of the Phase 1A development. There is no evidence of bats ever having used the boxes erected as part of Phase 1A. Regardless, based on the based on the evidence gathered and presented in Appendix 6.2, it is proposed to install an additional 7 bat boxes (Three 2F and four 1FF Schwegler bat boxes) to provide new roosting opportunities. This is not mitigation for roost loss, rather, the new bat boxes are being provided as habitat/biodiversity enhancement measures

Surface Water

[2] https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIrelandGuidelines_Lighting.pdf
[3] https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/
[4] https://theilp.org.uk/publication/guidance-note-1-for-the-reduction-of-obtrusive-light-2021/
5 https://www.darksky.ie/lighting-documents/#guidelines
6 https://www.eurobats.org/sites/default/files/documents/publications/publication_series/WEB_DIN_A4_EUROBATS_08_ENGL_NVK_28022019.pdf

The regional wetland, to which Phase 1F will be connected, is operational in compliance with the planning conditions related to the Phase 1B development. Surface water arising as a result of the Proposed Development (Phase 1F) will be connected into the overall surface water drainage strategy for the Portmarnock South lands, which is fully operational. This will ensure that there will be no impacts on surface water quality once the Proposed Development is operational.

The overall development is designed in accordance with the principles of SuDS as embodied in the recommendations of the GDSDS, which addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimize the impact of urbanization by replicating the run-off characteristics of the greenfield site. The criteria provide a consistent approach to addressing the increase in both rate and volume of run-off, as well as ensuring the environment is protected from any pollution from roads and buildings. No corresponding mitigation measures are required.

Foul Water

As set out in detail in the Water Services Report (Egis) that accompanies the planning application and is submitted under separate cover, the lands at Portmarnock South (including Phase 1F) lie within the North Fringe Sewer catchment, which discharges to the Ringsend Wastewater Treatment Plant, currently undergoing significant upgrades.

The greater Portmarnock foul network discharges to an existing pumping station located adjacent to Portmarnock Bridge and from there the effluent is pumped via a rising main along the Coast Road to a high point and then flows by gravity to the Mayne Bridge Pumping Station which in turn pumps to the North Fringe Sewer (1600mm diameter in this locale) located approximately 1km to the south, and as noted earlier this then flows into the Sutton Pumping Station which pumps to the Ringsend Wastewater Treatment Plant.

Although originally envisaged by the Local Area Plan, that a new permanent pumping station would be constructed on the Portmarnock South Lands, which would service both the proposed development flows and replace the existing Portmarnock Bridge Pumping Station (nearing capacity and lacking storage, particularly during significant rainfall events), upon review by Uisce Éireann, following their assumption of responsibility for foul and water infrastructure in 2014, they proposed to develop a new Portmarnock Bridge

Pumping Station on lands adjacent to the existing pumping station as part of their Local Network Reinforcement Project strategy.

It is intended to connect the foul sewerage from the proposed 296 residential units of this Phase 1F development to the existing foul sewer network in the Portmarnock South lands (to the north and west of this proposed development and constructed under previous phases). The connection (via 1 individual connection point) will be to the previously constructed interim foul pumping station, constructed originally as part of the Phase 1B development, but significantly upgraded under the Phase 1D development and currently being commissioned.

The network serving these lands currently discharges to the aforementioned existing interim pumping station (complete with 24-hour emergency storage and 6-hour operational storage) adjacent to Station Road from where it is pumped to a gravity line which then discharges to the existing foul sewer in Coast Road. This existing sewer in turn discharges to the Uisce Éireann Mayne Bridge Pumping Station, from where it is pumped to the North Fringe Sewer.

It is noted that the Mayne Bridge Pumping Station was upgraded by the developer in 2018 with the installation of two new pumps, upsized pipework and improved electrical and control systems as part of a condition appended to the grant of permission for Phase 1A.

Ultimately, it is intended that all foul flow from the Portmarnock South lands will discharge by gravity to a proposed new Uisce Éireann Pumping Station adjacent to Portmarnock Bridge from where it will be pumped directly to the North Fringe Sewer and the temporary pumping station serving this development would then be decommissioned.

A pre-connection enquiry form was originally submitted to Uisce Éireann in July 2024 and Uisce Éireann replied with Confirmation of Feasibility on the 14th of October 2024 noting *Feasible subject to upgrades.* This document is attached in Appendix 1 of the Water Services Report.

There will be no operational impacts related to foul water management, in the context of biodiversity, as a result of the Proposed Development.

Cumulative Development

Not applicable.

19.2.3 Land, Soils, Geology & Hydrogeology (Chapter 7)

Construction Phase

Undertaking appropriate mitigation and monitoring measures will help minimise the potential impacts discussed earlier. And despite no significant impacts being identified, mitigation measures will be implemented as good practice and to reduce further the potential impacts on the land, soils, geology and hydrogeology of the receiving environment during the Construction Phase.

The following mitigation measures have been identified, which form part of the Construction Environmental Management Plan (CEMP) which includes measures for reduction or elimination of pollution of soils and groundwater. A site-specific Waste Management Plan will be produced for the Proposed Development, which will include a waste forecast identifying options for reuse, recycling and avoidance of landfill and to record actual waste. Refer to the CEMP prepared for this LRD Planning Application for further details.

Loss of Soil Cover, Soil Erosion and Compaction

Subsoil removal is an unavoidable consequence of the construction works. To mitigate densification of the soil due to construction activities, all topsoil shall be removed and stored in advance of earthworks for each sub-phase of the Proposed Development, the surface shall be scarified, and where suitable the topsoil replaced and reseeded upon completion.

Soil including topsoil and subsoil will be segregated and stored appropriately to prevent deterioration of soil structure and quality to ensure the material will be suitable for re-use onsite.

The principal mitigation measure regarding the compaction of soils is to prohibit the unnecessary trafficking of topsoil and overburden either before stripping or when in a stockpile. When the construction cut level has been achieved, the underlying overburden shall not be left exposed for long periods of time before construction and refilling of the excavations.

Excavation of Soil

Soft materials and surplus soils that are excavated will be reused where possible, for general fill, bunds, landscaping etc.

Material that is suitable for re-use will be stored appropriately to prevent deterioration of soil structure and quality. Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the Site. In addition, regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.

In recognition of national policy and sustainability, where material cannot be re-used as part of the on-site development works and requires transfer off site, consideration will be given to the transfer of this material as a by-product under Article 27.

Material that is not suitable for re-use will be removed off site for treatment, recycling or disposal at an authorised waste management facility under a valid waste collection permit issued under the Waste Management (Collection Permit) Regulations 2007, as amended.

Accidental Spillages - Contamination of Soils and Groundwater

Contractor Guidance set out in the Control of Water Pollution from Construction Sites (CIRIA, 2001) shall be adhered to. Good construction management practices will be employed. During the Construction Phase, all potentially harmful substances (e.g. oils, diesel, herbicides, pesticides, concrete etc.) will be stored in accordance with the manufacturer's guidelines regarding safe and secure buildings / compounds: -

- Designated impermeable cement washout areas will be provided or prohibited from site.
- All oils and fuels will be stored in bunded tanks with the provision of a storage / retention capacity of 110% of tank storage. Care and attention will be taken during refuelling and maintenance operations.
- Adequate means to absorb or contain any spillages of these chemicals will be available at all times on site.
- Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996 – 2011.

Refer to CEMP prepared for this LRD Planning Application for further details.

Operational Phase

As there are no Operational Phase significant impacts (or indeed perceptible impacts) on the land, soils, geology and hydrogeological environments due to the Proposed Development, no mitigation is proposed.

Cumulative Mitigation

The proposed mitigation measures for this phase of the Proposed Development equally apply to the future phases and will have the same reduction in the significance of the potential impacts.

19.2.4 Water (Chapter 8)

Proposed Development

Construction Phase

The appointed contractor to carry out the construction work for this development, will be required to prepare a site-specific CEMP which will include the following measures to minimize or reduce the risk of pollution events occurring;

- Within the works, temporary earth bunds/silt fences will be constructed to contain surface water run-off and channel it to a silt trap or settlement pond before discharge to the drainage network.
- Any excavated soil is to be temporarily stockpiled at least 20m from any ditch or drainage network or other waterbodies in order to reduce the likelihood of any suspended solids reaching them. This also applies to works associated with the proposed rising main.
- Longer term stockpiles should be located 50m from any ditch or drainage network or other waterbodies.
- Bulk Excavation works will be suspended if high intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24-hour period, or high winds.
- Designated impermeable fuelling areas will be constructed. All oils and fuels will be stored in bunded tanks with the provision of a storage/retention capacity of 110% of tank storage.

- No fuelling areas or fuel storage areas should be designated along route of proposed rising main.
- Care and attention to be taken during refuelling and maintenance operations. Drip trays and spill kits to be available on site.
- Drip trays and spill kits to be specifically included as part of proposed rising main works.
- Chemicals to be stored in dedicated, secure bunded storage. No chemicals to be stored along route of proposed rising main.
- Pouring of cement-based materials for works will only be carried out in substantially dry conditions. It will be suspended if high-intensity local rainfall events are forecast (e.g. >10 mm/hr, >25 mm in a 24-hour period or high winds).
- If any on-site cleaning of ready-mix concrete trucks, tools is required, designated impermeable washout areas will be provided at least 50m from any waterbody. No washout areas should be designated along route of proposed rising main.
- Directional Drilling of the proposed rising main beneath Mayne River is to be carried out by a specialist contractor with experience of similar works (complexity, scale and nature), who will be requested to prepare a detailed method statement prior to undertaking the work.
- The proposed rising main is to be installed and tested, prior to commissioning, in accordance with Uisce Eireann's Code of Practice for Wastewater Infrastructure (July 2020 -Revision 2).
- Discharge points to the drainage network will entail a mechanism for containment of runoff in the event of accidental spillage, to enable clean-up and appropriate disposal through licensed facilities.
- *Contractor Guidance set out in the Control of Water Pollution from Construction Sites* (CIRIA, 2001) shall be adhered to.
- *Environmental Good Practice on Site* (CIRIA 2005) to be implemented and followed.
- Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996 as amended.

Refer to CEMP prepared for this phase of the Proposed Development and included with the Planning Application documentation, for further detail.

With the introduction of these mitigation measures, the significance of the potential construction effects, identified earlier, are considered to reduce since they either remove the source of potential impact and / or place barriers to the pathways for such impact events.

Operational Phase

The following measures are incorporated in the design of the Proposed Development, which when implemented will mitigate any potential effects currently identified: -

- The drainage design follows a sustainable drainage strategy (SuDS) i.e. mitigation by design, and as such any surface water runoff will follow a surface water management train approach with the focus not only on controlling the quantity of discharge flows through attenuation, but on providing treatment storage to remove pollutants and thus improve quality of water being discharged to the estuary. The key component of this approach is the Regional Wetland which is already constructed.
- Various SuDS devices will be utilised upstream within the Proposed Development (Swales, Permeable Pavement Parking Bays, Filter Strips, Filter Drains, Tree Pits, Petrol/Oil Interceptors) and storm water runoff from the development will pass through a minimum of three devices.
- Floor levels will be greater than +4.53mOD.

- The interim foul pumping station and proposed rising main will have a maintenance agreement in place until such time as they are decommissioned.

With the introduction of these mitigation measures, the significance of the potential operational effects identified earlier are considered to reduce since they either remove / minimise the source of potential impact and / or place barriers to the pathways for such impact events.

Cumulative

The proposed mitigation measures for this phase of the Proposed Development equally apply to current and remaining future phase and will have the same reduction in the significance of the potential effects.

Again, it is envisaged that the proposed Uisce Éireann Portmarnock Bridge Pumping Station with rising main direct to North Fringe Sewer will be operational within their likely development timelines, however the recently constructed upgrades to the interim foul pumping station and proposed temporary rising main serving this and future development, will enable it to continue to function until such time as this is the case.

19.2.5 Climate (Air Quality) (Chapter 9)

Proposed Development

Construction Phase

The proposed development has been assessed as having a medium risk of dust soiling impacts, a low risk of dust related human health impacts and a medium-risk of dust related ecological impacts during the construction phase as a result of earthworks, construction and trackout activities (Section 9.5.1). Therefore, the following dust mitigation measures shall be implemented during the construction phase of the proposed development.

These measures are appropriate for sites with a medium risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the Site boundary, this notice board should also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the Site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.

- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Measures Specific to Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the Site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Operational Phase

There is no mitigation required for the Operational Phase of the development as impacts to air quality are predicted to be neutral and imperceptible.

19.2.6 Climate (Climate Change) (Chapter 10)

Several measures have been incorporated into the design of the development to mitigate against the impacts of future climate change These measures have been considered when assessing the vulnerability of the proposed development to climate change (Section 10.6.2.2).

Construction Phase

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate.

- Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. A construction waste management plan will be implemented to minimise construction waste sent to landfills. Recycling of materials will be promoted to and reduce the environmental footprint of the site.
- Sourcing materials locally will be prioritised. This will help to reduce transport related CO_2 emissions and helps support local suppliers, further promoting economic sustainability.
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. For example, a 30% minimum clinker replacement in cement may be utilised in line with the requirements for public bodies.

In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.

Throughout detailed design and construction phase, guidance documents to inform with design detail decisions shall be reviewed e.g. the EU Commission Technical Guidance on Adapting Buildings to Climate Change (European Commission (2021a), LETI emergency design guide (LETI, 2020), and the latest IPCC report.

Operational Phase

Several measures have been incorporated into the design of the development to mitigate against the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated into the design of the development to avoid potential flooding impacts due to

increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (Section 10.6.2.2).

The proposed development has been designed to reduce the impact on climate because of energy usage during operation. The Building Life Cycle Report prepared by Fallon Design and submitted under separate cover with this planning application details several incorporated design mitigation measures that have been incorporated into the design of the development to reduce the impact on climate wherever possible. Such measures included in the proposed development to reduce the impact to climate from energy usage are:

- A2/A3 BER rating;
- Compliance for the Apartments to Part L 2021/ NZEB;
- Energy Performance Coefficient (EPC) 0.30 for dwellings;
- Carbon Performance Coefficient (CPC) 0.35 for dwellings;
- Achieve air tightness standards of 3 $m^3/m^2/hr$;
- Ensure thermal bridging details are designed to achieve thermal bridging factors of 0.08W/m^2K or less;
- Building fabric u-value and g-value calculations will be completed to at least meet the requirements of NZEB in relation to thermal performance;
- Lighting will be designed to limit the energy required and effect on surrounding environment including existing flora and fauna. External lighting will comply with the latest standards and achieve:
    - Low-level lighting
    - Utilise low voltage LED lamps
    - Minimum upward light spill
- Use of low carbon technology includes High Efficiency Split System Air Source Heat Pumps. This unit and key sustainable measures will satisfy the Renewable Energy Ratio;
- Exceed the minimum U-Value standards identified in Part L 2022 Dwellings;
- Provide an appropriate combination of technologies to ensure energy consumption is in line with Part L 2022 Dwellings requirements (Renewable Energy Ratio (RER) > 0.20);
- Access to public transport and reduced reliance on private transport has been considered as the application site is near established rail and bus transport services as well as established social and community services of Portmarnock;

The identified measures will aid in reducing the impact to climate during the operational phase of the proposed development in line with the goals, relevant policies and objectives of the Fingal County Development Plan 2024-2029, including climate mitigation measures.

19.2.7 Climate (Sunlight & Daylight) (Chapter 11)

The subject application proposes the development of a greenfield site zoned for development, within the Development Plan. In these circumstances, during the construction or operational phases scope for mitigation measures, which would preserve a sustainable level of density, is limited.

19.2.8 Air (Noise & Vibration) (Chapter 12)

In order to ameliorate the likely significant noise impacts, a schedule of noise control measures has been formulated for both construction and Operational Phases.

Proposed Development

Construction Phase

With regard to construction activities, best practice operational and control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2.

BS5228 includes guidance on several aspects of construction site practices, including, but not limited to: -

- Selection of quiet plant.
- Control of noise sources.
- Screening (boundary, and or localised plant screening).
- Hours of work.
- Liaison with the public.
- Monitoring.

Detailed comment is offered on these items in the following paragraphs. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise monitoring.

Selection of Quiet Plant

This practice is recommended in relation to sites with static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures where possible. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible.

Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration should be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

BS5228 states that "as far as reasonably practicable sources of significant noise should be enclosed". In applying this guidance, constraints such as mobility, ventilation, access and safety must be taken into account. Items suitable for enclosure include pumps and generators.

BS5228 makes a number of recommendations in relation to "*use and siting of equipment*". These are all directly relevant and hence are reproduced below. These recommendations will be adopted on site.

> *"Plant should always be used in accordance with manufacturers' instructions. Care should be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading should also be carried out away from such areas.*
>
> *Machines such as cranes that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Machines should not be left running unnecessarily, as this can be noisy and waste energy.*
>
> *Plant known to emit noise strongly in one direction should, when possible, be orientated so that the noise is directed away from noise-sensitive areas. Attendant operators of the plant can also benefit from this acoustical phenomenon by sheltering, when possible, in the area with reduced noise levels.*

*Acoustic covers to engines should be kept closed when the engines are in use and idling. The use of compressors that have effective acoustic enclosures and are designed to operate when their access panels are closed is recommended.**

Materials should be lowered whenever practicable and should not be dropped. The surfaces on to which the materials are being moved could be covered by resilient material."

Other forms of noise control at source relevant to the development works are set out below: -

- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant should be switched off when not in use and not left idling.
- For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Demountable enclosures can also be used to screen operatives using hand tools/ breakers and will be moved around site as necessary.
- All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

Screening

Typically screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen and its position relative to both the source and receiver.

Screening may be a useful form of noise control when works are taking place at basement and ground level to screen noise levels at ground floor adjacent buildings.

In addition, careful planning of the site layout should also be considered. The placement of site buildings such as offices and stores and in some instances materials such as aggregate can provide a degree of noise screening if placed between the source and the receiver. The use of localised mobile (mobile hoarding screens and / or acoustic quilts) to items of plant with the potential to generate high levels of noise are an effective noise control measure. These options should be considered when percussive works are taking place in close proximity to the nearest sensitive perimeter buildings.

Liaison with the Public

A designated noise liaison should be appointed to site during construction works. All noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, e.g. demolition, breaking, piling, etc., the liaison officer should inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Hours of Work

Construction works will be undertaken within the times below, taken from the Section 6 of the Draft Construction Management Plan: -

- Monday to Friday 07:00 to 19:00hrs
- Saturday 07:00 to 14:00hrs
- Sunday and Public Holidays No noisy work on site.

Operational Phase

Building Services Plant

Predicted plant noise emissions as outlined in Section 12.4.4 show that criteria set out in Section 12.20 are not exceeded and therefore no specific mitigation measures are required.

Additional Traffic on Surrounding Roads

During the operational phase of the Proposed Development, noise mitigation measures with respect to the (outward) impact of traffic from the development are not deemed necessary as there is no significant impact calculated.

Inward Impact

At detailed design stage, glazing and vent specifications fulfilling the requirements in Section 12.23 will ensure suitable internal noise levels. The assessment has demonstrated that the recommended internal noise criteria can be achieved through consideration of the proposed façade elements at the design stage. The calculated glazing and ventilation specifications are preliminary and are intended to form the basis for noise mitigation at the detailed design stage. Consequently, these may be subject to change as the project progresses.

Cumulative

Construction Phase

As per Section 12.7.1.1.

Operational Phase

As per Section 12.7.1.2

19.2.9 Landscape & Visual Impact Assessment (Chapter 13)

Proposed Development

Construction Phase

While no significant landscape or visual effects will arise, mitigation measures are proposed to avoid, reduce or remediate, wherever possible any potential negative landscape and visual effects of the Construction Phase of the Proposed Development. This includes the relevant measures in the Construction Environmental Management Plan (CEMP) are being implemented as a matter of good practice for the operation and management of all construction works in accordance to best methodologies and practice. The following measures are proposed for the mitigation of landscape / townscape and visual impacts: -

- Construction works will be guided by a Construction Environmental Management Plan (CEMP), which shall provide the environmental management framework to be adhered to and monitored during the pre-commencement and Construction Phases of the Proposed

Development. The CEMP will incorporate all of the mitigating principles required to ensure that the work is carried out in a way that minimises the potential for environmental impacts to occur.

- Construction compounds will not be located within the root protection area of trees or hedgerows to be retained and will be enclosed by solid hoarding. The compound areas will be fully decommissioned and reinstated at the end of the Construction Phase.
- The Phase 1F construction site will be fully enclosed and secured. Construction traffic accessing the Site will follow agreed routes and public roads will be maintained in a clean and safe manner.

Operational Phase

The Operational Phase of the Proposed Development will not give rise to significant landscape and visual effects and therefore, measures for the mitigation of significant landscape and visual impacts are not required. Nevertheless, the Proposed Development includes a number of measures which will ensure its integration within its setting. The Proposed Development includes: -

- Provision of a high-quality of architectural design, character and finish for the proposed buildings and development.
- Provision of significant areas of new and connected open space and park with play facilities as amenity and recreation for the new communities.
- Planting of new trees along streetscapes and within open spaces. Species selected will be appropriate to the street environment and to the characteristics of this coastal edge location.
- Provision of a high-quality of design and finish for landscape areas within the Proposed Scheme.
- Landscape areas will be maintained for twelve months during which any defective or dead material will be replaced.
- Open Spaces, including that incorporating Record Monument DU015-055 and 'Monumental Way' will be offered for taking-in-charge by FCC.

Cumulative

Construction Phase

No potential significant landscape or visual impacts will arise and as such mitigation is not required.

Operational Phase

No potential significant landscape or visual impacts will arise and as such mitigation is not required.

19.2.10 Material Assets (Transportation) (Chapter 14)

Proposed Development

With the objective of mitigating the potential impact of the proposed development during both its Construction and Operational stages, the following proposals (mitigation measures) have been identified and form an integral part of the subject development proposals

Construction Phase

A Construction Environmental Management Plan is being submitted as part of this Planning Application to Fingal County Council, which includes, inter alia, indicative phasing of the works, hours of operation, a traffic management plan, noise and dust mitigation measures etc. A

Construction Manager will be appointed to liaise directly with the various sections of FCC and develop the plan as required.

The construction management plan will take into account construction vehicle routing and timing to mitigate any issues with vehicles on public roads.

The following mitigation measures shall be provided to minimise the impacts to the public road network during the Construction Stage:

- Good construction management practices will be employed such as fencing the site off from the public and neighbouring sites, adequate external/internal signage, secure internal site offices, dedicated construction access points all to facilitate the safety of construction staff and the public;
- Appropriate levels of staff parking and compounding will be provided to ensure no potential overflow or haphazard parking in the area. The site will be able to accommodate employee and visitor parking throughout, though it is noted this will become challenging as the development nears completion;
- Set construction traffic routes to and from the site will be agreed with FCC prior to the commencement of construction activities on site. Where necessary the time of day permittable for such routes will also be agreed upon and outside of the morning/evening peak hours;
- Tracked excavators will be moved to and from the site on low-loaders and will not be permitted to drive on the street pavements;
- Wheel washers / judder bars will be placed at all site access points to minimise the migration of detritus onto the public roads. The roads will be inspected and cleaned on a regular basis; and
- Haul vehicles will be covered after loading to ensure there is no risk of construction material falling.

Operational Phase

A number of measures have been and will be implemented prior to the subject scheme opening which include: -

- **Parking:** All car parking and bicycle parking within the development will comply with the Development Plan and the former has been assessed against the Common Settlement Guidelines. The apartments and duplex units within all phases have been provided with cycle parking equal to and in excess of the Development Plan minimum requirement. It was agreed with Fingal County Council that a sustainable approach to parking would be incorporated into the development. This leads to a strong emphasis on bicycle parking, thus reducing the need for private single occupancy vehicles.
- **Mobility Management Plan (MMP):** A MMP will be rolled out with the aim of guiding the delivery and management of coordinated initiatives by the scheme promoter. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the developments. Details of the MMP are contained below.

Mobility Management Plan

Introduction

A Mobility Management Plan, also known as a Travel Plan, is a long-term management strategy which identifies a package of measures to encourage residents and visitors to use sustainable forms of transport such as walking, cycling and public transport and to reduce dependency on private car single-occupancy use. By providing for the transportation needs of people and goods in an ordered

and planned manner the environmental, economic and social impacts of travel may be greatly reduced.

The objective of this Mobility Management Plan section is to improve accessibility to the development, whilst providing a more sustainable approach to the development's transportation requirements. In line with the Fingal Development Plan 2023-2029, the development seeks to put a strong emphasis on sustainable forms of transport.

Developing this plan will allow the development of managed travel options and more informed travel choices for residents and visitors whilst reducing dependency on private car use associated primarily with commuter travel.

Upon completion and occupation of the development, this Mobility Management Plan will provide the basis for an examination of the commuting patterns associated with the site to be undertaken. With the information gathered, a strategy to promote sustainable travel decisions for the site will be devised. It is envisaged that occupants of the site will derive the following benefits:

- Healthier commute to work and school/college for residents;
- Enhanced well-being;
- Reduced resident downtime spent travelling;
- More informed travel options for residents and visitors;
- A reduction in the demand for parking spaces;
- Improved environmental performance;
- On-going liaison with FCC and public transport providers to maintain, improve and support transportation services to and from the site;
- Promotion of social networks/community within the development;
- Reduced congestion around the site; and
- Cheaper commutes for residents.

Influencing Travel Patterns

In order to give the strategy a good founding it will be necessary to fully understand the nature of the trip patterns associated with the operational stage of the proposed development. In order to achieve this, trip movements to and from the site must be examined and assessed for potential future influence.

Table 19-1 below lists the likely nature and extent of anticipated traffic movements to and from the Proposed Development. It also highlights those trips where change is most possible to influence.

Nature of Traffic Movements to Residential Development	Increasing with Development	Possible to Influence?
Residents commuting to and from work	Yes	Yes
Leisure Related Journeys	Yes	Yes, but more difficult
Deliveries	Yes	Yes, but more difficult
Members of the Public/Visitors	Yes	Difficult and impractical

Table 19-1: Nature of Traffic Movements & Ability to Influence

As visitor journeys, leisure related journeys and deliveries are difficult to predict and influence, this mobility management plan will focus on commuting journeys for residents. As commuting journeys are by their very nature regular and predictable i.e., they generally happen in the same period every morning and every evening, they will form the focus of the Mobility Management Plan.

The setting of realistic and achievable modal split targets is vital if all or any of the measures are to be successful. The targets need to be attainable and most importantly correspond with the development's goals i.e. deliver the benefits listed above.

Accessibility Audit

Section 14.3 provides a summary of existing and proposed public transport services in the vicinity of the development. The section also looks at the existing road infrastructure and facilities and contains a summary of the existing and proposed facilities for pedestrians and cyclists.

In summary, the principle of providing sustainable transport which is embodied in both the Fingal Development Plan 2023-2029 and previously the Portmarnock South Local Area Plan will be given physical expression in the proposed development. The form and structure of the proposed development will encourage the use of public transport, cycling and walking in preference to the private car.

Action Plan

Commuter journeys by their very nature usually occur between the same two points (e.g. home and work) and at regular times. The successful implementation of the Mobility Management Plan will provide the development with a number of advantages, which include:

- Improved environmental performance;
- Improved social networks between residents;
- Improved health and well-being for those staff using active transport modes;
- Reduced demand for car parking spaces; and
- Improved corporate image and social responsibility.

The following details the available initiatives to reduce the environmental impact of commuter journeys. In the future, when the proposed development is occupied, resident travel surveys can be undertaken to gauge more accurate results. When surveys are conducted, it will be clear which modes of transport are in need of attention and which initiatives get priority.

Car-Pooling Scheme

Everyday thousands of commuters drive to work on the same routes to the same destinations, at the same time as their colleagues. By car sharing just once a week, a commuter's fuel costs can be reduced by 20%, and in a similar fashion, the demand for workplace parking can be reduced by 20%.

While use of the car will be essential for a large proportion of residents, car sharing schemes have the potential to deliver a significant reduction in private vehicle trips by promoting more residents to travel in each vehicle, thereby lowering single occupancy vehicle (SOV) trips to/from the development.

A car-pooling scheme relies on a database to match residents, using information about their work addresses, their working hours, their preferences such as gender/driver or passenger and their preferred route to and from work. Depending on the desired level of on-going management company/residents association input, a number of database options exist, some examples include:

- Message boards (either paper, electronic or web-based),
- Manually administered system championed by an individual, who's function is to match individuals interested in car sharing,
- Websites that have automated functions to match people and provide contact details, and
- Websites that have automated functions to match people and provides a message service to potential matches.

The Travel Plan Coordinator should develop a protocol or guidelines for car sharers.

The most successful car sharing schemes rely on strong promotion, are internet based and use an operator to contact members on a regular basis to inform them of potential lifts.

A number of car sharing initiatives have been launched recently in Dublin, including the "*Go Car"* pay-as-you-drive scheme which allows subscribed members to share in the use of a pool of vehicles by reserving a time allocation online in advance and "*carsharing.ie*", a car pooling service that facilitates people looking to rideshare.

Benefits include cost saving, convenience (no responsibility for insurance, tax, fuel, maintenance), less traffic congestion and less parking pressure. In addition to the money people will save by sharing costs, the Travel Plan Coordinator will implement the following initiatives and incentives to encourage the car sharing scheme:

- Highlight to drivers that they do not have to share with a person that doesn't suit them – allow choice based on gender, route, smoking or non-smoking, and
- Clarify the financial implications of the scheme – those accepting a lift could contribute towards fuel costs.

Walking

It is proposed to provide a network of footpaths that will permeate the proposed development, linked into existing footpaths within this residential area as well as the Greenway to the east and thereby provide a high degree of accessibility to local facilities and to bus and rail transport. Initiatives such as the development of a support forum whereby any localised problems can be discussed, with the aim of pursuing corrective action from the local authority may encourage walking amongst residents.

On the basis that 30 mins is considered an acceptable walking distance, residents can walk to an area that includes Portmarnock Village, Baldoyle and Clongriffin.

Refer to **Figure** 19-1 following for illustration of 30 min walking cordon.

Figure 19-1: 30 min Walking Cordon

Cycling

A number of segregated combined cycle and footpath routes through the development and a circular cycle/footpath route will connect homes to the DART station, Greenway, commercial area and open space. For commuter journeys, cycling is a feasible mode of transport for those working within 30 mins of the site. Cyclists could therefore be expected to travel to an area encompassed by Clontarf, Howth, Malahide and Beaumont. Greater distances such as to the city centre, could be expected from cycle enthusiasts and regular cyclists.

Refer to **Figure** 19-2 following for illustration of 30 min cycling cordon.

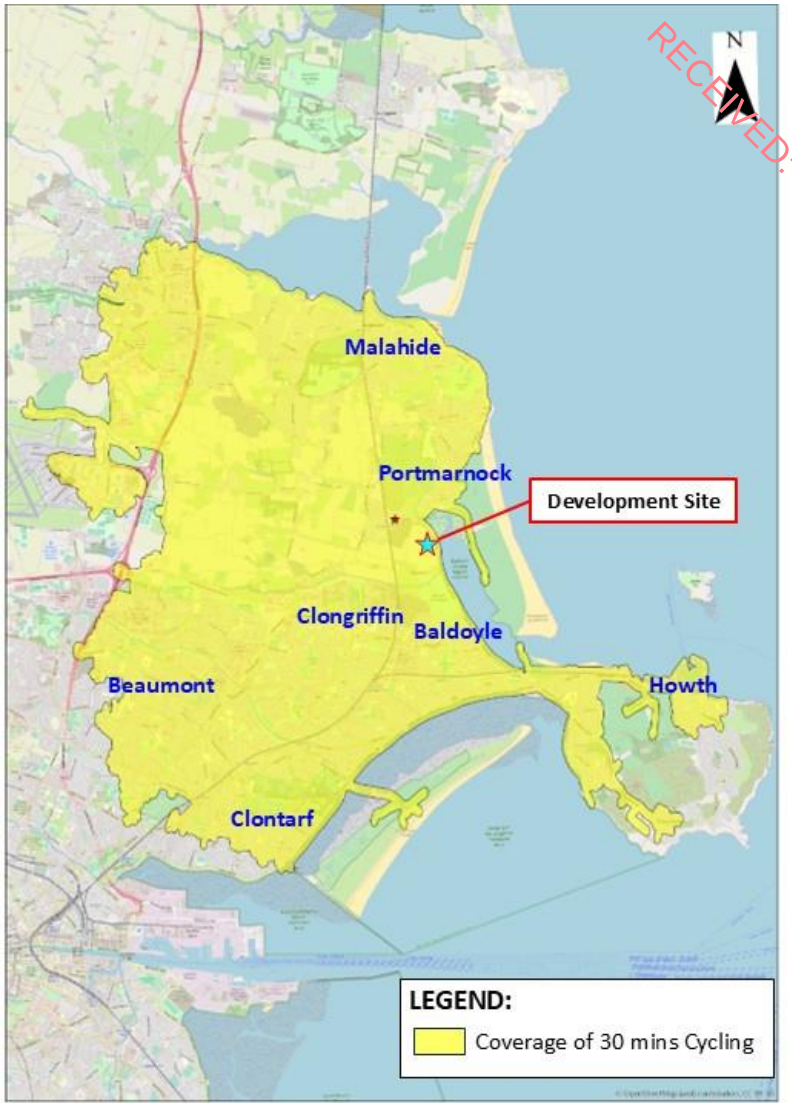

Figure 19-2: 30 min Cycling Cordon

Increases in cycling numbers could be expected to correlate with the continued sustainability drive by the Irish Government. The Government led initiative "*Bike to Work*" scheme allows employers to purchase a bicycle and safety equipment up to the value of €1,500. Employees can then use a salary sacrifice to pay for the bike, allowing them to save up to 52% on the retail price of the bike and safety equipment. Employers benefit by PRSI savings of 10.75%, as well as a reduced parking demand, a fitter and healthier workforce and improved environmental image.

Public Transport

The residential development and surrounding lands are currently well serviced by public transport between the Dart and Dublin Bus routes. To encourage patronage within the development for public transport the following measures could be set in motion:

- Generate a site-specific leaflet showing all public transport routes,
- Contact those residents identified as potential public transport users and assist them in compiling a personalised journey plan.

Incentives for the promotion of public transport include:

- Promotion of a more environmentally friendly way to travel to work, and
- Encourage Dublin Bus/Irish Rail to provide better public transport services to the site as demand grows.

Taxsaver Tickets

Taxsaver incentivises people to use public transport to and from work. The cost is deducted directly from the employees Gross salary, and substantial savings of between 28.5% and 52% can be made off the regular price, depending on ticket type and employee's tax band.

Monitoring

Details on how best to implement and monitor the MMP is outlined in Section 14.8.1.3.

Cumulative (Entire Development)

Construction Phase

The mitigation measures utilised for the Proposed Development (Phase 1F) will also be used in Phase 1G – infill phase. The construction management plan and traffic management plan to be submitted to FCC for approval will constantly be updated for future phase. It will set out requirements and standards which must be met during the Construction Phase and will include the relevant mitigation measures outlined in the EIAR and any subsequent conditions relevant to the proposed development. The document will include lessons learned from the previous phases.

Operational Phase

As per Section 14.6.2.1.

Additionally, the mobility management plan is not a one-off event, more so it is an on-going iterative process. The plan will constantly be updated and find new ways to reduce the developments' reliability on private cars and in particular single occupancy trips.

19.2.11 Material Assets (Waste) (Chapter 15)

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

The concepts of the 'waste hierarchy' and 'circular economy' are employed when considering all mitigation measures.

The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. A circular economy is a model of resource production and consumption in any economy that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for as long as possible.

Construction Phase

The following mitigation measures will be implemented during the construction phase of the proposed development: -

Waste Management (WM)_1:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the requirements of the EPA 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as Appendix 16.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of the mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction stages of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 16.1) in agreement with SDCC and in compliance with any planning conditions, or submit an addendum to the RWMP to SDCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction stages.

WM_2:

- A quantity of topsoil and sub soil will need to be excavated to facilitate the proposed development. The Development Engineers have estimated that the majority excavated material will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

WM_3:

- Building materials will be chosen to 'design out waste'.

WM_4:

- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
    - Concrete rubble (including ceramics, tiles and bricks);
    - Soil and stones;
    - Concrete, bricks, tiles and ceramics;
    - Wood, glass and plastics;
    - Metals;
    - Gypsum-based construction material;
    - Paper and cardboard;
    - Mixed construction and demolition (C&D) waste;
    - Chemicals (solvents, paints, adhesives, detergents etc.).

WM_5:

- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible (alternatively, the waste will be sorted for recycling, recovery or disposal).

WM_6:

- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site.

WM_7:

- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required).

WM_8:

- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works.

WM_9:

- All construction staff will be provided with training regarding the waste management procedures.

WM_10:

- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal.

WM_11:

- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities.

WM_12:

- All waste leaving the site will be recorded and copies of relevant documentation maintained.

WM_13:

- Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 (By-products), as amended, European Union (Waste Directive) Regulations 2011-2020. EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction stage of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997 and the NWCPE. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

Operational Phase

The following mitigation measures will be implemented during the operational phase of the proposed development: -

WM_14:

- All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site.

WM_15:

- As previously stated, a project specific OWMP has been prepared and is included as Appendix 14.2. The mitigation measures outlined in the OWMP will be implemented in full and form part of the mitigation strategy for the site. Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the NWMPCE , Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland and the SDCC waste bye-laws.
- The Residents of the site during the operational stage will be responsible for ensuring the ongoing implementation of this OWMP and the abiding of SDCC waste bye-laws, ensuring a high level of recycling, reuse and recovery at the site of the proposed development.

WM_16:

- On-site segregation of all waste materials into appropriate categories including (but not limited to):
    - Organic waste;
    - Dry Mixed Recyclables;
    - Mixed Non-Recyclable Waste;

- Glass;
- Waste electrical and electronic equipment (WEEE);
- Batteries (non-hazardous and hazardous);
- Cooking oil;
- Light bulbs;
- Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.);
- Furniture (and from time to time other bulky waste); and
- Abandoned bicycles.

WM_17:

- The Residents will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials.

WM_18:

- The Residents will ensure that all waste collected from the site of the proposed development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and

WM_19:

- The Residents will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the *Waste Management Act 1996*, as amended, associated Regulations, the *Litter Pollution Act 1997*, *The NWMPCE* and the FCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

19.2.12 Material Assets (Utilities) (Chapter 16)

Proposed Development

Construction Phase

Mitigation measures proposed in relation to the drainage and water infrastructure include the following: -

- A detailed Construction & Environmental Management Plan has been developed and will be implemented during the Construction Phase.
- The construction compound will include adequate staff welfare facilities including power and potable water supply.
- The construction compound's potable water supply shall be protected in accordance with *Uisce Éireann's Code of Practice for Water Infrastructure July 2020*.
- All watermains to be constructed, pressure tested, cleaned and sterilised before being connected to existing operational water infrastructure in accordance with Section 4 of *Uisce Éireann's Code of Practice for Water Infrastructure July 2020*.
- Method statements will be produced by the contractor for submission to Uisce Éireann prior to commencing any work in the vicinity of the 450mm DI Watermain.
- Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.

- Connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

Operational Phase

On completion of the Construction Phase no further mitigation measures are proposed in relation to the electrical, telecommunications or broadband infrastructure.

19.2.13 Cultural Heritage (Archaeological & Architectural) (Chapter 17)

Proposed Development

Construction Phase

The development of the Portmarnock South lands is an opportunity to provide a coherent vision for the integration, preservation and management of archaeological features into the development of a new vibrant residential, civic and commercial community. There is a need to understand the archaeological remains as a significant heritage resource and its vulnerability and the need for protection. This means that development control measures can be proactive, location-specific and sensitive to the particular requirements of the remains.

Individual attempts at preservation and interpretation can be of limited value without the existence of an overall vision for the treatment of these sites. Without that larger picture, a mechanism for linkage between the remains, does not exist. In effect, appropriate protection and presentation of the remains can only be successfully achieved with a strong and secure long-term 'vision' for the Proposed Development context of the lands at Portmarnock South. As such, the lands have been designed to incorporate the archaeological remains (preservation in situ and preservation by record).

It is recommended that topsoil stripping and earth-moving activities associated with the development within the Phase 1E lands (excluding areas already subjected to archaeological excavation) will be monitored by a suitably qualified archaeologist under licence to the National Monuments Service of the Department of Housing, Local Government and Heritage (DHLGH). Archaeological monitoring is recommended to identify the presence of any further dispersed and small-scale archaeological sites and features which have not been detected through previous investigations. This recommendation has been reviewed by the Heritage Officer at Fingal County Council and accepted. Given the extent of previous investigations, it is envisaged that the below-ground archaeological potential in the remaining lands of Phase 1E is low and can be ameliorated through archaeological monitoring.

In areas that have been previously investigated by excavation no further mitigation is required, this includes the area proposed for: -

- Waste water storage tank (Licence No. 18E0016).

In areas that have been previously investigated by test excavation no further mitigation in the form of testing or survey is required, these areas are: -

- Permitted haul road (Licence No. 20E0598)
- Proposed foul water route (Licence Nos. 22E0509, 17E0597 and 04E1415)
- Area to the east of the enclosure (Licence No. 22E0509)

The developer, Portmarnock Real Estate Developments Limited is aware of their responsibility to fund all necessary archaeological work. All recommendations are subject to approval by the National Monuments Service of the DHLGH and the Heritage Officer from Fingal County Council.

The archaeological mitigation measures listed in the LRD Opinion (FCC Ref. LRD0002/S2) are acknowledged and as set out above, recommended where relevant. For clarity, reference to the no-dig footpath / cycle path and details relating to landscaping of the Recorded Monument area are no longer relevant as no works are proposed within the protected fence line as part of Phase 1E. Furthermore, testing of the recorded Monument has already been carried out and has informed the approach to the archaeological resolution generally.

Operational Phase

All archaeological heritage issues will be resolved by mitigation during the early construction or Construction Phase, in advance of the Operational Phase, through one or more of the following:

- Preservation by record (archaeological excavation);
- Preservation in situ;
- Preservation by design; and
- Archaeological monitoring.

No mitigation measures are required during the Operational Phase of the Proposed Development.

Cumulative

Construction Phase

No cumulative mitigation measures were identified in relation Phase 1E during the Construction Phase.

Operational Phase

No cumulative mitigation measures were identified in relation Phase 1E during the Operational Phase.

19.2.14 Risk Management (Major Accidents & Disasters) (Chapter 18)

Rating of Major Accidents and Disasters Without Mitigation

Construction Phase

The mitigation measures relevant to each environmental factor outlined in chapters 5 – 17 of the EIAR, as well as the CEMP, will be implemented during the Construction Phase of the development and will collectively mitigate the risk of major accidents and disasters during this time.

The Construction Phase of the Proposed Development will be carried out in accordance with site management measures relating to health and safety and emergency response. These measures are described in the CEMP.

Operational Phase

No mitigation or monitoring measures are proposed specific to reducing the risk of major accident / disaster during operation.