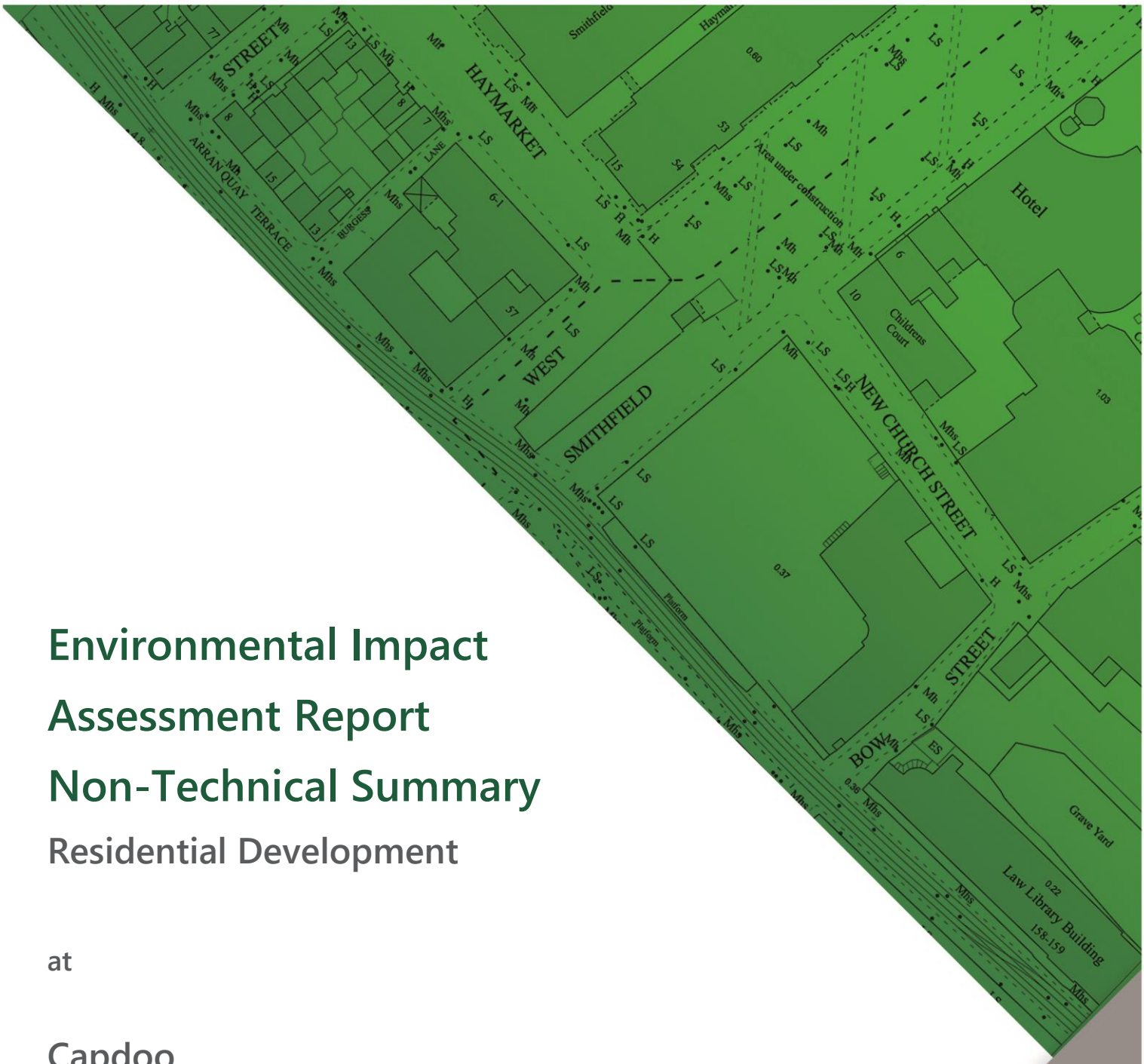

Environmental Impact Assessment Report Non-Technical Summary

Residential Development

at

Capdoo
Clane
Co. Kildare

on behalf of

Ardstone Homes Ltd.

Declan Brassil & Company Ltd
chartered planning consultants

June 2019

Environmental Impact Assessment Report
Non-Technical Summary

June 2019

To accompany an Application to:

An Bord Pleanála

For

Residential Development

Within the Administrative Area of

Kildare County Council

At

Capdoo
Clane
Co. Kildare

366 no. Residential Units; a childcare facility; new Clane Link Road including a new Roundabout on the Kilcock Road (R407) together with all associated and ancillary Infrastructure and Landscaping Works

On behalf of:

Ardstone Homes Ltd.

Prepared by:
Declan Brassil & Co. Ltd
McCrossan O'Rourke Manning Architects
Dermot Foley Landscape Architects
Openfield Ecological Services
TMS Environmental Ltd
DBFL Consulting Engineers
Archer Heritage Planning Ltd.

TABLE OF CONTENTS

NON-TECHNICAL SUMMARY

(I) INTRODUCTION

This document provides a non-technical summary of the Environmental Impact Assess Report (EIAR) that has been submitted in support of a planning application for a residential development at a site to the north of Clane town centre at Capdoo, Clane, Co. Kildare.

The proposed development provides for a residential development of 366 no. residential units, a childcare facility; a new link road connecting the Kilcock Road (R407), to the north, to Capdoo Park access road and the Celbridge Road (R403) to the south; provision of a new roundabout on the Kilcock Road (R407) together with all associated and ancillary infrastructure and open space provision.

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.

The requirement for an Environmental Impact Assessment Report was subject to Screening with Kildare County Council. Kildare County Council determined that it would be appropriate to prepare an Environmental Impact Assessment Report for the proposed development with respect to the relevant thresholds, with particular reference size of the site and the potential impacts on the receiving environment in accordance with Planning and Development (Housing) and Residential Tenancies Act 2016 (2016 Act) and the Planning and Development (Strategic Housing Development) Regulations 2017 (2017 Regulations).

A number of environmental specialist consultants were responsible for the preparation of individual chapters of this EIAR according to their technical expertise, which is a requirement under the EIA Directive and Regulations.

(II) SITE DESCRIPTION & PLANNING HISTORY

The application site is approximately 11ha in size and is located approximately 500m to the north of Clane Town Centre.

The lands are surrounded on all sides by housing or public roads. The northern boundary of the site benefits from two areas of road frontage of approximately 70 m each separated by two houses which do not form part of the application site. The balance of the northern boundary is characterised by one-off dwellings. The eastern boundary is similarly characterised by the rear of existing properties save for the boundary with a local road to the east. The southern boundary is characterised the Capdoo Park residential development and the western boundary adjoins residential properties on College Road East and Mainham Woods and the R407. The lands directly adjoin the road serving properties on College Road East.

The application site is irregular in shape and includes agricultural lands located to the rear of existing houses on large sites. There is a vacant farmhouse and an extensive farmyard complex in poor state of repair located to the east of the site. At present, the lands are under grass and comprise of six field areas defined by mature hedgerows.

The application site also includes a portion of lands outside the Applicants ownership and under the control of Kildare County Council. A portion of College Road, at the north-west corner of the site has been included, as has a portion of Capdoo Park. The inclusion of these lands are necessary to ensure the tie-in of the proposed Clane Link Road with the existing road network.

There was two planning application made in respect of the subject site. Under KCC Reg. Ref. Reg. Ref. 04/1212 planning permission was refused by Kildare County Council on 19 July 2004 for two detached bungalows on lands at the north-west corner of the site as the lands were zoned for Open Space and Amenity Uses. A subsequent application under Reg. Ref. 05/299 on the same site for one detached bungalow as refused for the same reason.

(III) DESCRIPTION OF DEVELOPMENT

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

- Demolition of all existing structures on site, including 1 no. habitable house, agricultural structures and domestic sheds;
- 366 no. new residential dwellings comprising:
  - 28 no. one-bed apartments
  - 82 no. two-bed apartments
  - 36 no. two-bed own door apartments
  - 36 no. three bed own door duplex units
  - 20 no. two-bed houses
  - 75 no. three-bed houses
  - 77 no. four-bed houses
  - 12 no five-bed houses
- Provision of a childcare facility (approximately 316sqm) with capacity for in the order of 49 no. children;
- Provision of a new Link Road connecting the R407 (College Road/Kilcock Road) to Capdoo Park and the R403 (Celbridge Road) beyond, incorporating cycle tracks and footpaths on both sides of the carriageway, together with a new roundabout on the R407 (Kilcock Road) and necessary upgrade to existing junctions and road alignments at both the R407 and Capdoo Park;
- Provision of two new vehicular access to the site, one from the Local Road at Local Road L5078 (Capdoo Road) to the north and at Capdoo Park to the south.
- 2 no. semi-detached dwellings located on the eastern boundary of the site are accessed directly from the adjoining Rural Road (Capdoo Lane);

- Internal roadways and all associated ancillary infrastructure, landscaping, boundary treatments and development works;
- A total of 605 no. car parking spaces, including 587 no. spaces serving the residential units and 18 no. spaces are designated for use by the childcare facility;
- Pedestrian/cycle paths and linkages to Local Roads north and east of the site to facilitate potential future pedestrian links;
- Provision of a foul pumping station discharging to the existing 225mm diameter public foul drain located south-east of the site; and
- All associated and ancillary infrastructure, including attenuation areas, and open space provision on a site measuring approx. 11ha in extent.

(IV) CONSIDERATION OF ALTERNATIVES

The proposed development provides for the delivery of high-quality residential development on available, serviced and appropriately zoned lands, which will contribute towards Clane fulfilling its role as a Small Town as designated under the Kildare County Development Plan 2017-2023. The application site has been specifically designated under the Clane Local Area Plan 2017-2023 as a Key Development Area (KDA) which are to be prioritised over the lifetime of the Plan in order to meet the housing allocation. The proposed development will have facilitated the sustainable growth of Clane 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 this EIAR, nor is it considered necessary to do so as the application site is zoned for New Residential in the Clane Local Area Plan, 2017-2023 which was the subject of a Strategic Environmental Assessment (SEA). The SEA for the Clane 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 alternative layouts for the proposed development were considered over the design process. In addition, the proposals for the development were subject to pre-planning consultation with the Planning Authority 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 the alignment of the Clane Link Road as previously approved by the Planning Authority under Part V of the Planning and Development Act 2000 (as amended); landscape and visual impact and impact on amenity of adjoining properties. Other factors which were fundamental to informing and directing detailed design included the design brief established under KDA2 in the Clane Local Area Plan 2017-2023.

(V) POPULATION & HUMAN HEALTH

Land use in the vicinity of the proposed development is predominantly residential in nature. The area immediately surrounding area is characterised by two-storey, suburban style residential developments and one-off dwellings.

The Census 2016 results indicate that Leixlip has a population of 7,280 persons.

According to the 2016 Census of Population, the population of the state showed a steady growth over the period 2002 until 2011, with a significant reduction in growth during the period between 2011 and 2016. County Kildare has experienced strong population growth for County Kildare since 1996 which is indicative of its neighbouring location to 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.

Notably, Clane has experienced much higher growth than both Kildare County and the State over the periods 1996-2002 and 2006-2011. Since the economic downturn there has been a significant reduction in the growth of Clane, which could be attributed to some extent to the lack of housing delivery in the area over this period, with growth in population during this time likely to be attributed to development outside the town boundary.

Based on age comparisons of the 2016 Census, Clane has a high proportion of its population in younger age groups (0-4 and 5-9 age groups). Clane also has a higher proportion of population between the ages of 30-49 but a much lower proportion of population 65 years and over. It is considered that Clane has a much younger population compared to County Kildare and 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 366 new dwellings will provide critical housing infrastructure for Clane, the wider hinterland and Greater Dublin Area. The additional population for Clane 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 Clane Local Area Plan 2017-2023.

The proposed residential development will contribute to additional population to the Clane community. Furthermore, 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 encompasses high quality open spaces, which will open formal pedestrian and cycle routes which will be available to all members of the community. In this respect, the proposed development will have a significant positive long term 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 proposed development (operational phase) and their relationship to human health is dealt with under the relevant noise and vibration, air and climate and traffic sections 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 in relation to construction, traffic, noise, air quality and landscaping described in the other chapters of the EIAR.

(VI) SOIL AND GEOLOGY

This chapter of the EIAR comprises of 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 review of information available from the Geological Survey of Ireland (GSI).

Ground conditions at the site, as observed during preliminary ground investigations, are summarised as follows: 0.3m to 0.6m thick topsoil layer; 0.7m to 1.0/2.0m thin stratum of firm gravelly silt/clay layer overlying: gravelly sand or sandy gravel (to target trial pit depth of 3.0m) layer. Boreholes were undertaken as part of the site investigation works and generally observed silty / sandy gravels from 3.0m to 8.8m below existing ground levels. Varied infiltration rates were observed during Soakaway Testing (e.g. moderate levels of infiltration were observed where granular soils were present but very low levels of infiltration were observed where underlying clays were encountered).

Site development works will include stripping 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. A cut and fill operation will be necessary to re-grade certain parts of the site. Underlying subsoil layers generally comprise of sandy silts or gravelly sands and 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 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.

(VII) WATER: HYDROGEOLOGY & HYDROLOGY

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:

- Site inspection / walkover
- Review of existing topographic survey information
- Review of Irish Water utility plans
- Ground investigations including trial pits, infiltration testing and environmental testing
- 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 and Irish Water.

The Gollymochy river is the closest hydrological feature running north of the site. The river Liffey is also in the locality running south east of the site. The site currently drains through a network of open drains which ultimately discharge to the Gollymochy Stream.

No adverse effects on surrounding hydrology is anticipated as the proposed development has minimal impact on the adjacent 1% AEP Flood Extent (minor flood compensation measures are proposed) and attenuation of surface water flows to greenfield runoff rates is being provided.

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.

Existing public surface water drains are located to the south and west of the site. As the site naturally falls from west to east, it is proposed to construct a surface water outfall along the roads north east of the site and discharge to the Gollymochy Stream north. The majority of the site will discharge to this new outfall with the

link road and a small isolated section north west of the site draining to the public surface water drains to the south and west

Existing public foul sewers are located south east of the site along Capdoo Park and north west of the site adjacent to the proposed new roundabout and are expected to provide suitable discharge points for foul drainage flows from the site.

Pre-connection enquiry feedback has been received from Irish Water.

"Based upon the details you have provided with your pre-connection enquiry and on the capacity currently available 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"

A condition is listed in relation to Contract 2B of the Upper Liffey Valley Sewerage Scheme i.e. it is feasible for 205 units to connect prior to the Upper Liffey Valley Sewerage Scheme (Contract 2B) and associated upgrades in Clane being completed in 2021, thereafter the balance of units may be accommodated.

An existing 400mm diameter ductile iron watermain and a 2" diameter uPVC watermain run along the site's northern and eastern boundary. An existing 6" diameter uPVC watermain is also runs along the western boundary of the site. No issues are noted in relation 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
- 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.
- 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 GDSDS 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.

(VIII) NOISE AND VIBRATION

The purpose of this report is to evaluate the potential impact on the noise environment of the proposed development.

The construction works associated with the development proposal are very limited due to the nature of the existing site and the nature of the proposal. Site clearance works are limited, there is very minor demolition work required, and the scale of the construction activity on site is limited. Screening around the perimeter of the site will be provided to minimise impacts.

This assessment shows that there is no significant impact predicted during the Construction Programme due to the very limited nature of the work required for the proposal.

A comprehensive evaluation of the potential noise impacts from the proposed activity has been completed. The combined impacts of existing activities at the site were also considered in the assessment. The results of this extensive study demonstrate that there will be no adverse impacts on noise in the vicinity of the site or on local residences as a result of noise emissions from the proposed activities at the site.

(IX) AIR, DUST AND CLIMATIC FACTORS

The proposed construction works associated with the development proposed in this planning application is expected to take approximately 18 months. The potential air quality impacts during Construction are summarised as follows:

(a) Dust emissions associated with excavations and demolition works

(b) Aspergillus emissions from excavation and earthmoving activity

(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 EIS.

The only predicted air quality impacts associated with operation of the development are emissions to 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 as a result of the Operation Phase of the proposed development.

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 Irelands 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.

(X) BIODIVERSITY

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services and this included a study of existing information from the area and a site survey. Site surveys were carried out in June 2018. June is within the optimal season for surveying habitats and breeding birds. A dedicated bat survey was carried out by Brian Keeley of Wildlife Surveys Ireland, also in June 2018, well within the optimal period for such surveys.

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 agricultural fields with traditional hedgerow and treeline boundaries. Many of the hedgerows, as well as the treelines, were assessed as of 'higher significance' using methodology from the Heritage Council. No water courses were found on the site although dry trenches may channel water during wet weather. There are no water bodies of significant fisheries value. Overall the habitats on the site have been evaluated as 'low local value' although the treelines and some of the hedgerows are of 'high local value'. The site contains suitable roost locations for bats (especially farm buildings) however no roosts were found. Four species were recorded using the area for foraging and/or commuting. There was no evidence of Badgers using the site.

It is estimated that 242m of 'lower significance' hedgerow and 290m of 'lower significance' treeline are to be removed. 215m of 'higher significance' treeline and 629m of 'higher significance hedgerow 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 so that there will be no change to the quality or quantity of the discharge. Additional landscaping will compensate for the loss of habitat that will occur and this will include new amenity areas within the development, as well as wildlife-friendly planting along the length of the distributor road. Lighting will be reviewed with the bat ecologist to ensure that negative effects are minimised. With the suggested mitigation in place, the ecological impacts by this proposed development will be neutral or, at worst, minor negative. There are no impacts that could affect any area designated for nature conservation.

(XI) LANDSCAPE & VISUAL IMPACT ASSESSMENT

The landscape architecture proposals, which are influenced by the existing character of the site and surrounding landscape, include hard and soft landscape treatments to pedestrian routes, entrances parking areas, roads, boundaries and areas of public open space.

Selected trees and hedgerows are proposed to be retained and integrated within the landscape design. New tree planting is proposed to replace existing trees and hedgerows to be removed. Planting is proposed to enhance the micro-climate and create sub spaces within the larger landscape, without affecting the existing landscape character. Substantial areas of new habitat are proposed. Sustainable urban drainage is integrated throughout the landscape scheme.

The site is located at the interface of the Clane town and the field patterns to the north. The existing site is subdivided by a series of distinctive hedgerows. This gives the site a special character, upon which the landscape design is based. There are no steep slopes or abrupt level changes on site, but the site falls gently from west to east. There are a range of existing trees the retention of a selected number of these should contribute to the future spatial character of the site. The surface of the site at present is predominantly grassland. The site is relatively enclosed and is subdivided with hedgerows and groups of existing trees.

A number of existing trees and hedgerows are proposed to be removed to facilitate the Proposed Development. There is a risk, with the importation of fill or topsoil to the site, that invasive species will be introduced to the site.

During the construction phase the character of the site will be affected in the short-term as a result of construction activities, the placement of construction compounds, erection of site hoarding and storage of materials. On completion new vegetation planted as replacement planting will be smaller in scale than mature trees removed to facilitate development, but during the operational phase this replacement planting will mature to match existing vegetation and reinforce the existing landscape character.

There will be short-term impacts to some views across the site during the construction stage, due to the erection of site hoarding and other temporary structures to facilitate construction. The removal of existing trees will be seen in some views.

The proposed development will have no significant effects from the viewpoints assessed. There will be minimal impact on views from surrounding roads and adjacent developments, but the development will have a moderate impact on selected views, in particular along the road R5078 (Capdoo) to the north of the subject site. The proposed development will not be visible from further afield, e.g. from Clane town to the south or Clongowes Wood College to the north.

During the construction phase, existing trees and hedgerows to be retained will be protected in accordance with BS5837:2012 and in accordance with the recommendations of the Arboricultural Impact Assessment. The landscape proposals include replacement tree planting, groundcover planting, grass seeded areas, and areas of new habitat created by forestry whip planting. To mitigate against the risk of introducing invasive species, the works will be carried out in accordance with standards and guidance including BS3882, the 'National Plant Specification', the National Parks and Wildlife Service publication 'Invasive Species in Ireland' and the Heritage Council's 'A Guide to Habitats in Ireland'. Landscape maintenance and management during the operational phase will ensure that planting matures to replace vegetation that will be removed to facilitate the Proposed Development.

The landscape works, including planting and earthworks will be installed in accordance with the landscape plans to retain the enclosed character of the site. During the operation phase the planting will be maintained to retain the character of the site. The site will be monitored for the presence of invasive species. Invasive species will be eradicated if found to exist on site.

The proposed new tree planting and its subsequent maintenance and management during the operational phase will ensure that it replaces the mature trees removed to facilitate the Proposed Development.

(XII) MATERIAL ASSET: TRAFFIC & TRANSPORT

A Traffic and Transport Assessment (TTA) has been undertaken with the objective of both quantifying the existing and transport environment and detail 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.

Based upon the information and analysis detailed within the TTA it has been demonstrated that the appropriately zoned site of the proposed residential development, positioned within the receiving suburban environment, is ideally located to maximise access to / from the site by sustainable forms of travel including walking, cycling and public transport (Bus Éireann and private service providers). The subject proposals are in accordance with the planning authorities land use zoning for the subject development site.

A new Link Road and four appropriately located, sized and designed site access (Priority) junctions are being provided to serve the proposed development, with the Link Road providing connectivity to the surrounding road network via two regional roads, namely R407 and R403. The first junction is located along the Capdoo L5078 local road to the north west of the site, with the remaining three new junctions located along the length of the new Link Road. These four new site access junctions benefit from an appropriate level of visibility splays ensuring their safe operation. In addition, the proposed Link Road includes for a link to Capdoo Park (to the south-east) which will allow the site to be served by a further access point to the R403 Celbridge Road and the surrounding road network via the existing Capdoo Park/Brooklands/R403 priority junction, as well as a roundabout junction for the Link Road to tie in with the road network where an existing priority controlled junction is located between R407 College Road and Capdoo L5078 local road.

For the purpose of the TTA it was estimated the initial 100 residential dwellings have been assumed to be built and occupied by 2020. The remaining 266 dwellings (and crèche) will be constructed and occupied prior to the adopted 2025 future design year. The TTA investigated a range of peak hour scenarios for an opening year of 2020 and a future design year of 2035 including the following six different assessment scenarios: -

Do Nothing

- A1 – 2020 Base Traffic Flows
- A2 – 2025 Base Traffic Flows
- A3 – 2035 Base Traffic Flows

Do Something

- B1 - 2020 Do Nothing (A1) + Proposed Residential Development Flows (100 units)
- B2 - 2025 Do Nothing (A2) + Proposed Residential Development (366 units)

- B3 - 2035 Do Nothing (A3) + Proposed Residential Development (366 units)

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

- R407 College Road / L5078 Capdoo / Proposed Link Road Priority Controlled Junction (DN) / Roundabout (DS); and
- R403 / Capdoo Park / Brooklands Priority controlled junction;

At these key off site junctions it was demonstrated that the proposed development (366 units) would result in a percentage increase in motorised traffic level above the 10% threshold required for junction analysis to be undertaken for the new roundabout junction located north west of the site; the R403 / Capdoo Park / Brooklands priority junction has also been assessed to ensure a robust analysis. Accordingly, a more detailed evaluation of the operational performance of these key off site junctions in addition to the two new access junctions were carried out within the TTA.

The analysis detailed within the TTA demonstrated that both new site access junctions will operate well with capacity in the adopted 2035 design year peak hour scenario. The operational assessment of the key off site junctions in both the 2020 and 2035 design years, following the construction of the proposed development (366 units) indicates that whilst an increase in utilisation of all junctions are predicted they continue to operate within acceptable peak hour operational performance.

The TTA concluded that the opportunity is available, in terms of transport and traffic, for the local authority to consider favourably the proposed residential development on the subject site. It was concluded that all of the junctions investigated within the TTA will operate within acceptable peak hour performance and accordingly there are no traffic or transportation related reasons that should prevent the granting of planning permission for the proposed residential development.

(XIII) MATERIAL ASSETS: WATER; DRAINAGE & UTILITIES

This chapter of the EIAR comprises of 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 EIAR 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.

The site currently drains through a network of open drains located to the east of the site which ultimately discharges to the Gollymochy Stream. Surface water also drains from the site via infiltration. Varied infiltration rates were observed during Soakaway Testing (e.g. moderate levels of infiltration were observed where granular soils were present but very low levels of infiltration were observed where underlying clays were encountered).

Existing public surface water drains are located to the south and west of the site. The topography of the site generally falls from west to east at gradients ranging from 1/15 to 1/100. As such, only the link road and the north west section of the site connect to the existing surface water infrastructure with the main body of the site discharging to the Gollymochy stream.

The surface water drainage system for the proposed development has been designed into three catchments with two additional catchments for the link road. 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.

Surface water runoff from roofs will be routed to the proposed surface water pipe network via the porous aggregates beneath permeable paved driveways (providing an additional element of attenuation).

Existing 225mm diameter public foul sewers are located south east of the site and north west of the site which ultimately discharge to the Clane Pumping Station.

The existing foul sewer south east of the site is expected to provide a suitable foul drainage discharge point for the majority of the proposed development. The existing foul sewer north west of the site adjacent to the proposed roundabout is expected to serve the north west portion of the site.

The proposed foul drainage discharge point south east of the site is slightly elevated above a large section of the site. As such, a foul pumping station, rising main and associated rising main discharge (header) manhole will be required to service this section of the development (185 out of 366 units). The north western and southern portions of the site will discharge by gravity in to the appropriate discharge manholes.

An existing 400mm diameter ductile iron watermain and a 2" diameter uPVC watermain run along the site's northern and eastern boundary. An existing 6" diameter uPVC watermain also runs along the western boundary of the site.

It is proposed to link the existing 400mm diameter watermains (north-west and south-east of the site) via a 200mm diameter watermain running along the proposed Capdoo Link Road. This new watermain will then service the proposed development.

Existing MV overhead lines traverse the site from Capdoo park (south of the site) running through the centre of the site to the northern boundary. MV overhead lines also traverse the site from Mainham Woods (north west of the site) across the site to the northeast boundary.

An existing MV/LV underground line enters the site from the back of the Mainham woods estate before rising to an overhead line which traverses the site as mentioned above.

Gas supply for the proposed development (if required as part of the energy strategy) will be taken from an existing medium pressure distribution pipeline (125mm / 4bar) is shown running around the residential development at the western and southern boundary.

Telecommunications infrastructure is located along the R407 road to the west of the site, with the housing developments to the south and west the site containing numerous telecommunications cables. This 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.
- Improper discharge of foul drainage from contractor's compound.
- Cross contamination of potable water supply to construction compound.
- Relocation or diversions to existing overhead ESB lines may lead to loss of connectivity to and / or interruption of supply from the electrical grid.
- 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.

(XIV) ARCHITECTURE & CULTURAL HERITAGE

A desk-based study, geophysical survey and archaeological test trenching were carried out on lands at Capdoo Commons, Clane, Co. Kildare. The site covers an approximate area of 11 hectares just to the north of Clane town off the R407 road to Kilcock. The following factors were identified in assessing the sites potential to contain archaeological or cultural heritage features:

- There are no recorded monuments situated within the site boundary or in the immediate area.
- There are a number of archaeological monuments in the wider area, in particular a range of sites associated with the medieval settlement of Clane to the south.
- The site contains no protected structures.
- No potential archaeological features were recorded in historical maps of the subject site.
- No potential archaeological features were recorded in aerial photographs of the site.
- Numerous Archaeological Monitoring, Excavation and Testing works have been undertaken previously in and around the town of Clane revealing a range of archaeological evidence; however, the only other record of archaeological works in Capdoo Commons (Licence no. 05E1177) did not identify any evidence for archaeological activity.
- No responses of definite archaeological character were recorded from the geophysical survey within the site boundary.
- Numerous roughly parallel linear features were identified in the test-trenches. These were highlighted in the geophysical survey, orientated east/west and likely represent cultivation furrows. No evidence for the potential archaeological features indicated in the geophysical survey in Trenches 8 and 21 was identified. A range of post-medieval and modern pottery sherds and clay pipe fragments were present, both from the topsoil and within the fills of the furrows. Two sherds of possible glazed medieval pottery and a possible worked flint flake were identified from the topsoil.

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

No features of archaeological or cultural heritage interest were identified. However, the site is a large area on the edge of Clane and has the potential to contain previously unknown archaeology, it is recommended that topsoil stripping is monitored by a suitably qualified archaeologist.

(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 has 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 of the effects of a development on the environment impinge upon human beings, directly and indirectly, positively and negatively. Direct effects include such matters 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 previous chapters of the EIAR.