

## 2 NON-TECHNICAL SUMMARY

This Environmental Impact Assessment Report (EIAR) has been prepared to support the proposed Dunshaughlin Strategic Housing Development (SHD) application for residential development and associated infrastructure in the townlands of Readsland, Roestown, Knocks, Dunshaughlin, Co. Meath.

The EU Directive requires the production of a Non-Technical Summary as part of the production of an EIAR. The Non-Technical Summary ensures that the public is made aware of the environmental implications of any decisions on new developments to take place. The Non-Technical Summary is laid out in a similar, but summarised format to the main EIAR, describing the project, existing environment, impacts and mitigation measures.

Assessments have been conducted in an integrated, collaborative and analytical process in accordance with the Guidelines on the environmental topics to be examined. This seeks to identify the potential for significant adverse environmental impacts arising from the proposed project. Where significant adverse environmental impacts have been identified as potentially occurring during the construction and operational phases of the development, specified ameliorative, remedial or reductive measures are identified.

### 2.1 Purpose of the EIAR

The objective of this EIAR is to identify and predict the likely environmental impacts of the proposed development as well as to describe the means and extent by which they can be reduced or ameliorated, to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

### 2.2 A Note on Quotations

Environmental Impact Assessment Reports by their nature contain statements about the proposed development, some of which are positive and some less positive. Selective quotation or quotations out of context can give a misleading impression of the findings of the study.

Therefore, the study team urge that quotations should, where reasonably possible, be taken from the overall conclusions of specialists' section or from the non-technical summary, and not selectively from the body of the individual chapters.

### 2.3 The Requirement for an EIAR

The process to determine whether an EIA is required for a proposed development is called Screening. This is dependent on the mandatory legislative threshold requirements or the type and scale of proposed development and significance or environmental sensitivity of the receiving environment.

Annex I of the EIA Directive 85/337/EC requires as mandatory the preparation of an EIA for all development projects listed therein. Schedule 5 (Part 1) of the Planning & Development Regulations 2001-2018 brought Annex 1 of the EIA Directive directly into Irish planning legislation. The Directive prescribes mandatory thresholds in respect to Annex 1 projects. Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

Schedule 5 (Part 2) of the Planning & Development Regulations 2001 – 2018 set mandatory thresholds for each project class. Sub-section 10(b)(iii) and (iv) addresses 'Infrastructure Projects' and requires that the following class of project be subject to EIA: (b)(i) **Construction of more than 500 dwelling units**. Category 10(b)(iv) refers to 'Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.'

The proposed number of residential units in combination with the 142no. residential units permitted on Phase 1 lands (permitted under Reg. Ref. DA/12097, as extended under Reg. Ref. RA/171431) the cumulative number of units amounts to 557no. in total and therefore falls within the threshold requiring an EIAR as it comprises of 500no. dwellings or more.

## 2.4 Description of Proposed Development

The proposed development is set out in 3no. Character Areas. Character Area 6 (c. 3.75 Ha) comprises a greenfield site bounded to the north and west by agricultural lands, Drumree Road (L2208) to the south and Dunshaughlin Link Road (R125) to the east. A single private dwelling adjoins the subject site along the south eastern boundary.

Character Areas 3 & 4 (c. 8.48 Ha) are generally bounded to the west by the existing Dunshaughlin Link Road (R125), to the south by lands zoned for open space (proposed to be changed to employment use under the Draft County Development Plan) and east by lands zoned for open space and Dunshaughlin Community College, to the north by under construction development of Phase 1 residential lands (currently under construction by the Applicant) and lands identified for neighbourhood centre use which may ultimately accommodate a local centre providing local convenience and service uses.

The proposed development consists of 415no. residential units and 1no. childcare facility in buildings ranging from 2 to 5-storeys. The breakdown of residential accommodation is as follows: -

- 254no. own door detached, semi-detached, terraced and end of terrace houses, including: - 6no. 2-bed single-storey houses (House Type H09A), 191no. 3-bed 2-storey houses (House Type H01, H03, H04, H06 and H09B – House Type H01 are provided with optional ground floor extensions) 33no. 4-bed 2 storey houses (House Type H02, H05, and H07) and 24no. 4-bed 3 storey houses (House Type H08).
- 55no. duplexes in 2-3 storey buildings accommodating 24no. 2-bed duplexes and 31no. 3-bed duplexes.
- 106no. apartment units accommodated in 3no. 4–5 storey buildings, including: - Block 01 accommodating 38no. apartments (10no. 1-beds and 28no. 2-beds; Block 02 accommodating 34no. apartments (11no. 1-beds and 23no. 2-beds); Block 03 accommodating 34no. apartments (11no. 1-beds and 23no. 2-beds).
- Private rear gardens are provided for all houses. Private patios / terraces are provided for all duplex and apartment units at ground floor. Balconies / terraces are proposed on elevations to all upper level duplexes and apartments.
- The proposed development includes 1no. childcare facility (c. 409 sq. m gross floor area) within the ground floor of Block 1 apartment building.

And, all associated and ancillary site development and infrastructural works (including plant), hard and soft landscaping and boundary treatment works including: -

- New vehicular access provided to Character Area 6 from Drumree Road, to Character Area 3 from the permitted roundabout on the R125 (MCC Reg. Ref. DA120987 – ABP Ref. PL17.241988) and to Character Area 4 from existing southern roundabout on the R125.
- Provision of enhanced pedestrian and cycle linkages east and north to Phase 1 (Dún Ríoga) and onwards towards Dunshaughlin Town Centre.
- Provision of internal road, footpath and cycle network including 1no. vehicular bridge and 2no. pedestrian / cyclist bridge crossings over the River Skane and dedicated footpath / cyclepath along the Skane River to the western boundary of Dunshaughlin Community College lands to facilitate connection east to College Park and Dunshaughlin Town Park.
- Provision of foul water drainage, surface water drainage and water supply infrastructure including works along Drumree Road and connections into the existing Phase 1 (Dún Ríoga) network of services.

- Provision of public open space (c. 4.07 Ha) in the form of landscaped linear parks and pocket parks as well as additional communal open space areas for apartments and duplexes.
- 664no. car parking spaces and 568no. long and short-term bicycle parking spaces.
- Bin stores and bicycle parking facilities for all terraced houses, duplexes and apartments and 6no. ESB Sub-stations.
- The development involves minor amendments to permitted site development works in Phase 1 – Dún Ríoga (MCC Reg. Ref. DA120987 – ABP Ref. PL17.241988).

The proposed development takes place on an overall combined site approximately 14.8 Ha in area.

## 2.5 Examination of Alternatives (Chapter 4)

Potential alternatives to the proposed development were considered as the scheme progressed. The 'Do-Nothing' alternative was explored, with a conclusion that a do-nothing approach would be contrary to the development plan and LAP objectives for this site to deliver development at this highly accessible location.

A number of site layout and alternative designs were considered during the iterative design process in consultation with Meath County Council. Further design alterations were informed by the Opinion of An Bord Pleanála on foot of Pre-Application Consultation held on 3 June 2020.

The alternative layout proposed which includes the omission of the road link between Character Area 3 & 4 is also considered from an environmental impact perspective. No significant environmental impacts are likely to arise.

The development as now proposed is considered to have arrived at an optimal solution in respect of making efficient use of zoned, serviceable lands whilst also addressing the potential impacts on the environment relating to residential, visual, natural and environmental amenities and infrastructure.

It is considered that the proposed development is consistent with relevant planning policy and minimises the potential for environmental impacts.

## 2.6 Population and Human Health (Chapter 5)

This Chapter evaluates the impacts, of the proposed development on human health of the population surrounding the proposed residential development in the townlands of Roestown, Readsland and Knocks, Dunshaughlin, Co. Meath

According to the 2016 census results there are 5,840no. people living within the study area. National health trends were consulted to give an overall indication of the general wellbeing of the population.

Census data shows that the population in the Meath County area grew by 5.9% between the years 2011 and 2016 compared with 3.8% nationally. The electoral division for the site, Dunshaughlin, saw a lower rate of growth with an increase of 2.9%

There is a potential for negative impacts to health during construction of the proposed development relating to increases in noise levels, air quality emissions and vehicle movements. These are discussed more in each respective Chapter.

During the operational phase of the development, existing and new residents will have access to a high-quality environment with an increase in services available in the immediate area. This can bring benefits to physical health through additional opportunities for exercise and spending time outdoors. Links to more sustainable forms of transport can also lead to a decrease in the levels of air pollution therefore further aiding the effects on physical health.

Increased access to open space and services can also lead to benefits for mental health and wellbeing with increased links to nature granted by the formalised access to through the site and recreational opportunities.

Mitigation measures relating to health impacts arising from the construction and operation of the scheme 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.

In relation to population, the residual impacts of a large population increase are long term and positive. For Human Health, the potential for improvements in health relate to the improved access to open space and services.

## 2.7 Biodiversity (Chapter 6)

The assessment considered the potential direct, indirect and cumulative impacts on biodiversity within the zone of influence of the proposed development. The assessment was undertaken in line with a number of guidance documents including the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018 as updated September 2019).

Baseline ecology surveys were undertaken at the proposed development site between June and August 2020 and included: -

- Habitat and flora surveys.
- Breeding bird surveys.
- Mammal surveys.
- Bat surveys.

The following key ecological receptors were identified within or occurring within the zone of influence of the proposed development site: -

- Depositing/lowland rivers (FW2).
- Treelines (WL2).
- Hedgerows (WL1).
- Immature woodland (WS2).
- Other artificial lakes and ponds (FL8).
- Dry calcareous grassland and neutral grassland (GS1).
- Foraging /commuting bats.
- Breeding birds.
- Small mammals.
- Badgers.
- Otter.
- Amphibians.
- Fish.

In addition, European and nationally designated sites were identified as key ecological receptors. The proposed development site does not overlap with any European or nationally designated sites, however a hydrological pathway exists between the River Skane and European and National sites downstream. The River Skane flows through the southern section of the site, which then flows c. 17.9km downstream into the River Boyne and Blackwater Special Area of Conservation (SAC) and Special Protection Area (SPA). It also flows through Boyne Woods pNHA, Crewbane Marsh pNHA, Dowth Wetland pNHA and the Boyne River Islands pNHA, eventually flowing into the Boyne Coast Estuary SAC, the Boyne Estuary SPA and the Boyne Coast and Estuary pNHA, where waters ultimately discharge into the Irish Sea. During construction, contaminated surface waters could potentially be transferred to downstream European and national sites via this connection.

Despite this viable connection, as concluded in the Appropriate Assessment Screening and Biodiversity Chapter Reports, there will be no likely significant effects on any European or National sites arising from this linkage during construction or during the operation of the proposed development.

Potential impacts arising from the proposed development during the construction phase are considered to be: accidental pollution incident affecting surface water or groundwater quality, surface water run-off of sediments and/or pollutants affecting surface water or groundwater quality, air quality impacts, habitat loss, fragmentation and degradation, disturbance and displacement of fauna species, loss of potential nesting/roosting sites, and artificial lighting impacts. Potential impacts arising from the proposed development during the operational phase are considered to be: surface water run-off of sediment and/or pollutants, disturbance and displacement of fauna species, and artificial lighting impacts.

The proposed landscape plan has been developed in order to retain as much of the existing landscape as possible, and where this is not possible, extensive compensatory planting of native hedgerows and treelines are proposed. Diverse meadow mix planting and management of existing meadows is also proposed which will benefit the overall biodiversity of the proposed development site. The inclusion of an already constructed attenuation pond and the proposed addition of numerous other SuDS measures incorporated into the design will greatly reduce the impact the proposed development will have on the River Skane and local receiving environment.

A comprehensive suite of mitigation measures have been proposed, in addition to the design considerations summarised above. All of the mitigation measures will be implemented in full and are best practice, and tried and tested, effective control measures to protect biodiversity and the receiving environment. Considering the elements included within the design of the proposed development, and the implementation of the mitigation measures in the associated planning application documents to avoid or minimise the effects of the proposed development on the receiving environment, no likely long-term significant residual effects on biodiversity are predicted.

## 2.8 Land, Soil & Geology (Chapter 7)

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan Consulting Engineers, as part of the EIA process, for planning application of the proposed mixed-use development within Dunshaughlin to assess the existing land, soils and geology within the proposed development.

The Bedrock Geology Map of Ireland, specifically County Meath, produced by the Geological Survey of Ireland Ltd. (GSI) was reviewed and a comprehensive site investigation was completed by Site Investigations Ltd in March 2020.

The geotechnical site investigation has confirmed the following site conditions for both the north and south sites of Phase 2 Dunshaughlin: -

- Topsoil overlying overlying conditions are brown slightly sandy slightly gravelly silty CLAY.
- Top of weathered rock or boulder obstruction is between 1.00 to 2.50m depth.
- CBR values taken 500mm BGL varied from 4.1% to 7.3%.
- Soils tested have Low sulphate content and near neutral pH.
- Testing confirmed that the sub soils are inert.
- The sub soils have low permeability.

The areas are underlain by the Visean limestone & Calcareous shale of the Dinantian age. According to GSI the limestone formation of the area is of the Loughshinny Formation, which is described as dark micrite and calcarenite, shale with thickness from 100 to 150m. A fault lines traverses the lands between the Phase 2 developments' north and south sites.

The site is set in the area with subsoil of low permeability and the Locally Important Aquifer (Li) designation with bedrock which is moderately productive.

A groundwater source protection zone exists within Dunshaughlin, and, within the vicinity of the subject site. The subject south site encroaches partly on the Outer Protection area (referred to as 'SO') with one small portion reaching the Inner Protection area (referred to as 'SI'). The subject sites have low permeability of subsoil and hence a low vulnerability rating for both ground water protection zones within the south site.

The proposed development works will consist of excavations for foundations, roads and services which will expose underlying soil. This may result in a risk of erosion of soil and contamination of sub-soils and groundwater especially during construction.

The measures to reduce impact that the development will have on the soil and groundwater during construction and operational phase of the development include reducing the quantity of soil to be removed, provision of silt traps, stock piling guidance, pollutant control measures, replacing topsoil and implementing a planting programme to prevent soil erosion.

As a result of these remedial measures the proposed development will not give rise to any significant residual adverse impacts on the surrounding land, soil and geology.

## 2.9 Water (Chapter 8)

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan Consulting Engineers, as part of the EIA process, for SHD Planning Application of the proposed mixed-use development within Dunshaughlin to assess the potential impact of the proposed development on existing water supply, wastewater and surface water environment within the proposed development and surrounding environment. The potential impacts of the proposed development are assessed and the mitigation measures to minimise the impact of the development on the water supply, wastewater and surface water environment are proposed.

Potential impacts of the proposed development on the existing water environment during construction phase include accidental spillages of contaminants discharging to local waterways and contamination to the existing water supply during connection of the watermains to the public water supply.

Potential impacts of the proposed development on the existing water environment during operational phase include decrease in infiltration area due to hardstanding, increase in flood risk due to increased peak flow and an increase in water pollution risk due to accidental spillage of contaminants. There is a possibility of surface water ingress into the foul water drainage system due to poor workmanship, which would increase the load on the existing sewers.

Mitigation measures proposed for the construction, commissioning and operational phases of the proposed development include implementation of construction standards and best practices, supervision of construction works, plan for pollution emergencies, SuDS and detailed drainage design with attenuation of flood runoff to minimise flood risk within the proposed development as well as in the region.

As a result of the design and remedial measures proposed there are no significant adverse impacts envisaged on the surrounding water environment resulting from the proposed development.

## 2.10 Climate (Air Quality and Climate Change) (Chapter 9)

AWN Consulting Limited has been commissioned to conduct an assessment of the likely impact on air quality and climate associated with the proposed residential development at Dunshaughlin, Co. Meath.

In terms of the existing air quality environment, baseline data and data available from similar environments indicates that levels of nitrogen dioxide, carbon monoxide, particulate matter less than 10 microns and less than 2.5 microns and benzene are generally well below the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA state that Ireland had total GHG emissions of 60.93 Mt CO<sub>2</sub>eq in 2018. This 5.59 Mt CO<sub>2</sub>eq higher than Ireland's annual target for emissions in 2018. Emissions are predicted to continue to exceed the targets in future years, therefore, reduction measures are required in all sectors.

The greatest impact to air quality during the construction phase of the proposed development is from dust emissions. There are a number of sensitive receptors in close proximity to the site, to the direct east of the site boundary in Eden Court, Manor Court. The Phase 1 development which is at an advanced stage of construction also borders the site to the north and east. Provided the dust mitigation measures outlined in Appendix 9.3 of Chapter 9 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors.

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term, localised, neutral and imperceptible with respect to human health.

Potential impacts to air quality and climate during the operational phase of the proposed development are as a result of increased traffic volumes on the local road network. The changes in traffic flows were assessed against the UK Design Manual for Roads and Bridges (DMRB) screening criteria for an air quality assessment. The operational phase air quality and climate modelling assessments determined that there is no potential for significant impacts as a result of traffic related to the proposed development. It can therefore be determined that the impact to air quality and climate as a result of increased traffic volumes during the operational phase of the proposed development is localised, negative, imperceptible and long-term.

As the National and EU standards for air quality are based on the protection of human health, and concentrations of pollutants for both the construction and operational stages of the proposed development are predicted to be significantly below these standards, the impact to human health is predicted to be imperceptible and imperceptible in the short and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

## **2.11 Climate (Sunlight) (Chapter 10)**

Chapter 10 Climate (Sunlight) outlines analysis of the impact of the proposed development on lands at Dunshaughlin Link Road, Dunshaughlin, Co. Meath on sunlight access in the surrounding area.

This analysis was undertaken in accordance with BRE Annual Probable Sunlight Hours methodology.

With regard to an existing dwelling bounded by roads L2208 and R1205, the analysis determines there to be no impact on sunlight access due to the proposed development being located a distance North/North West of the existing dwelling.

All other neighbouring buildings and future developments are located a distance apart such that there is anticipated to be no impacts on sunlight access by the proposed development.

## **2.12 Climate (Daylight) (Chapter 11)**

Chapter 11 (Daylight) outlines analysis of the impact of the proposed development on lands at Dunshaughlin Link Road, Dunshaughlin, Co. Meath on sunlight access in the surrounding area.

This analysis was undertaken in accordance with industry best practice guidelines for daylight in the BRE publication "Site Layout Planning for Daylight and Sunlight – A guide to good Practice (Second Edition): BRE209".

With regard to an existing dwelling bounded by roads L2208 and R1205, the analysis determined the proposed development would have a Zero to Not Significant impact on natural light availability to the existing dwelling, due to the relatively low nature of the proposed housing units and distance from the existing dwelling.

All other neighbouring buildings and future developments are located a distance apart such that there is anticipated to be no impacts on daylight availability by the proposed development.

### **2.13 Air (Noise & Vibration) (Chapter 12)**

AWN Consulting Limited has been commissioned to conduct an assessment of the likely Noise and Vibration impacts associated with the proposed residential development at Dunshaughlin, Co. Meath.

The existing noise climate in the vicinity of the proposed development has been surveyed. Prevailing noise levels are primarily attributed to road traffic.

The noise impact assessment has focused on both the potential outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment, as well as the inward impact of the traffic noise on the development itself.

During the construction phase the assessment has predicted that construction noise emissions will cause a potentially significant, negative and short-term effect at the closest sensitive receptor, a dwelling that is located approximately 15m from the development site. At all other receptors the predicted impact will be negative, moderate and short term.

In terms of construction vibration it is expected that vibration levels are expected to be below those that would cause cosmetic building damage. Consequently, the impacts may be described as locally negative, not significant and short-term.

During the operational phase, the outward noise impact to the surrounding environment will be due to additional traffic on surrounding roads and plant noise. Calculations for future traffic volumes on the surrounding public roads indicate that any increases due to additional road traffic will be neutral, imperceptible and permanent.

Suitable criteria, derived from measured background noise levels, have been selected for plant noise emissions and will be adhered to at the design stage. The resulting outward noise impact due to plant noise will be neutral, not significant and permanent.

The inward noise impact assessment has determined that some facades of the development will require enhanced acoustic glazing and ventilation specifications to meet the proposed internal noise criteria. Specifications for glazing and ventilation systems have been provided in order to mitigate noise intrusion from external sources. With these measures in place the inward noise impact is predicted to be neutral, not significant and permanent.

### **2.14 Landscape and Visual Impact Assessment (Chapter 13)**

The subject lands, on the edge of Dunshaughlin Town, are presently in use as agricultural grazing lands separated by hedgerows. The construction proposals are to remove some sections of existing hedgerows and retain others incorporating the hedgerows into the landscape design and develop the lands with a mixture of housing / apartments and a crèche as per the zoning in the Co. Meath Development Plan and Dunshaughlin Local Area Plan.

The development site is in two sections, the larger southern section lies to the east of the R125 as it crosses the M3 Motorway and there is existing residential development adjoining to the north and nearby residential development to the east of the site. The northern section lies to the west of the R125 and north of the L2208. The proposed landscape design includes the provision of extensive landscaped open space throughout the development with native species planting along the River Skane which runs through the site and the provision of pocket parks and play areas throughout the development. Pedestrian pathway and cycleways link the various parts of the site and they also link into existing pedestrian and cycle routes adjoining the site providing access into the Town Centre.



Potential negative visual impacts from the development are most likely along the R125 and the L2208 both of which bound the site. The visual impact will be related to the change from agricultural lands to residential development and in this case the construction phase will be the most visually negative aspect of the development proposals. Post construction the completed site with extensive native tree and ornamental tree planting will integrate into the existing landscape of Dunshaughlin as an expanding town close to Dublin.

## 2.15 Material Assets (Transportation) (Chapter 14)

This section of the Environmental Impact Assessment Report (EIAR) has been prepared by Waterman Moylan Consulting Engineers, as part of the EIA process, for planning application of the proposed mixed-use development within Dunshaughlin to assess the transportation impacts on the surrounding road network as a result of the proposed development.

The operational phase Traffic Impact Assessment considers the combined effect of the traffic likely to be generated by the proposed and cumulative development of the Dunshaughlin area.

The performance of 7no. junctions has been modelled - i.e.

- Drumree Road / R125 junction.
- Drumree Road / L220 junction.
- Drumree Road / Phase 1 Entrance junction.
- R125 / Phase 1 Entrance junction.
- R125 / R125 junction.
- A further 2no. junctions within the Dunshaughlin Town Centre were modelled following discussion with MCC.

It is anticipated that the proposed, and the future development of the Dunshaughlin Phase 2 opening year would be 2024. The junctions have been assessed for design year of 2039 (opening year +15 years) with traffic generated by the proposed development and future Dunshaughlin area development.

The traffic impact assessment results have shown that the increase in traffic volumes, that will be generated by the proposed and the future Dunshaughlin Phase 2 development, will have no significant effect on performance of the junctions assessed.

The impact of the proposed development on junctions is assessed as neutral.

The number of construction vehicle movements generated by the proposed development is significantly low compared to the number of vehicular trips to be generated by the proposed development during the operational phase. Further, it is predicted that the majority of traffic generated by the construction activities will take place outside of the AM and PM peak periods and therefore no significant adverse impact on traffic is predicted.

## 2.16 Material Assets (Waste) (Chapter 15)

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the proposed development. The receiving environment is largely defined by Meath County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the construction phases, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused on-site to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials off-site. It has been estimated by the project

engineer that 43,253m<sup>2</sup> of soil and stone which will need to be excavated to facilitate the proposed development. It is envisaged that 24,807m<sup>2</sup> of soil and stone will be required to be moved off site, with the rest of the excavated material being reused on site. Material moved offsite will be taken for offsite reuse, recovery and/or disposal. 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 or the environment.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan (Appendix 16.1) during the construction phase will ensure that the effect on the environment will be short-term, neutral and imperceptible.

During the operation phase, waste will be generated from the residents as well as the commercial tenants. Dedicated waste storage areas have been allocated throughout the development for residents. The waste storage areas have been appropriately sized to accommodate the estimated waste arisings in both apartments and duplexes. The commercial tenants will have dedicated waste storage areas allocated within the development and can be viewed on the drawings submitted with the application. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection areas by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture (Appendix 16.2). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Provided the mitigation measures outlined in Chapter 16 are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, imperceptible and neutral.

## **2.17 Material Assets (Utilities) (Chapter 16)**

The Material Assets – Utilities Chapter examined the impact that the proposed development would have on the existing utility services in the vicinity of the development. Foul and stormwater drainage, watermains, electric, natural gas and communication networks were considered.

The site is a greenfield development west of Dunshaughlin and divided into two areas by the existing road network, the Drumree Road (L2208) running east/west through the site and the R125 which runs north/south.

### **Existing Infrastructure Summary**

There are existing surface water drains in the Drumree Road, the R125 and also passing through the southern portion of the proposed site from Phase 1 of the development which is currently under construction. All of this surface water drainage ultimately discharges to the River Skane at the southern boundary of the proposed development.

There is existing foul water drainage passing through the southern portion of the proposed development, connecting Phase 1 (under construction) to a trunk foul main which runs adjacent to the River Skane, which in turn connects to the Wastewater Treatment Works at Castletown, Tara.

There are existing watermains within Phase 1 of the development with spurs located on Drumree Road and between Phases 1 and 2 for the connection of the Phase 2 development into the water network.

There is no ESB, gas or telecoms infrastructure within the proposed development lands with the exception of the services located within the Drumree Road (L2208).

The existing attenuation pond constructed on the southern portion of the site, adjacent to the River Skane, will collect this stormwater runoff from both the Phase 1 development and the upper portion of the proposed Phase 2 south site development. Stormwater runoff from the northern portion of the proposed development will drain by gravity pipes into the existing pipeline on the Dumree Road. This pipeline carries surface water along the R125 and discharges into the River Skane.

### **Proposed Infrastructure Summary**

The foul water network for the northern portion of the proposed development will connect into the existing foul water network constructed under Phase 1. The connection is located south of Dumree Road east of the R125. The southern portion of the proposed site is further divided in two by the River Skane. The development north of the River Skane (but south of the Drumree Road) will discharge foul water into the Phase 1 foul sewer system at multiple connection points along the existing foul network within the internal roads, ultimately discharging into the existing 525mm diameter trunk sewer which runs parallel to the River Skane. . The proposed development to the South of the River Skane will drain via gravity in a northerly direction and will discharge into an existing connection manhole constructed under Phase 1 on the 525mm trunk foul sewer. The foul drainage from the proposed site will drain to the Wastewater Treatment Works at Castlethorn, Tara which has a design capacity of 12,000 PE and which is licensed by the EPA to cater for a population equivalent up to 10,000 PE. It currently has an approximate 6,000 PE entering the plant.

The Watermain network for the proposed site will comprise of a 225mm diameter watermain serving both the northern and southern portions of the site, linking into the existing watermain on the Dumree Road.

The potential additional load on the gas network from the proposed development is estimated to be 5MW while the estimated load on the ESB electricity network is 2MW.

The proposed residential development will not result in any significant impact on the existing utility services in the vicinity of the development.

## **2.18 Cultural Heritage (Archaeology) (Chapter 17)**

There are no known Recorded Monuments and Places (RMPs) within the Proposed Development site. There are several RMPs within 1km of the development site. Several of these are associated with the medieval origins of St Seachnall's church in nearby Dunshaughlin. None of the RMPs will be impacted by the Proposed Development.

The National Museum houses topographic files that provide information on archaeological artefacts and their find spots. There are no files relating to the area of the Proposed Development. Some artefacts have been discovered in the surrounding area, including a polished stone axe from Cooksland.

Numerous archaeological excavations have taken place within 1km of the Proposed Development. Most of these sites were discovered as part of the nearby M3 motorway construction and included prehistoric fulachtaí fiadh, ring ditches and pits.

A geophysical survey (Licence 09R0089), archaeological testing (Licence 09E0214) and archaeological excavation (Licence 15E0125) revealed substantial archaeological remains within the nearby Dún Ríoga residential development. The northern portion of the development contained a significant multi-phase Early Medieval settlement site with associated metal working, cereal production and burials.

A 20m wide pipe trench was opened across the Proposed Development as part of the Dún Ríoga development. It contained evidence for prehistoric fulachtaí fiadh (cooking pits), a cremation pit, a possible pyre and pits. These archaeological features were fully resolved as part of the Dún Ríoga development works.

Subsequent archaeological testing (Appendix 17.1 – Licence 20E0410) of the Proposed Development has identified more features of potential within the Proposed Development.

### Archaeological Potential within the Proposed Development



**Figure 2.1:** Outline plan of the Proposed Development with the numbering system used in the archaeological assessment.

A geophysical survey (Licence 09R0138) of Field 1 of the Proposed Development yielded no clear archaeological patterns. Several pits and curvilinear features of archaeological potential were identified in the western side of the northern field during archaeological testing (Appendix 17.1 - Licence 20E0410). No features of archaeological potential were identified in the eastern part of the field. The early medieval settlement located in the Dún Ríoga residential development does not continue westwards into the northern portion of the Proposed Development.

A geophysical survey (Licence 09R0138), archaeological testing (Licence 09E0214) and archaeological excavation (Licence 15E0125) identified archaeological features within Field 2 of the Proposed Development. Additional burnt spreads likely associated with two fulachtaí fia, curving slot and pits were identified within Field 2 of the Proposed Development during subsequent archaeological testing (Appendix 17.1 - Licence 20E0410). Field 3 was not available for accessible for archaeological testing. No other features of archaeological potential were identified in Fields 4 and 5.

A geophysical survey (Licence 09R0138) within Field 6 of the Proposed Development identified a concentration of positive responses that were typical of plough-damaged fulachtaí fiadh activity and were thought to indicate the presence of burnt spreads, possible pits and ditches. Other positive responses in the area may have related to pits or spreads or archaeological material. Subsequent archaeological testing (Appendix 17.1 - Licence 20E0410) of Field 6 of the Proposed Development did not identify any features of archaeological potential.

### Potential Impact of the Proposed Development

The Proposed Development, without correct mitigation measures, will have an adverse, profound and permanent effect on both known and potential archaeological features and/or deposits. The removal of topsoil, the digging of foundation trenches for houses, apartments and the creche, the insertion of services and the movement of construction machinery across the Proposed Development will significantly affect any subsurface archaeological features and/or deposits.

The western half of Field 1 of the Proposed Development is an area of archaeological potential. Should significant archaeological features and/or deposits be discovered there, the potential for preservation in situ exists within the proposed large green area.

Evidence for prehistoric archaeological features within Field 2 of the Proposed Development has been confirmed. It is highly likely that further features of archaeological potential will be discovered there. These features will be profoundly and permanently impacted by the creche, housing and infrastructure of the Proposed Development. The opportunity for some preservation in situ exists in the proposed green areas in the north-western part of this area.

No features of archaeological potential have been identified in the southern part of the Proposed Development.

### Recommended Ameliorative Measures

It is recommended that the removal of topsoil within the western half of Field 1 be monitored by a suitably qualified archaeologist. The features already identified during archaeological testing (Appendix 17.1 - Licence 20E0410) and any other previously unidentified features of archaeological potential should be excavated and preserved by record.

It is recommended that the removal of topsoil within Fields 2 and 3 be archaeologically monitored. The features already identified during archaeological testing (Appendix 17.1 - Licence 20E0410) and any other previously unidentified features of archaeological potential should be excavated and preserved by record.

It is recommended that environmental cores be taken from the wetlands around the River Skane to assess the local environment at the time that the prehistoric features identified during testing (Appendix 17.1 – Licence 20E0410) were in use.

It is recommended that no further archaeological mitigation is required within Fields 4, 5 or 6.

Considering the extensive programme of archaeological work already carried out within the Dún Ríoga development, further archaeological investigation in the Proposed Development will help to put those findings in context and significantly increase the value of the archaeological remains already excavated so far, thus considerably improving the overall archaeological interpretation of the Cumulative Development site.

The table below shows the effect of the recommended ameliorative measures on the archaeological impact of the Proposed Development.

Potential impact	Without measures	With measures
Protected Sites (RMP & RPS)	None	None
Known Archaeological Remain	Profound, negative	Very significant, positive
Unknown Archaeological Remain	Profound, negative	Very significant, positive

All recommendations are subject to the approval of the National Monuments Service, Department of Culture, Heritage and the Gaeltacht.



**Figure 2.2:** Summary of archaeological recommendations with suggestions for the location of environmental cores.

## 2.19 Cultural Heritage (Architectural Heritage) (Chapter 18)

Cathal Crimmins Architects, RIAI Grade 1 Accredited Conservation Architects have prepared this report on behalf of Castlethorn c/o Stephen Little & Associates to study the impact, if any, on the architectural heritage resource as a result of the proposed development of 415no. residential units at Dunshaughlin, Co. Meath within the townlands of Knock, Readsland and Cooksland (herein after referred to as the Proposed Development). The report was undertaken by Sinéad Flynn B. Arch, MUBC, MRIAI of Cathal Crimmins Architects.

The desk-based review of cartographic and documentary records for the site, along with site inspections, confirms that there are no buildings of architectural significance on the site and that land use at the site has historically been agricultural.

Historic maps and aerial photographs document the development of the lands surrounding the site and confirm that they remained undeveloped, and in agricultural use until the end of the twentieth century. The housing estates at Manor Court and Park Close, to the east of the southern site, were completed by 1995. Junction 6 of the M3 motorway was under construction in 2005 and complete by 2012. The lands to the east of the site are currently under construction.

There are no protected structures or structures which are included in the National Inventory of Architectural Heritage (NIAH) for Meath on the site, or within 0.5km of its boundaries. The historic village centre of Dunshaughlin is approximately 0.9km from the site boundary and screened from it by existing housing estates. The historic landscape character to west of the proposed site was disrupted by the construction of the M3 motorway (completed c. 2002) with the associated Dunshaughlin Link Road.

No direct physical impacts are predicted upon the architectural heritage resource during the construction or operational phases of the proposed development.

The operational stage of the proposed development will not have a direct physical impact on any protected structures, buildings of architectural significance or designed historic landscapes.

Operational stage impacts on the architectural heritage resource will be indirect and imperceptible and residual impacts are anticipated to be imperceptible.

Ameliorative, remedial or reductive measures are not proposed, and monitoring and reinstatement of existing features is not required.

## **2.20 Risk Management (Chapter 19)**

This assessment describes the proposed development in respect of its potential vulnerability to major accidents/ disasters. It also considers the potential for the development to give rise to major accidents/ disasters.

The scope and methodology of this assessment is based on the understanding that the proposed development will be designed, built and operated in line with best international current practice. As such, major accidents resulting from the proposed development would be very unlikely.

A risk analysis-based methodology that covers the identification, likelihood and consequence of major accidents and / or disasters has been used for this assessment. There are no Seveso sites in the vicinity of the site.

No potential scenarios during the construction phase were identified as requiring further assessment.

## **2.21 Summary of Mitigation Measures (Chapter 20)**

This Chapter provides a summary of all the mitigation and monitoring measures proposed throughout the EIA document for ease of reference for the consent authority and all other interested parties.

## **2.22 Summary of Residual Impacts (Chapter 21)**

This Chapter provides a summary of all the residual impacts identified throughout the EIA document for ease of reference for the consent authority and all other interested parties.

## **2.23 Summary of Cumulative Impacts & Interactions (Chapter 22)**

This Chapter identifies the principle interactions between the potential impacts of the environmental factors identified in Chapters 5-19 inclusive, and as well as cumulative impacts arising based on best scientific knowledge.

All potential interactions have been addressed as required throughout the EIAR. During each stage of the assessment contributors have liaised with each other (where relevant) to ensure that all such potential interactions have been addressed.



