

Environmental Impact Assessment Report Volume 3: Non-Technical Summary

To accompany a planning application for

Residential Development

At

Crodaun, Celbridge, Co. Kildare

Submitted on Behalf of

Ardstone Homes Ltd.

January 2020

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(I) INTRODUCTION

This document provides a non-technical summary (NTS) of the Environmental Impact Assess Report (EIAR) that has been submitted in support of a planning application for a residential development at Crodaun, Celbridge, Co. Kildare.

The proposed development provides for demolition of all existing structures on site; a residential development of 372 no. residential units and a childcare facility. The proposed development provides all associated and ancillary infrastructure, landscaping, boundary treatments and development works on a total site of approximately 9.55 hectares.

This document provides a summary in plain English and free of technical jargon, describing the likely environmental impacts and inter-relationships between environmental factors as a result of the proposed development. This summary reflects the findings of the main EIAR document that accompanies the planning application submitted to An Bord Pleanála.

It was determined that it would be appropriate to prepare an Environmental Impact Assessment Report for the proposed development on the basis that the subject site forms part of a larger site in the same ownership of the applicant and it was agreed at the pre-application stage with Kildare County Council that pursuant to Section 172(b)(i) and (ii) of the Planning and Development Act 2000, as amended, that a sub-threshold EIAR would be carried out.

A number of environmental specialist consultants were responsible for the preparation of individual chapters of the EIAR according to their technical expertise.

(II) SITE DESCRIPTION & PLANNING HISTORY

The subject site is located on the northern fringe of the built-up area of Celbridge in County Kildare.

The site fronts the north-eastern side of the Maynooth Road (R405) and lies to the east of its roundabout junction with the R449 that continues northwards to connect at Junction 6 with the M4 motorway, a short distance to the north-east of the subject lands.

The site benefits from generous road frontage onto the R405 to the west and the R449 to the north. The lands back onto open fields to the north-east and the rear gardens of houses within the established residential development of Crodaun Forest Park to the south-east and south.

To the south east of the proposed site lies Castletown House, an 18th century Palladian style house. An avenue through the wooded area to the north west of the house marks the line of a north west axis and vista from the house. The vista is terminated by a raised bank at the edge of the R449. The townland boundary with Castletown forms most of the eastern and southern boundary of the site and comprises a largely well preserved roughly cut stone wall with notable modern changes to the south of the site where concrete blocks and capping have been inserted. The wall itself is 1.8m - 2.2m high and is constructed of roughly cut limestone blocks and mortar while an original gateway provides access to and from the demesne lands.

The subject site is irregular in shape and is approximately 9.55ha in extent. It is composed of three large fields currently in use as grazing land and a small triangular field, falling gently from north to south. The intervening field boundaries comprise mature hedgerows with a laneway off an existing vehicular access on the Maynooth Road in the south-western part of the site.

The subject site has a varied planning history which is summarised as follows:

- **KCC Ref. 052819** – permission refused for a mixed-use development refused in broad terms for; material contravention of zoning / development objective; part of the site fell outside the development boundary of Celbridge (agricultural lands); inappropriate scale, height, layout and deficient public open space provision; proposed 4-storey blocks would interfere with and detract from a protected vista; and, unsustainable form of development by reason of the large quantum of housing in a peripheral location poorly served by public transport.
- **KCC Ref. 08/72** – permission granted for demolition of existing single storey house, garage, stables and barn and the construction of 5 no. two storey blocks containing 22 no. industrial/commercial units plus new vehicular entrance, access road, associated parking and services area etc.
- **KCC Ref. 082040** – permission granted for construction of a two-storey over basement Fitness Centre
- **KCC Ref. 90572 (ABP Ref. PL 09.235757)** – permission refused by ABP for development comprising a new petrol station and associated vehicular access / egress off the R449. Refused in broad terms because; development would create a complex environment for road users which would endanger public safety by reason of traffic hazard; permitting the proposed access would prejudice potential access arrangements to the remainder of the lands and would be contrary to Local Area Plan objectives for the area; and, petrol stations are not permitted under the zoning objective and would consequently contravene the development plan.
- **KCC Ref. 091273 (ABP Ref. PL 09.237463)** – ABP refused permission for revisions to Reg. Ref 08/72 to omit warehouse blocks A, B, C and D and replace as such with a single-storey cinema complex with revised associated car parking, vehicular access roads, drainage, landscaping and site works. Permission was refused in broad terms for the following; peripheral location of development would cater for predominantly car-borne patronage detracting from vibrancy of the town centre; cinema is open for consideration under this zoning, proposal would take up greater part of the H zoned lands and would not be in the interest of the proper planning and sustainable development of the site; and, development would likely attract car-borne patronage from other population centres of North Kildare and West Dublin, likely giving rise to on-street parking endangering public safety by reason of traffic hazard and the obstruction of road users.
- **KCC Ref. 10307** – permission granted for an industrial building comprising 9 no. individual units and associated car parking, site works, drainage and services, new vehicular access road R449, alteration to previously granted road layout – **Reg. Ref. 08/72**
- **KCC Ref. 101234** – permission refused for development consisting of a single storey block comprising one large retail unit and a two-storey block comprising 2 no. retail units at ground level and medical consulting rooms at first floor level. Refused on grounds that peripheral location of site would impact viability and vibrancy of the town centre.
- **KCC Ref. 11141** – permission granted for single storey Montessori school. Subsequently amended by **Reg. Ref 12174**
- **KCC Ref. 12433** – permission refused for an all-weather playing pitch with perimeter boundary fencing and floodlighting. Broad terms for refusal; potential impacts on neighbouring residential

amenities; haphazard piecemeal development in the absence of a framework plan for the area; and, potential traffic hazard due to lack of ancillary / associated car parking.

The most significant and relevant pipeline development is a Draft Strategic Housing Development Proposal for a scheme consisting of 495 no. dwellings (228 no. houses, 42 no. duplexes, 225 no. apartments) with a childcare facility and associated site works that is currently being promoted by Crodaun Development Company on the western side of the R405 (directly opposite the subject site). This proposal is pursued under **ABP Ref. PL09.304246** as a Strategic Housing Development.

It is noted that ABP issued an Opinion on the 17th June 2019, stating that the proposed scheme represents a reasonable basis for an application. On this basis it is considered safe to assume that at some point in the nearby future an application for a comparable quantum of new housing will be submitted for the formal consideration of ABP as a Strategic Housing Development application.

(III) DESCRIPTION OF DEVELOPMENT

Ardstone Homes Ltd. are seeking permission for development comprising of the following principal elements:

- 372 no. new residential dwellings comprising:
 - 46 no. one-bedroom apartments
 - 76 no. two-bedroom apartments
 - 12 no. one-bedroom maisonettes
 - 10 no. one-bedroom duplexes
 - 10 no. two-bedroom duplexes
 - 20 no. two-bedroom houses
 - 140 no. three-bedroom houses
 - 58 no. four-bedroom houses.
- Provision of a childcare facility (approximately 191sqm);
- Internal roadways and all associated ancillary infrastructure, landscaping, boundary treatments and development works;
- Demolition of an existing agricultural structure;
- A total of 633 no. car parking spaces and 340 no. bicycle space are provided. They include 585 no. spaces serving the residential units with 10 no. spaces designated for use by the childcare facility and 38 no. visitor spaces;
- Pedestrian / cycle paths and linkages to the R405 and R449 Regional Road and to facilitate potential future pedestrian links; and,
- All associated and ancillary infrastructure, landscaped open spaces (approximately 13,026 sq.m, or 14.2% of the site area), boundary treatments and development works to include foul and surface water drainage, attenuation areas, watermains, 2 no. ESB substations, street lighting, boundary walls and fences on a proposed development site totalling approximately 9.55ha.

(IV) CONSIDERATION OF ALTERNATIVES

The proposed development provides for the delivery of high-quality residential development on available and appropriately zoned lands, which will contribute towards Celbridge fulfilling its role as a Moderate Sustainable Growth Town in the Greater Dublin Metropolitan Area, as designated under the Kildare County Development Plan 2017-2023. The application site has been specifically identified in the Celbridge Local Area Plan 2017-2023 as a Key Development Area (KDA4) for planned development over the lifetime of the Plan in order to meet the County Development Plan housing allocation. The proposed development will facilitate the sustainable growth of Celbridge in a coherent, plan-led, manner; protecting and maximising opportunities presented by the unique natural and built environment of the town; and delivering an exemplar quality of life for its residents.

No alternative sites were considered or assessed for the purposes of preparing the EIAR, nor is it considered necessary to do so as the application site is zoned Objective C (New Residential), and designated KDA4, under the Celbridge Local Area Plan 2017-2023 which provides a detailed development framework which was the subject of a Strategic Environmental Assessment (SEA). The SEA for the Celbridge Local Area Plan 2017-2023 considered alternatives at an early stage of the process and through an iterative process the most appropriate development scenario was selected, and lands zoned accordingly.

A number of layouts for the proposed development were considered over the design process having regard to potential environmental effects. In addition, the proposals for the development were subject to pre-planning consultation with Kildare County Council and An Bord Pleanála prior to the principles of the of the proposed layout being finalised. Specifically, the proposed layout and detailed design has been directly informed by An Bord Pleanála's Opinion issued subsequent to pre-planning consultation.

The significant environmental issues and potential effects which informed the proposed layout included population demographics and housing mix/typology, environmental constraints related to engineering factors, minimising visual impact, cultural heritage, protecting and enhancing biodiversity and minimising potential traffic hazard while creating new linkages and ensuring enhanced permeability. Other factors which were fundamental to informing and directing detailed design included the design brief established in Section 12.2.4 of the Celbridge Local Area Plan 2017-2023 which sets out a framework of objectives for Key Development Area 4 (KDA4) in Celbridge.

(V) POPULATION & HUMAN HEALTH

Land use in the vicinity of the proposed development is predominantly residential or agricultural in nature. The area immediately surrounding the site is characterised by low density two-storey residential dwellings located in the developed neighbourhood of Crodaun Forest Park, adjacent to the subject site. Other lands in the vicinity are primarily agricultural in nature and are reserved for potential future amenity space or residential development.

The Census 2016 results indicate that Celbridge has a population of 15,653 persons.

According to the 2016 Census of Population, Kildare experienced stronger population growth than the State between 2011-2016, increasing by 5.80% compared with 3.78% nationally. Celbridge experienced growth of 3.84% during the same period, relative to national trends. Strong growth in Kildare and

Celbridge is indicative of its location within the Greater Dublin Metropolitan Area alongside significant employment opportunities in the county as a whole. Primarily this growth can be attributed to greater economic activity, increased job opportunities and continued migration. Lack of housing delivery in Celbridge during this time could be attributed to its lower growth rate than Kildare County as a whole.

Based on age comparisons of the 2016 Census, Celbridge has a high proportion of its population in the age group 0-18 compared with the State. Celbridge also has a higher proportion of population between the ages of 35-44 but a much lower proportion of population 65 years and over. It is considered that Celbridge has a much younger population compared to the State and has done well in attracting cohorts of younger families, likely looking for affordable family accommodation within commuting distance of Dublin City and other economic centres.

The construction of 372 new dwellings will provide critical housing infrastructure for Celbridge and the Greater Dublin Metropolitan Area. The additional population for Celbridge will contribute positively to the community by reinforcing and strengthening the services and function of the town and by increasing housing supply in line with national housing policy and as provided for by the Kildare Development Plan 2017-2023 and the Celbridge Local Area Plan 2017-2023.

The proposed residential development will contribute additional population to the Celbridge community. Additionally, it will contribute to the consolidation of the urban area and will assist in creating a more active, vibrant town with the critical mass to support a wide range of facilities and services. The proposed development includes a childcare facility and encompasses high quality open spaces, which will open formal pedestrian and cycle routes that will be available to all members of the community, ultimately providing connections to proposed potential future amenity lands and also the remainder of the KDA 4 lands on the western side of the Maynooth Road. In this respect, the proposed development will have a significant positive long term impact on the community.

The proposed development is unlikely to result in any significant adverse impacts on human health and safety considerations once completed and operational. Environmental impacts of the operational phase of the proposed development and their relationship to human health is dealt with under the relevant sections in the noise and vibration, air and climate and traffic and transport chapters of the EIAR.

At construction stage, there is likely to be some slight, temporary negative impacts on local residents. These impacts are likely to result from construction traffic movements to and from the site together with other possible health and safety impacts, such as nuisances associated with construction access requirements, pollution spillages, migration of surface contaminants, dust, noise and littering. Secondary impacts may result from increased construction traffic hauling building materials to and from the proposed development site which are likely to affect humans in a variety of potential locations distant from the proposed development site, such as residents near aggregate sources and landfill sites.

The construction stage may also result in short term moderate positive impacts from the creation of employment opportunities and local spending.

Proposed mitigation measures are centred on the potential for short-term negative impacts on the existing community during the construction phase. These impacts will be minimised by the implementation of a construction management plan; the implementation of a construction traffic management plan and the mitigation measures specified in relation to construction, traffic, noise, air quality and landscaping described in the relevant chapters of the EIAR.

(VI) BIODIVERSITY

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services which included a study of existing information from the area and a site survey. Site surveys were carried out in December 2018 and November 2019. Winter is within the optimal period for large mammals (particularly Badgers) but is outside the optimal period for general habitat study and for surveying breeding birds.

It was found that the site is not within or adjacent to any area that is designated for nature conservation at a national or international level. There are no plants recorded from the site that are listed as rare or of conservation value. There are no habitats that are examples of those listed on Annex I of the Habitats Directive. There are no alien invasive plant species as listed on Schedule 3 of SI No. 477 of 2011. The site can be described as mostly agricultural grassland with some areas of disturbed ground. Hedgerows are of high local value to biodiversity. There are no water courses, ponds or wetland areas, although a drainage ditch accompanies one of the hedgerows. There was no evidence of Badgers using the site.

Approximately 860m of high local value hedgerows are to be removed. Good site management practices will ensure that pollution to water courses does not occur during the construction phase. Surface water will be attenuated using Sustainable Urban Drainage Systems (SUDS). Additional landscaping will compensate to some extent for the loss of habitat that will occur and includes planting of over 2km of new hedgerow boundaries. With the suggested mitigation in place, the ecological impacts by this proposed development will be moderate negative. There are no impacts that could affect any area designated for nature conservation.

(VII) LAND, SOILS AND GEOLOGY

This chapter of the EIAR comprises an assessment of the likely impact of the proposed development on soils and the geological environment as well as identifying proposed mitigation measures to minimise any impacts.

Assessment of the likely impact of the proposed development on soils and the geological environment including preliminary ground investigations and a review of information available from the Geological Survey of Ireland (GSI) was undertaken.

Ground conditions, as observed during preliminary ground investigations, are summarised as follows:

- 0.3m thick topsoil layer overlying;
- Stiff brown sandy gravelly clay with occasional cobbles
- Gravelly clay stratum becomes dark grey with increasing cobbles and boulders noted
- Infiltration tests were carried out with the results reflecting low permeability soils.

Geotechnical and environmental tests were carried out in the IGSL laboratory and results were as follows:

- The soils have relatively high silt content and will be very sensitive to moisture content variation
- The grading characteristics are typical of glacial till or boulder clay deposition.
- Low sulphate concentrations. No special precautions are necessary to protect foundation concrete from sulphate aggression.
- Environmental analysis indicates that the soils can be classified as inert with no elevated contaminant levels recorded.

Site development works will include stripping of the topsoil layer and excavation of subsoil layers to allow road construction, foundation excavation, drainage and utility installation and provision of underground attenuation of surface water. Underlying subsoil layers are also expected to be suitable for reuse as non-structural fill (e.g. build-up of back gardens areas or build-up of open spaces). Importation of fill will be required beneath houses, driveways and to roadways (structural fill).

Potential impacts of the proposed development during the construction phase include the following:

- Removal of the existing topsoil layer resulting in exposure of the underlying subsoil layers to the effects of weather and construction traffic and may result in subsoil erosion and the generation of sediment laden runoff.
- Earthworks plant (e.g. dump trucks) and vehicles delivering construction materials to site have potential to cause rutting and deterioration of the topsoil layer and any exposed subsoil layers, resulting in erosion and generation of sediment laden runoff.
- Accidental spills and leaks may result in contamination of the soils underlying the site (e.g. storage of oils and fuels on site, use of cement and concrete during construction works).

A Preliminary Construction Management Plan (CMP) has been prepared in order to mitigate against potential impacts that may arise during the construction phase. Implementation of the measures outlined in the CMP will ensure that the potential impacts of the proposed development on soils and the geological environment do not occur during the construction phase and that any residual impacts will be short term.

(VIII) WATER, HYDROLOGY AND HYDROGEOLOGY

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments (including flood risk, surface water drainage, foul drainage and water supply) as well as identifying proposed mitigation measures to minimise any impacts.

Assessment of the likely impact of the proposed development on the surrounding surface water and hydrogeological environments included the following activities:

- Site inspection / walkover
- Review of existing topographic survey information
- Review of Irish Water Network Plans (surface water drainage, foul drainage and water supply). Refer to Appendix D.
- Ground investigations including trial pits, infiltration testing and environmental testing (waste acceptance criteria for landfills)
- Review of information available on the Environmental Protection Agency (EPA) online mapping service
- Review of information available on the Geological Survey of Ireland (GSI) online mapping service
- Review of Office of Public Works (OPW) National Flood Hazard Mapping and CFRAM Studies (Catchment Flood Risk Assessment and Management Studies)
- Consultation with Kildare County Council's Water Services Section

- Consultation with Irish Water
- Submission of a Pre-Connection Enquiry Application to Irish Water

The proposed development is located approximately 300m north the Ballygoran Stream, a local stream flowing into the River Liffey. No adverse effects on surrounding hydrology is anticipated as surface water flows are attenuated to greenfield runoff rates in conjunction with implementation of SUDS strategies.

A Site-Specific Flood Risk Assessment has been undertaken which concludes that the proposed residential development is appropriate for the site's flood zone category.

An existing 450mm diameter public surface water drain is located south west of the site at the entrance to Crodaun Forest Park. This is expected to provide a suitable surface water discharge point for the proposed development.

An existing 225mm diameter foul sewer is located along the site's western boundary (adjacent to the R405) which outfalls towards Celbridge Main Street. This existing infrastructure is expected to provide a suitable foul discharge point for the proposed development. The proposed foul drainage discharge point is located adjacent to the South-West corner of the site.

The topography of the site generally falls from west to east at gradients ranging from 1/80 to 1/120.

As the discharge points are elevated above the eastern side of the site, it is proposed to raise ground levels to achieve the required gradients.

An existing 12" uPVC public watermain runs along the R405 (along the sites Western boundary). It is proposed to take a 160 mm diameter connection off this existing 12" diameter public watermain.

Pre-connection enquiry feedback has been received from Irish Water which notes;

"Based upon the details you have provided with your pre-connection enquiry and on the capacity currently available in the networks(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place and the condition listed below, your proposed connection to the Irish Water network can be facilitated".

No issues are noted by Irish Water in relation to connecting to the existing public water supply network.

Potential impacts that may arise during the construction phase are noted below:

- Surface water runoff during the construction phase may contain increased silt levels
- Discharge of rainwater pumped from excavations may also contain increased silt levels
- Accidental spills and leaks associated with storage of oils and fuels, leaks from construction machinery and spillage during refuelling and maintenance.
- Concrete runoff, particularly discharge of wash water from concrete trucks.
- Discharge of vehicle wheel wash water.
- Improper discharge of foul drainage from contractor's compound.
- Cross contamination of potable water supply to construction compound.

A Preliminary Construction Management Plan (CMP) has been prepared in order to mitigate against potential impacts that may arise during the construction phase. Implementation of the measures

outlined in the CMP will ensure that the potential impacts of the proposed development on surface water and the hydrogeological environment do not occur during the construction phase.

Potential operational phase impacts are noted below:

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Increased discharge to foul drainage network.
- Increased potable water consumption.

As surface water drainage design has been carried out in accordance with the GSDS and SuDS methodologies are being implemented as part of a treatment train approach, there are no predicted impacts on the water and hydrogeological environment arising from the operational phase.

(IX) AIR DUST AND CLIMATIC FACTORS

The proposed development for which planning permission is sought in this application comprises a residential development of approximately 372 residential units and associated and ancillary infrastructure and open space provision.

The proposed construction works associated with the proposed development in this planning application are expected to take up to 4 years. The potential air quality impacts during the Construction phase are summarised as follows:

- a) Dust emissions associated with excavations and construction works
- b) Emissions of dust associated with building demolition works
- c) Construction transport emissions

This assessment shows that the most significant potential impacts are those associated with Construction activity and construction traffic. There is predicted to be a temporary slight adverse impact on the closest receptors during the Construction Programme with potential short-term impacts from traffic on the surrounding roads within about 50m of the site. There will be no lasting impact and the short-term impact can be managed by means of an effective Construction Management Plan incorporating the mitigation measures outlined in the EIAR. The Construction Phase Environmental Management Plan will include a specific Dust Minimisation Plan which will ensure that dust impacts are prevented or minimised during the Construction Phase of the development.

The only predicted air quality impacts associated with operation of the development are emissions to the atmosphere from heating sources and traffic associated with the development. The change in traffic movements will have no quantifiable impact on air quality. There are no adverse impacts on ambient air quality predicted.

Due to the size and nature of the development, greenhouse gas emissions resulting from the development will be imperceptible in the national context. There will therefore be no adverse impacts on climate and no significant contribution to Ireland's greenhouse gas budget.

The size and nature of the development and the nature and volume of emissions will lead to an imperceptible change in atmospheric conditions. There will be no change to the heat balance in the immediate area.

A Dust Management Plan will be formulated for the construction phase of the project, as construction activities are likely to generate some dust emissions. The principal objective of the Plan is to ensure that dust emissions do not cause significant nuisance at receptors in the vicinity of the site.

(X) NOISE AND VIBRATION

The proposed development for which planning permission is sought in this application comprises a residential development of approximately 372 residential units and all associated and ancillary infrastructure and open space provision.

The proposed construction works are expected to span a number of years, with the hours of construction typically from 07.00 to 19.00 Monday to Friday and 09.00 to 13.00 Saturdays. Although there may occasionally be the need to work outside the normal hours of construction, heavy or noisy construction activities will be minimised during these periods in accordance with best practice. The assessment has shown that the predicted construction noise level associated with site works will not exceed the assessment criteria for construction works of 70dB(A) at any of the named receptor locations. There is potential for the assessment criteria to be exceeded at NSR1 and NSR2 when construction works are occurring at the closest boundary point, so a conventional construction screening barrier at the boundary of the works site is provided for in the assessment.

The change in noise level attributable to construction traffic will not be noticeable and can be classified as "imperceptible". The nearest residential receiver to the proposed development will not experience vibration impact during construction. The only construction activity with the potential to generate noticeable vibration levels will be construction vehicles but the level will not be detectable at the closest residences.

The proposed development will have very low noise outputs with the only noise sources associated with the proposed development being traffic on the road network. There will be no source of vibration associated with the operational phase. The predicted change in noise levels associated with vehicles along the R409 & R445 Roads is neutral, long term and not significant.

The Construction Programme will be managed to ensure that all impacts including noise and vibration are minimised and maintained within permissible limits.

(XI) MATERIAL ASSETS: TRAFFIC AND TRANSPORT

A Traffic and Transport Assessment (TTA) has been undertaken with the objective of both quantifying the existing and proposed transport environment and detailing the results of assessment work undertaken to identify the potential level of transport impact generated as a result of the proposed residential development. The scope of the TTA covered transport and sustainability issues including access, pedestrian, cyclist and public transport connections. Recommendations contained within the TTA are based on existing and proposed road layout plans, site audits, on site traffic observations and analysis of junction vehicle turning counts. The analysis and recommendations of the TTA have informed Chapter 11 of this EIAR.

Based upon information and analysis it has been demonstrated that the proposed residential development is ideally located to maximise access to / from the site by sustainable forms of travel including walking, cycling and public transport (Dublin Bus, Bus Eireann and Train). The subject proposals are in accordance with the planning authorities land use zoning for the subject development site.

For the purpose of this EIAR it has been assumed that 100 residential dwellings and a crèche will be built and occupied by 2021. The remaining 272 dwellings will be constructed and occupied prior to the adopted 2026 future design year. Consequently, a range of peak hour scenarios for an opening year of 2021, interim year 2026 and a future design year of 2036 including the following six different assessment scenarios: -

- Do Nothing
 - A1 – 2021 Base Traffic Flows
 - A2 – 2026 Base Traffic Flows
 - A3 – 2036 Base Traffic Flows
- Do Something
 - B1 - 2021 Do Nothing (A1) + Proposed Residential Development Flows (100 units)
 - B2 - 2026 Do Nothing (A2) + Proposed Residential Development (272 units)
 - B3 - 2036 Do Nothing (A3) + Proposed Residential Development (272 units)

The potential level of impact that may be generated by the subject proposals was investigated at the new site access junction in addition to the following two key off site junctions;

- R405 Maynooth Road (N)/R449 M4 Link Road/ R405 Maynooth Road (S) Roundabout Junction;
- R405 Maynooth Road (N)/Crodaun Forest Park / R405 Maynooth Road (S) Priority controlled junction;

The analysis demonstrated that the proposed development (372 units and creche) would result in a below 5% increase in motorised traffic at the site access and key off site junctions. The level of impact that would result by the proposed development is subthreshold for further analysis of junctions. However, for the purpose of robust analysis the roundabout junction was further analysed using ARCADY, whereas the development site access junction was further analysed using PICADY computer software package.

Analysis demonstrated that new site access junctions will operate well within capacity in the adopted 2036 design year peak hour scenario. The ARCADY results reveal that the roundabout junction will operate within capacity during the 2021 Opening and 2026 Interim Design Years 'Do Nothing' and 'Do Something' scenarios. However, the roundabout junction will operate at approaching capacity with a maximum Ratio of Flow to Capacity (RFC) value of 0.86 during the AM peak hour 2036 'Do Nothing' and a maximum RFC value of 0.91 during AM peak hour 2036 'Do Something' scenario. The maximum RFC is increasing by only 5% in the Do Something scenario. The maximum RFC occurs only during the AM peak on the Maynooth Road southern approach to the roundabout. The roundabout needs to be upgraded in the future to accommodate increased flows.

The Maximum Ratio of Flow to Capacity (RFC) within 'Do Something' and 'Do Nothing' scenarios during all design years are summarised in the RFC comparison Table 1 below.

Table 1 Comparison of Roundabout Ratio of Flow to Capacity (RFC)

Design Year	RFC – Do Nothing	RFC – Do Something	RFC Increase
2021	0.69	0.71	0.02
2026	0.77	0.82	0.05
2036	0.86	0.91	0.05

The 'Do Something' is comparable to the 'Do Nothing' scenario with the Ratio of Flow to Capacity (RFC) increasing by only 0.05.

It is considered that the impact on the surrounding road network as a result of the implementation of the proposed residential development will be marginal in all design year scenarios. Accordingly, it is concluded that the proposals will not result in a material deterioration of road conditions and as a result there are no significant traffic or transportation related reasons that should prevent the granting of planning permission for the proposed development.

(XII) MATERIAL ASSETS: SITE SERVICES / UTILITIES

This chapter of the EIA comprises an assessment of the likely impact of the proposed development on existing surface water, water supply, foul drainage and utility services in the vicinity of the site as well as identifying proposed mitigation measures to minimise any impacts.

The material assets considered in this chapter of the EIA include Surface Water Drainage, Foul Drainage, Water Supply, Power, Gas and Telecommunications.

Assessment of the likely impact of the proposed development on surface water runoff was carried out in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), while the foul drainage discharge and water usage was carried out in accordance with the method outlined in Irish Water's Code of Practice.

Assessment of the likely impact of the proposed development on existing utility services in the vicinity of the site included a desktop review of Irish Water Utility Plans, ESB Networks Utility Plans, Gas Networks Ireland Service Plans, Eir E-Maps and Virgin Media Maps along with consultation with Irish Water and Kildare County Council.

An existing 450mm diameter public surface water drain is located south west of the site at the entrance to Crodaun Forest Park. This is expected to provide a suitable surface water discharge point for the proposed development. The surface water drainage system accords with SUDs principles with the main body of the site divided into five drainage catchments. The proposed surface water drainage network will collect surface water runoff from the site via a piped network prior to discharging off site via an attenuation tank, flow control device and separator arrangement. Attenuation volumes have been calculated based on an allowable outflow / greenfield runoff rate of 2.00 l/sec/ha.

There is an existing public 225mm diameter foul sewer located along the site's western boundary which outfalls towards Celbridge Main Street. Ground levels at the discharge point are somewhat elevated above the eastern side of the site. It is therefore proposed to raise existing ground levels along the eastern side of the site in order to achieve a gravity drainage solution (avoiding the need for a pumped

solution). In order to accommodate the proposed site layout, diversion of the existing foul sewer is required which traverses the western portion of the site. This is then expected to provide a suitable foul discharge point for the proposed development.

It is proposed to take a 160mm diameter connection off the existing 12" diameter public water supply line (located along the R405). A 160mm diameter looped water main will be provided (generally along the site's arterial roads) with a number of 110mm diameters looped branch mains provided elsewhere (off the main 160mm diameter loop).

An existing LV (400V/230V) overhead line enters a small section of the site at the west side of the site. Existing overhead power lines within the site will be relocated in advance of commencement of site works.

An existing medium pressure distribution pipeline (125mm / 4bar) is shown running along the road north of the site and (250mm /4 bar) is shown running along the road west of the site. An existing medium pressure distribution pipeline (90mm & 63mm/4 bar) is shown around the residential development south and east of the site. Gas supply for the proposed development (if required as part of the energy strategy) will be taken from the existing Gas Networks Ireland network located to the west of the site.

Telecommunications infrastructure is located along the R405 road to the west of the site, with residential developments to the north, south and east of the site containing numerous telecommunications cables. The existing Eir network located to the west of the site will be extended to service the proposed development.

Potential impacts that may arise during the construction phase include:

- Contamination of surface water runoff due to construction activities.
- The installation of services will be conducted in parallel with other services using trench excavation.
- Improper discharge of foul drainage from contractor's compound.
- Cross contamination of potable water supply to construction compound.
- Damage to existing underground and over ground infrastructure.
- Relocation or diversions to existing overhead ESB lines may lead to loss of connectivity to and / or interruption of supply from the electrical grid.
- Relocation or diversion of existing foul line may lead to interruption to foul supply.
- Potential loss of connection to the Gas Networks Ireland and Telecommunications infrastructure while carrying out works to provide service connections.

Potential operational phase impacts on the water infrastructure are noted below:

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Increased discharge to foul drainage network.

- Increased potable water consumption

A site-specific Construction & Environmental Management Plan will be developed and implemented during the construction phase. Implementation of the measures outlined in this plan will ensure that the potential impacts of the proposed development on the site's material assets do not occur during the construction phase.

Relocation of existing overhead ESB lines will be fully coordinated with ESB Networks to ensure interruption to the existing power network is minimised (e.g. agreeing power outage to facilitate relocation of cables). Ducting and / or poles along the proposed relocated route will be constructed and ready for rerouting of cables in advance of decommissioning of existing overhead power lines.

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

(XIII) CULTURAL HERITAGE AND ARCHAEOLOGY

A desk-based study, geophysical survey, archaeological test trenching and full excavation of an Enclosure and associated features was carried out on lands at Crodaun Townland, North Salt Barony, Kildrought Parish, Kildare Sheet 11; ITM 696865, 735124. The site covers an approximate area of 9.18 hectares located just to the north-west of Celbridge town off the Maynooth Road and the M4 Celbridge link road. The following factors were identified in assessing the sites potential to contain archaeological features:

- The site is relatively large in scale, comprising approximately 9.18 ha.
- No new archaeological sites or features were recorded in historical maps.
- A substantial stone wall bordering Castletown townland forms the eastern and southern boundary of the site.
- Four probable archaeological sites (Area 1 -4) have been identified within the subject lands during advance archaeological investigations;
 - Area 2 - the main feature identified lay in the southern field and comprised a curvilinear enclosure, double-ditched along its northern arc, with several other smaller ditches running off this, possibly representing a related field system.
 - Area 4 - an isolated bowl furnace to the east of the enclosure.
 - Area 3 - two cereal drying kilns; a number of post-holes and possible slot trench.
 - Area 1 - a curvilinear ditch in the north-eastern field.
- These sites (Areas 1 – 4) were fully excavated under licence from the DCHG in consultation with the NMI.

These factors indicate that there is low-moderate potential for the survival of further buried archaeological remains at this greenfield site.

Recommendations

Recommended Mitigation Measure 1. It is recommended that the topsoil stripping of the remainder of the wider site be subject to archaeological monitoring licensed under the National Monuments Acts.

Recommended Mitigation Measure 2. It is recommended that the wall comprising the townland boundary with Castletown is recorded by Building Survey.

Recommended Mitigation Measure 3. It is recommended that the condition of the wall comprising the townland boundary with Castletown be monitored over the course of the construction phase to ensure that there is no damage done to the structure.

Recommended Mitigation Measure 4. The visual impact on Connolly Folly to the NW and on Castletown House and Demesne to the east should be assessed when development proposals are finalised.

NOTE: All conclusions and recommendations expressed in this report are subject to the approval of The Department of Culture, Heritage and the Gaeltacht (DCHG) and the relevant local authorities. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the DCHG may issue alternative or additional recommendations.

(XIV) LANDSCAPE AND VISUAL ASSESSMENT

The Landscape and Visual Impact Assessment (LVIA) was prepared by Mullin Design Associates, Chartered Landscape Architects.

The site is located within a Landscape Character Area categorised by Kildare County Council in the 2004 Landscape Character Assessment as 'Northern Lowlands' with key characteristics described as: -

'The lowland plains of County Kildare principally comprise fertile lands with relatively high levels of local population and intensive land management. The slope and topography of areas occur in a shallow / gradual transition; the area is generally characterised by flat terrain and low vegetation. Concentrations of tillage lands in this lowland area tend to be characterised by extensive views across large fields with low, maintained hedges.'

In terms of sensitivity to development this LCA is categorised as having 'Low Sensitivity'

The Zone of Theoretical Influence guides the focus for the visual impact assessment. In this case the majority of receptors are theoretically located in close proximity (i.e within 2km). The selected viewpoints are considered representative of a range of views and viewer types, including residential, transport routes, recreational routes, designated landscapes, and main visitor locations at a variety of distances, aspects, elevations, extents, and sequential routes.

Landscape and Visual Impact Assessments attempt to measure the sensitivity of specific landscape resources and describe the significance of changes to that landscape occurring as a result of a proposed development. Landscape and visual impacts are intrinsically linked; therefore, measures to reduce landscape impacts will generally assist with reduction of visual impacts and vice versa.

Detailed predefined criteria are supplied within the main LVIA, determining sensitivity and magnitude of change ratings. These are then considered through a combination of professional judgment (with reference to an assessment matrix) to establish predicted impacts / effects.

Aspects of the development which may potentially impact the landscape character or visual resource within the study area are considered. A full project description of the Development and the iterative design process is provided in Chapters 3 and 4 of the EIAR.

A number of measures have been proposed to mitigate against adverse landscape and visual effects being generated by the proposed development.

These include:

- Retention and protection of existing boundary hedgerows;
- Advanced landscape planting where possible to reinforce and strengthen existing planting;
- Reinforce North eastern boundary with planting
- All soil stripping or earthworks and visibly disturbed lands where construction has been fully complete would be temporarily grass seeded;
- Lighting to meet with guidance to avoid sky glow and disruptive directional lighting; and,
- Planting to respond to proposed character areas, considered appropriate to respect and integrate with the surrounding landscape.

Landscape sensitivity associated with this site is considered Low. In terms of magnitude of change over the entire life of the proposals (post construction), this has been considered to generate a Medium change to the landscape character area. This combined with the sensitivity outlined above would result in a Minor landscape impact post construction.

Selected visual receptors are considered representative of typical views of the proposal with receptor visual sensitivity ranging from Medium-Low to High-Medium. Visual effects are set out in Chapter 14 - Landscape and Visual Assessment. The effects range from Negligible to Moderate. However, as viewers move away from these key receptors visual sensitivity and magnitude of change generally diminishes, resulting in visual impacts over the majority of the Zone of Theoretical Visual Influence (ZTVI) being in the Minor to Negligible range.

The following conclusions have been made based on the above assessment:

- The site is not located within any designated landscape. The nearest designated Landscape or protected views are within the Castletown estate.
- The site is located within 'Northern Lowlands' LCA within the county Landscape Character Assessment.
- The overall application area occupies c. 9.55 ha.
- The site is currently arable agricultural land.
- The majority of key receptors with potential open views to the proposals are to the northeast, east and south east.
- Landscape sensitivity is considered Low.
- During the construction phase the Magnitude of Change to the site is typically greatest and therefore considered High.
- Post construction with establishment and maturing of landscape proposals, the Magnitude of Change would diminish to Medium.
- Overall post construction with establishment and maturing of landscape proposals the potential landscape impact/effect would diminish to Minor.

- Visual sensitivity and effects obviously vary with location. The majority of those selected were considered High / Medium to Medium sensitivity. Refer to views from identified key visual receptors in Chapter 14 - Landscape and Visual.
- The Magnitude of Change from these viewpoints is considered to range from Medium to Very Low.
- Overall during the construction stage there are 3 No. viewpoints (Namely Viewpoints 1,2 &10 along the R402) which will generate visual impacts which fall into the significant category; however, this is mainly due to good design principles of creating a strong and indeed visible frontage to the development.
- Overall during the post construction stage, with establishment and maturing of landscape proposals, the potential visual impacts/ effects diminish, and range from Negligible to Moderate.

(XV) INTERACTIONS

Chapter 15 of the EIAR provides an assessment of the interactions and interrelationships of the different environmental factors / impacts that will occur as a result of the proposed development including synergistic and cumulative impacts.

All environmental topics are interlinked to a degree such that interrelationships exist on numerous levels. The comprehensive assessments undertaken as part of this EIAR have revealed that the proposal will not result in any significant adverse effects on the environment. Mitigation measures have been proposed to avoid, remedy or reduce identified impacts.

Ultimately, all the effects of a development on the environment impinge upon human beings, directly and indirectly, positively and negatively. Direct effects include matters such as air and water quality, noise and landscape quality. Indirect effects pertain to such matters as biodiversity, services and road traffic.

Mitigation measures are proposed and outlined within individual EIAR chapters to ensure that any potential adverse impacts that may arise as a result of the proposed development are minimised.

(XVI) MITIGATION MEASURES

Chapter 16 of the EIAR compiles and lists the mitigation measures and monitoring requirements described in the chapters of the EIAR.