ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NON-TECHNICAL SUMMARY

PROPOSED STRATEGIC HOUSING DEVELOPMENT

AT

BALLYOULSTER, CELBRIDGE, CO. KILDARE

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In Association with:

O'Mahony Pike Architects | AWN Consulting | IAC Archaeology | Altemar | Modelworks | DBFL Consulting Engineers | Waterman Moylan Consulting Engineers

JUNE 2022

Non-Technical Summary

INTRODUCTION

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of the applicant, Kieran Curtin, Receiver over certain assets of Maplewood Developments Unlimited Company (in liquidation and in receivership) in respect of this application for a proposed Strategic Housing Development on lands at Ballyoulster and Donaghcumper, Celbridge, Co. Kildare. The application site has an area of c. 13.4 ha and bound by a greenfield site, Donaghcumper Cemetery, Retronix Semiconductor company and the Dublin Road to the north, the Rye River Brewing Company and the Ballyoulster Park housing estate to the north east, the Primrose Gate housing estate to the south, agricultural lands to the east and Shinkeen Road to the west. Donaghcumper Medieval Church Ruins (RPS No. B11-02) and the house on Dublin Road, Donaghcumper (RPS No. B11-26), are protected structures located north of the application site.

This document is a summary of the information contained in the EIAR. For detailed information and key mitigation and remedial measures please consult the full EIAR document.

Purpose of the EIAR

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

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

The Requirement for an EIAR

Projects needing environmental impact assessment are listed in Schedule 5 of the Planning and Development Regulations 2001, as amended (Regulations).

Schedule 5 (Part 1) of the Regulations transposes Annex 1 of the EIA Directive directly into Irish land use planning legislation. The EIA Directive prescribes mandatory thresholds in respect to Annex 1 projects.

Annex II of the EIA Directive provides EU Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of project having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

Schedule 5 (Part 2) of the Planning Regulations sets mandatory thresholds for each project class. Sub-section 10(b) (i) to (iv) addresses *'Infrastructure Projects'* and requires that the following relevant class of project be subject to EIA:

- Class 10(b)(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.

In summary, the proposed development comprises a Strategic Housing Development of 344 no. residential units (comprising 54 no. 1 beds, 30 no. 2 beds, 210 no. 3 beds and 50 no. 4 beds), a 2 no. storey childcare facility with a GFA of c. 369 sq.m, public and communal open space, landscaping, car and cycle parking spaces, provision of an access road from Dublin Road and Shinkeen Road, associated vehicular accesses, internal roads, pedestrian

and cycle paths, bin storage, cycle storage, pumping station and all associated site and infrastructural works, on a site with an overall area of 13.4 hectares.

The proposed development has an overall area greater than 10 hectares within a built-up area, and therefore mandatory Environmental Impact Assessment is required in respect of the proposed development.

The following components are addressed in the EIAR:

Ch.	Title	Content
1	Introduction and Methodology	Sets out the purpose, methodology and scope of the document.
2	Project Description and Alternatives	Sets out the description of the site, design and scale of development, considers all relevant phases from construction through to existence and operation together with a description and evaluation of the reasonable alternatives studied by the developer including alternative locations, designs and processes considered; and a justification for the option chosen taking into account the effects of the project on the environment.
3	Population and Human Health	Describes the demographic and socio-economic profile of the receiving environment and potential impact of the proposed development on population, i.e. human beings, and human health.
4	Archaeology, Architecture and Cultural Heritage	Provides an assessment of the site and considers the potential impact of the proposed development on the local archaeology, architecture and cultural heritage; and recommends mitigation measures.
5	Biodiversity	Describes the existing ecology on site and in the surrounding catchment and assesses the potential impact of the proposed development and mitigation measures incorporated into the design of the scheme.
6	Landscape and Visual Impact	Details the likely effects on the landscape and visual environment of the proposed development with reference to the accompanying verified view montages.
7	Land and Soils	Provides an overview of the baseline position, the potential impact of the proposed development on the site's soil and geology and impacts in relation to land take and recommends mitigation measures.
8	Water	Provides an overview of the baseline position, the potential impact of the proposed development on water quality, hydrology and hydrogeology and quantity and recommends mitigation measures.
9	Air Quality and Climate	Provides an overview of the baseline air quality and climatic environment, the potential impact of the proposed development, and recommends mitigation measures.
10	Noise and Vibration	Provides an overview of the baseline noise environment, the potential impact of the proposed development and recommends mitigation measures.
11	Microclimate / Wind	This chapter assesses the potential effects of the proposed development on the pedestrian level wind microclimate around the proposed buildings and open spaces, and in the area immediately surrounding the site, and recommends mitigation measures.
12	Traffic and Transportation	Describes the existing transport services and infrastructural service requirements of the proposed development and the likely impact of the proposed development on these material assets.
13	Material Assets	Describes the existing services and infrastructural service requirements of the proposed development and the likely impact of the proposed development on material assets.

Ch.	Title	Content
14	Interactions of the Foregoing	Describes the potential interactions and interrelationships between the various environmental factors.
15	Principal Mitigation and Monitoring Measures	Sets out the key mitigation and monitoring measures included in the above chapters of the EIAR Document for ease of reference.
Non-Technical Summary		Provides a concise non-technical summary of the information contained in the EIAR

PROJECT DESCRIPTION AND ALTERNATIVES EXAMINED

This chapter provides a detailed description of the proposed development and outlines the reasonable alternatives considered as required under the 2014 EIA Directive and the Regulations. The chapter explains that the consideration of alternative locations was not considered reasonable or appropriate having regard to the nature and location of the subject site, the consideration of patterns of development in the SEA for the County Development Plan and the Celbridge LAP, and the land use and planning policy context. Likewise, it was not considered relevant to set out alternative uses on the subject site, as no reasonable alternative uses were identified having regard to the planning policy context. However, details have been provided of considerations of alternative designs. The reasons for the choice of the preferred design proposed have been set out, with mitigation measures provided relating to the selected development proposal.

Development Description

The proposed development comprises a Strategic Housing Development of 344 no. residential units (comprising 54 no. 1 beds, 30 no. 2 beds, 210 no. 3 beds and 50 no. 4 beds), a 2 no. storey childcare facility with a GFA of c. 369 sq.m, public and communal open space, landscaping, car and cycle parking spaces, provision of an access road from Dublin Road and Shinkeen Road, associated vehicular accesses, internal roads, pedestrian and cycle paths, bin storage, cycle storage, pumping station and all associated site and infrastructural works.

The residential component of the development consists 214 no. apartments / duplex units, and 130 no. houses of to be provided as follows:

- 4 no. 3 bed two storey detached houses;
- 28 no. 3 bed two storey semi-detached houses;
- 48 no. 3 bed two storey terraced houses;
- 50 no. 4 bed three storey semi-detached houses;
- 214 no. duplex apartments / apartments (54 no. 1 beds, 30 no. 2 beds, and 130 no. 3 beds) in a series of 15 no. duplex apartment / apartment blocks of 3 no. storeys in height, and all duplex apartments / apartments are provided with a terrace / balcony or private garden;

The development includes a total of 585 no. car parking spaces, 4 no. loading bays and a total of 770 no. cycle spaces. The proposal includes hard and soft landscaping, lighting, boundary treatments, the provision of public and communal open space, including 3 no. Local Parks, children's play areas, and an ancillary play area for the childcare facility.

The proposed development includes road upgrades, alterations and improvements to the Dublin Road / R403 and the Shinkeen Road, including the provision of new vehicular accesses and signalised junctions, pedestrian crossing points, and associated works to facilitate the same. The proposal includes internal roads, including 3 no. bridge crossings, cycle paths, footpaths, with proposed infrastructure and access points provided up to the application site boundary to facilitate potential future connections to adjoining lands.

The development includes foul and surface water drainage, pumping station, 3 no. ESB Substations, services and all associated and ancillary site works and development.

Alternatives Examined

This chapter also includes a summary of reasonable alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR.

POPULATION AND HUMAN HEALTH

The 2014 EIA Directive (2014/52/EU) updated the list of topics to be addressed in an EIAR and replaced 'Human Beings' with 'Population and Human Health'.

Population (human beings) and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'. While most developments by people will affect other people, this EIAR document concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions.

- Economic Activity;
- Social Patterns;
- Land-Use & Settlement Patterns;
- Employment;
- Health & Safety; and
- Risk of Major Accidents and Disasters.

The proposed development is not likely to result in any significant adverse effects on population and human health, and will result in several positive impacts. These include *inter alia* a positive impact on housing available in the area, at a sustainable density, and in an appropriate location, additional public open space and transport infrastructure, and economic benefits derived from the employment opportunities within the childcare facility proposed.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document will have the impact of limiting any likely adverse environmental impacts of the construction and operational phase of the proposed development on population and human health.

ARCHAEOLOGY, ARCHITECTURE AND CULTURAL HERITAGE

IAC Archaeology has prepared this chapter in order to assess the impact, if any, on the archaeological, architectural and historical resource of the proposed development at Donaghcumper and Ballyoulster, Celbridge, County Kildare. The assessment was carried out by Faith Bailey of IAC Archaeology.

There are no recorded archaeological sites located within the development area; however, there are three recorded monuments within 300m. The nearest of these sites consists of a ring ditch (KD011-074), located c. 85m to the east-southeast. There are two protected structures within 300m of the proposed development area. The nearest of these is Donaghcumper Church Ruins (B11-02) which is also listed as a recorded monument (KD011-013), located c. 185m to the west-northwest. No specific cultural heritage features have been identified in relation to the proposed development area or its surrounding environs, with the exception of the townland boundary between both Ballyoulster and Donaghcumper that extends through the proposed development area. This boundary was established relatively recently and does not possess the antiquity usually associated with similar boundaries.

In 2021 the proposed development area was subject to a field inspection, followed by geophysical survey. Whilst no previously unrecorded archaeological remains were identified during the course of the field inspection, the geophysical survey identified the location of a large probable medieval settlement and the location of a well-defined

ring ditch with associated linear remains and a possible early field system. The settlement and ring ditch are located in the northern section of the proposed development area.

Geophysical survey was followed by archaeological testing in 2021 and 2022, which revealed 13 areas of archaeological significance, including medieval and prehistoric settlement features. AA1 was the most significant site, and the initial interpretation of the medieval settlement was confirmed during testing, where a large amount of medieval pottery was retrieved from the site.

No construction impacts are predicted upon any previously recorded archaeological sites.

Testing revealed 13 Archaeological Areas, of which AA8 and AA9 are now located outside of the development area, due to changes in the proposed application site boundary. Neither of these sites will be affected by construction associated with the development. AA1 is the largest of the sites, representing the remains of part of the medieval settlement. Due to the scale and extent of the site, it is proposed to preserve a large portion (c. 90%) of it in-situ within greenspace. An attenuation pond will be located to the northwest of the site and housing and car parking to the immediate southeast of the site. Small portions of ditches associated with the site to the north and east will be directly impacted by ground works associated with the proposed development. This represents a direct, negative impact of moderate significance.

An archaeological exclusion area around AA1 will be established at construction stage in order to prevent inadvertent construction impacts. The small portions of the site to be impacted will be preserved by record. This will be carried out under licence to the National Monuments Service of the DoHLGH. Full provision will be made available for the resolution of the archaeological remains, both on site and during the post-excavation process.

Due to the required layouts and density of the proposed development the remaining archaeological sites (AA2-7 and 9-12) will be directly impacted by ground works associated with the proposed development. These impacts represent a direct, significant negative impact upon the archaeological resource.

Whilst it is acknowledged that the preservation in-situ of archaeological remains is indeed the best manner in which to conserve the archaeological resource, the required layout of the development means that the archaeological features and deposits within AA2-13 (excluding AA8 and 9) will be subject to archaeological preservation by record (prior to the commencement of construction). This will be carried out under licence to the National Monuments Service of the DoHLGH. Full provision will be made available for the resolution of the archaeological remains, both on site and during the post-excavation process.

Whilst the proposed development area has been subject to a detailed programme of archaeological testing, it is possible that small or isolated archaeological features may survive beneath the current ground level, outside of the footprint of the excavated test trenches. Groundworks associated with the development may have a direct negative impact on these remains. Impacts may range from moderate to significant, depending on the nature, extent and significance of the archaeological remains that may be present. As such, all topsoil stripping associated with the development will be subject to archaeological monitoring by a suitably qualified archaeologist. Should any archaeological remains be identified, consultation will be required with the National Monuments Service of the DoHLGH as to whether preservation by record or in-situ is carried out.

The watercourse and townland boundary between Ballyoulster and Donaghcumper, which runs through the proposed development area will be retained, although it is proposed to cross the watercourse at three locations. Ground disturbances associated with the crossing points may have an impact on previously unrecorded archaeological remains or artefacts that may survive within the channel of the watercourse. Impacts may range from moderate to significant, depending on the nature, extent and significance of the archaeological remains that may be present.

An underwater archaeological assessment will be carried out along the path of the watercourse, where it will be affected by new crossing points. This will be carried out under licence to the National Monuments Service of the

DoHLGH. Should any archaeological remains be identified, consultation will be required with the National Monuments Service of the DoHLGH as to whether preservation by record or in-situ is carried out.

No construction or operational impacts are predicted upon the architectural heritage resource.

During the operational phase, AA1 will be preserved in-situ as part of the proposed development. As such, at this stage the site may be inadvertently negatively impacted by future groundworks or maintenance that may be required, which may be carried out without due regard to the archaeological resource. Any such impacts would be direct and negative and may be very significant in scale. An archaeological conservation/management plan will be developed in order to inform future operations of the development within AA1 and ensure the area is managed appropriately. The plan will be compiled by a suitably qualified archaeologist and contain a list of proscribed activities and policies on future site maintenance.

BIODIVERSITY

The biodiversity chapter of the Environmental Impact Assessment Report (EIAR) was carried out by Altemar Ltd. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI). The programme of work in relation to biodiversity aspects of the EIAR have been designed to identify and describe the existing ecology of the area and detail sites, habitats or species of conservation interest. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements and designs mitigation measures to alleviate identified impacts. Details of the mitigation measures are contained within the relevant chapters of the EIAR and these measures in addition to the phasing of the project are contained in the accompanying Preliminary Construction Management Plan (PCEMP), which has been prepared by DBFL Consulting Engineers.

Study Methodology
Desk studies were carried out to obtain relevant existing biodiversity information within the ZOI. The assessment also extended beyond the immediate development area to include those species and habitats that are likely to be impacted upon by the proposed residential development. A Preliminary Ecological Appraisal was carried out in September 2020. A pre-survey biodiversity data search was carried out and updated in March 2022. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. Field surveys were carried out as outlined in Table 5.1 of Chapter 5. All surveys were carried out in the appropriate seasons.

Area	Surveyors	Survey Dates
Terrestrial Ecology	Bryan Deegan (MCIEEM) of Altemar	August 1st 2020, September 2nd 2021 & May 30th 2022
Aquatic	Bryan Deegan (MCIEEM) of Altemar	August 1st 2020 & September 2nd 2021
Bat Fauna	Bryan Deegan (MCIEEM) of Altemar	September 2nd 2021
Mammal Survey	Bryan Deegan (MCIEEM) of Altemar	March 16th 2021 & March 12th 2022
Wintering Birds	Hugh Delaney (Ornithologist)	October 30th 2021, November 8th 2021, November 24th 2021, December 5th 2021, December 18th 2021, January 7th 2022, January 24th 2022, February 10th 2022, February 25th 2022, March 5th 2022 and March 18th 2022
Breeding Birds	Hugh Delaney (Ornithologist)	May 12th 2022 and June 3rd 2022

The Existing Receiving Environment (Baseline Situation)

Designated sites
The nearest designated conservation site is Grand Canal pNHA (1.8 km from the subject site) and the nearest Natura 2000 site is Rye Water Valley/Carton SAC (3.1 km from the subject site). There are no Ramsar sites within 15km of the proposed development site. There is no direct pathway to designated sites. The nearest designated site (Grand Canal pNHA) is at a minimum of 1.8 km from the development with no direct or indirect hydrological connection. Figures 5.5 – 5.10 demonstrate watercourses proximate to the subject site and designated conservation sites with the potential for a hydrological pathway. It should be noted that the proposed works are upstream of the Leixlip Reservoir and Hydroelectric Power station. This is a 5000 acre reservoir and power station constructed by the ESB. Settlement of silt will occur in this long linear reservoir and no significant quantities of silt would be expected to flow downstream beyond this reservoir.

Desktop Assessment data
It should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. The NBDC record sightings of the following species proximate to the proposed development:

- Common Frog *(Rana temporaria)*
- Green Figwort (*Scrophularia umbrosa*)

The closest species recorded by NPWS to the site was Common Frog (*Rana temporaria*) at 0.8 km north of the site and Green Figwort (*Scrophularia umbrosa*), 0.5 km northwest of the site. No species of conservation importance have been noted on site by NPWS within the subject site boundaries.

Habitat and Species data
Habitats within the combined site were classified according to Fossitt (2000) based on the 30th of May 2022 site visit and the species noted within each habitat are described.

No plant species that are rare or of conservation value were noted during the field assessment. Several plants of Indian (Himalayan) balsam (*Impatiens glandulifera*) were noted in the vicinity of the watercourse. This is a species covered under the European legislation, the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011) i.e. Section 49(2) *prohibit the introduction and dispersal of species listed in the Third Schedule whereby "any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [….] shall be guilty of an offence*." No other invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb or giant hogweed were noted on site.

No terrestrial fauna of conservation importance were noted on the proposed development site. There are small mammal burrows on site within the hedgerows, but these would be associated with rabbits. Bats were noted foraging along the western boundary and in the vicinity of the watercourse on site. No trees of bat roosting potential were noted on site.

The common frog (*Rana temporaria*) was not observed on site. However, there are two watercourses on site, and it is likely that frogs may be present. The common lizard (*Zootoca vivipara*) or smooth newt (*Lissotriton vulgaris*) were not recorded on site.

Badgers have been noted within the 10km^2 grid by the NPWS. No badgers or badger activity was noted on site. No protected terrestrial mammals were noted on site or in the immediate vicinity of the site.

Birds
A full Wintering bird assessment (2021/2022) (Appendix 5.2 of Chapter 5) and breeding bird assessment (2022) (Appendix 5.3 of Chapter 5) of the site have been carried out. As outlined in the wintering bird assessment in

Appendix 5.2, which covered a slightly larger survey area including the subject site, "*50 bird species were recorded at lands at Ballyoulster near Celbridge in County Kildare during 11 winter bird surveys from October 2021 to March 2022. The species diversity was quite typical of that expected in the context of inland arable lands in Leinster. In the context of wintering bird species that are red listed as species of conservation concern in the revised Birdwatch Ireland List of birds of conservation concern in Ireland (2020-2026) Redwing and Snipe were recorded in small numbers. Results from the surveys suggest that the site is not an ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's).*

Some of the more notable species recorded wintering on-site were Yellowhammer, Reed Bunting, Skylark, and Kingfisher (recorded on four dates on the stream) with several sightings of Kestrel and once a Merlin. Snipe was mostly recorded at the south field section of the site. Mallard is amber listed as a wintering species of conservation concern in Ireland and was recorded in small numbers on the stream on-site. Four species were noted passing almost exclusively over the site and were not noted to forage on the site itself." In relation to snipe the southern field section of the survey site is outside the proposed development site.

As outlined in the breeding bird assessment in Appendix 5.3 (Chapter 5), "*30 Bird species were recorded at the Ballyoulster site over 2 visits in May-June 2022. Of these 9 species were proved breeding on-site, with mainly juveniles observed on-site indicating breeding on-site or in immediate adjacent areas. These were Yellowhammer, Robin, Wren, Blue Tit, Long-tailed Tit, Great Tit, Meadow Pipit, Blackbird and Blackcap. Of these species Yellowhammer are a red-listed breeding species (high conservation concern) from the recently updated Birdwatch Ireland's Birds of Conservation Concern in Ireland List (2020-2021), a minimum of three pairs were located on-site. Other noteworthy species noted on-site were Meadow Pipit (minimum two pairs), Reed Bunting (one pair), Willow Warbler and Skylark*." It should be noted that one of the three yellowhammer territories was located within the proposed development site.

The proposed development site is primarily the Fossitt (2000) habitat BC1 (Arable crops). No habitats of National or international conservation significance were noted within the site outline. However, there are watercourses on site and the riparian vegetation including the hedgerow and woodland proximate to the watercourses would be seen as being locally important for biodiversity.

Construction Impacts

The proposed development is not located within a designated conservation site. Runoff during site works, re-profiling, and the construction of project elements could impact on the Hazelhatch and Shinkeen watercourses, with potential for downstream water quality impacts. The nearest conservation site along this network (Liffey Valley pNHA) is a minimum of 3.4 km from the proposed development site. However, given that the proposed development site is located upstream of the Leixlip Reservoir and Leixlip Hydro Station, significant mixing, dilution, and settlement will take place within the River Liffey. No significant impacts are foreseen in the absence of measures on site.

As bats are not roosting on site, no specific mitigation measures are required and a derogation licence is also not required for the demolition or felling of trees. Light spill during construction has the potential to impact on foraging. Foraging was noted on site. Mitigation is required.

No terrestrial mammals of conservation importance were noted on site. No badger activity or setts were noted. However, mitigation in required in the form of a pre-construction mammal survey.

Clearance, reprofiling and construction of the site will result in the loss of nesting and foraging habitat in addition to foraging habitat for birds of conservation importance. However, it should be noted that the majority of hedgerows and the riparian corridor will be retained and enhanced. Construction activities will create disturbance on site. The yellowhammer territory within the site will be retained. However, increased disturbance within the site and fragmentation of this territory from the arable land may result in the effective loss if this breeding territory.

No evidence of frog activity was not noted on site, but frogs may be present. Mitigation is required.

The majority of existing flora will be removed but the riparian corridor will be retained. No species of conservation importance were noted on site. Himalayan balsam was noted, and mitigation is required.

Operational Impacts
Once constructed all onsite drainage will be connected to separate foul and surface water systems. Surface water runoff will comply with SUDS. As bats are not roosting on site, no specific mitigation measures are required and a derogation licence is also not required. Light spill during operation has the potential to impact on foraging. Mitigation is required.

No terrestrial mammals of conservation importance were noted on site. No badger activity or setts were noted. It is likely that the proposed development will increase human and vehicular disturbance on the application site. As landscaping matures the value of the site would improve.

No evidence of frog activity was noted on site and a wider riparian buffer will be in place. The majority of existing flora will be removed. It would be expected that the biodiversity value would improve once landscaping elements have been completed.

Avoidance, remedial and Mitigation measures & monitoring
Construction and operational controls will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the Zone of Influence (ZoI). Measures outlined in the Preliminary Construction Management Plan, Water, Air & Land & Soils chapters will be carried out. In addition, specific additional biodiversity measures will be carried out.

Adverse effects likely to occur from the project (post mitigation)
With the successful implementation of outlined mitigation measures to limit surface water impacts and biodiversity mitigation/supervision, no significant impacts are foreseen from the construction or operation of the proposed project. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works. In relation to downstream impacts, it is essential that the measures outlined in the EIAR are complied with, to ensure that the proposed development does not have “downstream” environmental impacts. These measures are to protect the groundwater/surface water, which are potentially the primary vectors of impacts from the site. However, these measures are not necessary for the protection of Natura 2000 sites.

Residual impacts conclusion
Significant measures have been included within the design of the proposed project to limit and enhance biodiversity on site. This includes a biodiversity enhancing landscape strategy and sensitive lighting plan for the site and in particular the watercourses on site. The construction and operational mitigation proposed for the development satisfactorily addresses the mitigation of potential impacts on the sensitive receptors through the application of construction and operational phase controls. The overall impact on the ecology of the proposed development will result in a slight adverse / not significant impact on the ecology of the area and locality overall. This is primarily as a result of the retention and enhancement of key habitats, loss of terrestrial habitats of poor biodiversity importance on site, supported by the creation of additional biodiversity features, standard construction and operational controls and a sensitive native landscaping strategy. It is considered that in combination effects with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant, and localised.

LANDSCAPE AND VISUAL IMPACT

Landscape Sensitivity

The Guidelines for Landscape and Visual Impact Assessment state that landscape/townscape sensitivity should be classified with consideration of ‘*the particular project or development that is being proposed’*, and ‘*the location in question’*.

Informed by the analysis of the site and receiving environment in Section 6.3 and the nature of the proposal, the sensitivity of the receiving environment can be classified 'medium' (definition: *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change*).

This classification is informed by the following factors:

The valued elements in the landscape include the Shinkeen Stream which traverses the site, the hedgerows and trees on the site (particularly the tree belt along the Shinkeen Road boundary), the two nearby protected structures (Donaghcumper Church ruin and Finlay House), and to the north of the Dublin Road, St Wolstan's Priory and Donaghcumper Demesne. The existing residential estates adjacent to the site (Primrose Gate, the Willow estate, Ballyoulster Park and St Wolstan's Abbey estate) are also sensitive to change, but equally they can be considered to create capacity for change.

Castletown House and Estate are sensitive landscape resources (and potential/theoretical receptors of landscape and visual change). However, the site is over 1km from Castletown House and due to the nature of the development (being at most three storeys in height, and contiguous with the existing urban area of Celbridge), there is very limited potential for any material effect Castletown House and Estate.

Counterbalancing the sensitivities is the fact that the site is contiguous with the existing urban area, and is included in the Ballyoulster Key Development Area (KDA2) and zoned 'New Residential' in the Celbridge Local Area Plan 2017. The LAP was subjected to Strategic Environmental Assessment in the course of its preparation. Therefore, the landscape change resulting from the development of the Ballyoulster KDA (including the site), i.e. the urban development of the lands, has been deemed acceptable in principle.

Magnitude of Landscape Change

The assessment includes an analysis of the potential impacts on the following 'landscape receptors':

- The key landscape features of the site, which include:
  - the Shinkeen Stream;
  - the internal hedgerows;
  - the western tree belt.

- The surrounding roads and roadside developments, including:
  - The Dublin Road/R403;
  - The Shinkeen Road;
  - The Loughlinstown Road.

- The surrounding residential neighbourhoods, including:
  - The Willow estate, particularly Willow Crescent and Willow Square;
  - St Wolstan's Abbey;
  - Ballyoulster Park.

- The cultural heritage features in the receiving environment, which include:
  - Donaghcumper Cemetery;
  - Donaghcumper Church (RPS No. B11-02);
  - Francis & Margaret Finlay House, Donaghcumper (RPS No. B11-26);
  - St Wolstan's Priory and Donaghcumper Demesne;

- Castletown House and Estate.

Considering the potential landscape change to each of these landscape receptors, the overall magnitude of change can be classified 'medium' (definition: *Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape*).

Significance of Landscape Effects
Measuring the magnitude of change against the sensitivity of the receiving environment, the overall effect on the landscape is predicted to be of 'Moderate' significance. For the most part the effects can be considered neutral or positive, given that (a) the proposed development would initiate the realisation of the Celbridge LAP vision for the Ballyoulster KDA and (b) the proposal exhibits many of the principles of good urban design including making optimal use of the existing landscape features/assets of the site.

Significance of Visual Effects

To assess the potential long term/permanent visual effects of the proposal 10 no. viewpoints were selected for detailed assessment informed by verified photomontages. The viewpoints were selected to represent the key receptors in the receiving environment, as identified in Section 6.3.3. The visual effects on each viewpoint are summarised in the table below.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change	Significance of Effects	
				Construction	Operation
01	Dublin Road approaching the site from the east	Medium	Medium	Slight negative	Moderate positive
02a & 02b	Donaghcumper Cemetery	Medium	Medium	Slight negative	Moderate neutral
03	Shinkeen Road approaching the site from the north	Medium	Low-Medium	Slight negative	Moderate positive
04	Willow Green 'village centre' in the Willows estate south of the site	Medium	Low	Not significant negative	Slight positive
05	Willow Square view along shared boundary with the site	Medium	Medium-High	Moderate negative	Moderate neutral
06 & 07	Willow Crescent	Medium	Medium	Moderate negative	Moderate positive
08	Willow Lawn view along the Shinkeen Stream	Medium	Negligible	Not significant negative	Not significant neutral
09	Loughlinstown Road	Medium	Low-Medium	Not significant negative	Slight positive
10	Ballyoulster Park	Medium	Negligible-Low	Not significant negative	Not significant neutral

LAND AND SOILS

This chapter was prepared by DBFL Consulting Engineers and assesses and evaluates the potential impacts of the development on the land, soil, geological and hydrogeological aspects of the site and surrounding area.

Inspection of available GSI data shows that the bedrock geology underlying the site and surrounding area is dominated by weathered rockhead consisting of grey-black, strong, becoming locally weak, medium to thinly

bedded, fine grained limestone with subordinate shaley mudstone. The site investigations results are consistent with GSI bedrock mapping for the area which identifies the bedrock geology underlying the site and immediate vicinity as the Lucan Formation and described as “Dark limestone & shale”. Site investigations and GSI information indicate that bedrock can be located at depths > 1.3 mbgl and groundwater vulnerability as moderate.

The GSI and EPA subsoil mapping database of the quaternary sediments in the area of the subject site indicates that the majority of the site and surrounding area is underlain limestone tills which is made up of glacial clay which are less permeable than alluvium subsoils. This has been confirmed by the site-specific investigations.

GSI interactive mapping classifies the site’s groundwater vulnerability as “moderate” for the majority of the site with western and Northern boundaries deemed “high” and along the Hazelhatch stream as “extreme”. The underlying aquifers are classified as “Locally important aquifer – Bedrock which is moderately productive only in local zones”, refer also to EIAR Chapter 8.0 Water: Hydrogeology & Hydrology for further information regarding Hydrogeology.

Site investigations indicate that the vulnerability classification of the aquifer will be lower where substantial overburden is present and provides protection to the bedrock.

The activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the hydrogeological environment. These activities primarily pertain to the site preparation, excavation, levelling, and infilling activities required to facilitate construction of the proposed development.

During the construction phase of the project, soil will be excavated from the site as part of the enabling earthworks and in order to facilitate the levelling of the site and the laying down of foundations for the new structures. The removal of localised overburden material will be required during preparation of the foundations and platform for the proposed structures. The planned earthworks foresee shallow excavations with the removal of topsoil and subsoil (cohesive deposits). Bedrock excavation is not anticipated with the exception of the installation of the Wastewater Pumping Station and associated infrastructure.

The potential impacts of construction and operation and mitigation measures proposed have been identified and will be included in the Preliminary Construction Environmental Management Plan (CEMP) for the Proposed Development.

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored away from any open surface water drains. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be disposed of by a licensed waste disposal contractor.

All fuel tanks shall be stored in designated areas, and bunded to a volume of 110% of the capacity of the tank within the bund (plus an allowance of 30 mm for rainwater ingress). Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (or where possible off the site) which will be away from surface water gulley’s or drains.

Following implementation of mitigation measures detailed in Chapter 7 of the EIA Report, the predicted impact during construction of the Proposed Development will be short-term, imperceptible, and neutral.

During the Operational phase, there are limited activities that could potentially impact on the land, soils, geological and hydrogeological environment. There are no discharges to ground included in the design and no abstractions from the aquifer.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 7 of the EIA Report will be long-term, imperceptible, and neutral.

WATER

This chapter was prepared by DBFL Consulting Engineers and assesses and evaluates the potential impacts of the development on the water, hydrological and hydrogeological environment of the site and surrounding area.

The main surface water bodies in the vicinity of the proposed development lands comprise the following:

- The Shinkeen stream bisecting the site from the southern boundary to the northern boundary.
- The Hazelhatch stream which transverses the western boundary of the site from Southern Boundary to join the River Liffey downstream of the development

The character of the Shinkeen Watercourse is a very deep watercourse with circa 3-4m deep banks. The depth of this stream is a fundamental aspect to the flood zoning in this area and thus these levels will not be adjusted as part of the new development.

The site currently drains unrestricted to these watercourses. Both Watercourses discharges into the Liffey Catchment (River Liffey SC 090 catchment) to the northeast of the subject site.

The local hydrological network (Shinkeen Stream) is associated with the WFD surface waterbody Castletown 10. The most recent published status (www.epa.ie – River Waterbody WFD Status 2013-2018) of this waterbody is 'unassigned'. The nearby Liffey rivers have been classified as 'Poor'.

A Site Specific Flood Risk Assessment (SSFRA) has been developed as part of this application. The SSFRA carried out by McCloy Consultant Engineers, document no M02182-01_DG01, assesses the proposed development in the context of the '*Planning System and Flood Risk Management Guidelines'*. It has been determined that much of the site is in Flood Zone C with areas adjoining watercourses in Flood Zones A and B. The proposed development is within low-risk Flood Zone C and are considered appropriate as defined by the Guidelines.

The potential impacts of construction and mitigation measures proposed have been identified and are included in the CEMP for the proposed development. The implementation of mitigation measures detailed in Chapter 8 of the EIA Report will ensure that the potential impacts on the surface water environment do not occur during the construction phase and that the residual impact will be short-term, imperceptible, and neutral.

During the Operational phase, there are limited activities that could potentially impact on the hydrological environment. The proposed surface water network has been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100 year event to the attenuation basins without any overland flooding. Discharge flow is restricted to the greenfield equivalent runoff for the catchment area. There will be an increase in hardstanding area associated with the entire development area; however, this will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 8 of the EIA Report will be long-term, imperceptible, and neutral.

AIR QUALITY AND CLIMATE

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

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

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA state that Ireland had total GHG emissions of 57.7 Mt CO_2eq in 2020. This is 6.73 Mt CO_2eq higher than Ireland's annual target for emissions in 2020. The EPA predict that Ireland can comply with the GHG targets for 2021 – 2030 provided full implementation of the measures outlined within the Climate Action Plan and the use of the flexibilities available.

Impacts to air quality and climate can occur during both the construction and operational phases of the proposed development. With regard to the construction stage the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. Impacts to climate can occur as a result of vehicle and machinery emissions. In terms of the operational stage air quality and climate impacts will predominantly occur as a result of the change in traffic flows in the local areas associated with the proposed development.

There are a number of sensitive receptors in close proximity to the site directly south of the site boundary. A high level of sensitivity to construction dust soiling impacts has been assigned to the surrounding area. The surrounding area is considered of low sensitivity to human health related dust impacts. The IAQM guidance was used to determine the level of risk associated with the construction phase of the proposed development in relation to potential dust impacts to the surrounding area. It was determined that there is a high risk of dust soiling impacts and a low risk of human health related dust impacts as a result of the construction phase activities. Provided the dust mitigation measures outlined in Appendix 9.2 of Chapter 9 are implemented, dust emissions are predicted to be short-term, negative and imperceptible and will not cause a nuisance at nearby sensitive receptors.

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

Potential impacts to air quality and climate during the operational phase of the proposed development are as a result of a change in traffic flows and volumes on the local road network. The changes in traffic flows were assessed against the UK Design Manual for Roads and Bridges (DMRB) screening criteria for an air quality and climate assessment. The change in traffic on the surrounding roads as a result of the proposed development is below the threshold requiring a detailed air quality and climate modelling assessment. Therefore, the operational phase is considered long-term, neutral, and imperceptible in relation to air quality and climate. In addition, the proposed development has been designed to reduce the impact to climate where possible during operation.

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

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

NOISE AND VIBRATION

The existing noise climate in the vicinity of the development site is determined to be typical of an outer suburban area. Prevailing noise levels are primarily due to local road traffic movements with contribution birdsong and construction activity.

The potential noise and vibration impacts on the surrounding environment has been assessed for the short-term construction phase and the longer-term impact of the operational phase.

Subject to good working practice during the construction phase and not exceeding the limits proposed within the EIAR, the noise and vibration impact will be of major intermittent to moderate short term impact.

During the operational phase, the potential noise sources associated with the proposed development scheme has been assessed. This included an assessment of road traffic to and from the development along with a review of any potential operational mechanical plant. The assessment has indicated that due to the site layout and the nature of the development at hand, there are no significant noise sources associated with the proposed development that would result in an increase of the existing noise climate at the nearest noise sensitive locations. Once constructed, noise levels due to the proposed residential development are considered to nominally remain unchanged when compared to the existing scenario and are within the recommended noise criteria for day and night-time periods.

MICROCLIMATE / WIND

The Microclimate chapter was prepared by AWN Consulting and studies the impact of the proposed development on the environment with respect to microclimate and also assesses the effects of the proposed buildings on ground-level windspeeds within the development boundary.

There are no construction microclimate impacts of significance associated with the construction phase, therefore no mitigation measures are required.

This is a development of two or three storey houses/apartment blocks in an area where the existing houses are on average two storeys high, thus the impact of the proposed development on wind regime and microclimate will be imperceptible during the operational phase. No site-specific mitigation measures are therefore required.

Overall, this development does not require mitigating measures as the effects will be non-existent or imperceptible during the different phases of the project.

TRAFFIC AND TRANSPORT

This chapter of the EIAR assesses the likely effects of the proposed development in terms of vehicular, pedestrian and cycle access during the construction and operational phases of the proposed development. The approach to this assessment accords with policy and guidance both at a national and local level. Accordingly, the adopted methodology responds to best practices, current and emerging guidance, exemplified by a series of publications, all of which advocate the adopted method of analysis.

Currently, pedestrians can benefit from a continuous footway on the northern side of Dublin Road (R403) along the frontage of the subject site. Footways are intermittent on the southern side of this road with facilities being provided on approach to the Dublin Road / Shinkeen Road signalised junction and along the frontage of Rye River Brewing Company. Vehicular traffic travelling along the section of the R403 Dublin Road in the vicinity of the subject site is restricted to 50kph speed limit. The Shinkeen Road corridor currently benefits from good quality pedestrian and cyclists' facilities. Segregated footways which are separated from vehicular traffic by grass verges and on-road mandatory cycle lanes are provided on both sides of the corridor. The southern section of the R405 (from the Shinkeen Road junction) provides a cycle track and footway (segregated by way of surface and road markings) on the western side of the R405 road corridor for approximately 800m to Celbridge & District Tennis Club. From this location, a shared cycle / pedestrian facility is available as far south as the non-vehicular access to Hazelhatch and Celbridge Train Station.

The first two phases of the Bus Connects Network Redesign have commenced. Included within Phase 2 are Dublin Bus Services C4, C6, X27, X28, L58 and L59 which operate within Celbridge replacing the previous Dublin Bus Services 67, 67x and 67n with two additional 'Local' Routes L58 and L58 which provide convenient bus connections to Rail services available at the Hazelhatch & Celbridge Train Station. The C4 bus service operates between Ringsend and Maynooth with a 30-minute frequency whilst the X27 and X28 offer express services between Celbridge and UCD (Belfield) every 15-20 minutes during peak times. The C6 Route provides a nightly service between Maynooth and Ringsend operating between midnight and approx. 05:00. The Go-Ahead Commuter Route 120 is accessible on English Row in Celbridge Town Centre and operates between Connolly Station and Edenderry.

The Hazelhatch and Celbridge Train Station is located approximately 1.9km from subject site's access on Shinkeen Road. This station can accommodate up to 228 no. cars on-site providing a conveniently located Park & Ride facility in close proximity to the subject site. In addition, newly implemented Bus Connect 'Local' Routes L58 and L59 (which are easily accessible from the subject site location as discussed in the previous section) provide bus access to this station.

The existing bus capacity analysis reveals that, during peak travel periods, the existing bus services have the capacity to accommodate up to 6244 no. passengers in the AM peak period and 6356 no. passengers in the PM peak period whilst the existing rail capacity analysis reveals that, during peak travel periods, the existing rail services have the capacity to accommodate up to 6812 no. passengers in the AM peak period and 6288 no. passengers in the PM peak period. Based on the estimated number of trips undertaken by sustainable modes of travel that the proposed development could generate in the peak travel periods, the additional bus trips that the proposed development is predicted to generate amounts to only 1.6% and 2.3% of the total bus transport network capacity available during the morning (0600-1000) and evening (1600-2000) peak periods respectively. The additional rail trips that the proposed development is predicted to generate amounts to only 0.3% and 0.6% of the total rail transport network capacity (serving Hazelhatch & Celbridge) available during the morning (0600-1000) and evening (1600-2000) peak periods respectively. It is noted that this capacity analysis considers only existing bus / rail services and does not take cognisance of future bus network improvements being proposed as part of the Bus Connects proposals or DART+ proposals some / or all of which could be implemented by the subject development's adopted Opening Year of 2024.

The proposed site layout has been designed to maximise permeability and connectivity to, through and from the site by foot and by bicycle. Dedicated cycle and pedestrian facilities are proposed at the two vehicular access junctions on Dublin Road and Shinkeen Road. It is acknowledged that the Celbridge Local Area Plan 2017-2023 identifies an objective for road and footpath improvements along the Dublin Road. Accordingly, the subject application includes for road and footpath improvements along the application site frontage thereby complying with this objective of the LAP as it relates to the subject lands. In addition, the building line along the Dublin Road has been set back to allow for future connections with enhanced cycle and pedestrian facilities to the town centre in the future to be delivered by the Planning Authority. Thus, the subject application provides for appropriate facilities along the site frontage, that will be compatible with future cycle schemes on the Dublin Road corridor by the Planning Authority, which have yet to be developed. The proposed cycle facilities on the Shinkeen Road corridor within the subject sites red line boundary will take the form of cycle tracks with dedicated TOUCAN crossings on all arms of the proposed signal-controlled junction. The proposed cycle tracks offer additional protection and Quality of Service to cyclists along this corridor over and above the existing cycle lanes. At the extents of the red line boundary, the proposed cycle tracks will tie-into the existing cycle lane arrangement to the north and south.

The main site access / egress will be via 2 no. new junctions including one on the Shinkeen Road and another on the R403 Dublin Road. Both junctions will take the form of signal-controlled junctions.

The subject proposals include for the provision of a new 6.5m wide "Local Distributor Road" between the aforementioned site access junctions located on Shinkeen Road and Dublin Road. Dedicated pedestrian footways are proposed along both sides of the corridor with a 2-way cycle track proposed on the northern / western side. The proposed alignment has been designed to comply with the road / pedestrian / cycle objective indicatively illustrated in the Celbridge LAP.

A total of 585 (excluding loading bays) no. car parking spaces are proposed as part of the subject scheme comprising 479 no. resident (inclusive of 5 no. creche staff spaces) and 106 no. visitor car parking spaces (inclusive of 4 no. creche set down spaces). In addition to the proposed 585 no. car parking spaces, a total of 4 no. dedicated loading bay facilities are proposed. The subject development proposals include for a total of 22 no. disabled car parking spaces, which complies with the development management standards. The proposals include the provision of a total of 770 no. bicycle parking spaces / opportunities on-site comprising 272 no. short stay spaces and 498 no. long stay spaces / opportunities.

With the objective of establishing the existing up to date local road networks traffic characteristics and subsequently enable the identification of the potential impact by the residential development, traffic surveys were undertaken at 8 no. junctions on the local road network in addition to traffic surveys at the proposed site access locations.

To estimate the potential level of vehicle trips that could be generated by the proposed residential development, reference has been made to the TRICS trip generation database. Based on this, the proposed Phase 1 development is predicted to generate 60 no. two-way vehicle trips in the AM peak hour and 58 no. two-way vehicle trips in the PM peak hour.

During the construction phase, the predicted construction HGV and staff vehicle generation levels are lower than those predicted during the operational stage. The impact at construction stage is predicted to be imperceptible to not significant and therefore the lower vehicular traffic generated at construction stage is predicted to have a lesser impact compared to the operational stage.

During the operational phase, for all key off-site junctions, the impact of the proposed development is predicted to be sub-threshold. Due to the redistribution of base traffic along the proposed new local distributor road, slight improvements in the operation of the Dublin Road / Shinkeen Road signal-controlled junction are predicted. During the AM peak hour, the impact significance of the subject proposals is categorised as Imperceptible to Not Significant at all key off-site junctions whilst during the PM peak hour, the impact significance of the subject proposals is categorised as Imperceptible to Not Significant at all key off-site junctions.

The quality of impact on active travel modes are characterised as positive due to the proposed improvements in cycle and pedestrian infrastructure being proposed as part of this development. Whilst a reduction in traffic movements is predicted at the Dublin Road / Shinkeen Road junction, the quality of impact of traffic has been categorised as negative due to the modest negative impact at other key off-site junctions, but which is to be expected with the build-out of residential zoned lands in the town.

MATERIAL ASSETS

Material Assets considers physical resources in the environment which may be of human or natural origin. The objective of the assessment is to ensure that these assets are used in a sustainable manner, so that they will be available for future generations, after the delivery of the proposed development.

In accordance with the 2022 EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, "*Material assets can now be taken to mean built services and infrastructure*". Material assets of a natural origin are dealt with comprehensively within the other chapters of the Environmental Impact Assessment Report.

The Material Assets chapter as a whole describes existing services to the application site and describes the predicted impacts which the development may have on these services and finds that there is adequate capacity for the proposed development.

This chapter considers the key aspects relating to material assets of a human origin of the proposed development site and the surrounding area, namely waste, potable water supply, wastewater discharge, electricity and gas supply and telecoms. Traffic and transportation are dealt with separately in the preceding chapter of the EIAR.

The Material Assets chapter sets out that no significant residual impacts are expected to occur during the construction phase, subject to the implementation of mitigation measures.

During the operational phase of the development, a positive impact on the existing urban environment is predicted via the development of greenfield lands for the purpose which they are zoned for, the provision of high quality housing to cater for the needs of a growing population and to meet existing demand and the delivery of supporting open space and roads infrastructure, which will facilitate access to the planned schools campus. The development is not expected to precipitate any significant residual impact on other material assets examined in this chapter.

INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

The purpose of this chapter of the EIAR is to draw attention to significant interaction and interdependencies in the existing environment. John Spain Associates in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other as necessary and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process. This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001, as amended. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR and is reiterated within the interactions chapter, along with a table of interactions which visually represents the various interactions identified between environmental factors.

SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

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