ENVIRONMENTAL IMPACT ASSESSMENT REPORT – VOLUME 1 (NON-TECHNICAL SUMMARY)

STRATEGIC HOUSING DEVELOPMENT (SHD) ON LANDS AT FORMER GREENPARK RACECOURSE, LIMERICK.

PREPARED FOR:

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1.0 INTRODUCTION

1.1 Outline Details

This Environmental Impact Assessment Report (EIAR) relates to a Strategic Housing Development (SHD) application by Voyage Property Limited[1] (referred to as the Applicant throughout) for the redevelopment of lands at the former Greenpark Racecourse, Dock Road, Limerick.

This EIAR provides an assessment of the environmental impact and associated mitigation measures arising as a result of the proposed development. It has been prepared in accordance with the requirements of the Planning and Development Act 2000 (as amended), the Planning and Development Regulations 2001 (as amended) and the relevant guidance documents.

The SHD application site measures c.10.5 ha and is located off Dock Road (N69), Limerick and principally bounded by existing undeveloped lands to the north, south and west and the adjoining Log na gCapall Housing Estate to the east.

The proposed SHD comprises 371 No. residential units, consisting of 3 no. apartment blocks, duplexes and houses. The proposal also includes the proposed access road which joins the Dock Road and a 550 sq m childcare facility.

The SHD application site is part of a wider land holding which is subject to a Masterplan in respect of the future development of the lands. Whilst this planning application and EIAR relates to the SHD lands only, the Masterplan accompanies this planning application for information purposes only.

1.2 EIA Process

EIA requirements are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). The primary objective of the EIA Directive is to ensure that projects that are likely to have significant effects on the environment are subjected to an assessment of their likely impacts.

EIA forms part of the planning consent process and is carried out by the Competent Authority. An EIAR is prepared by / on behalf of a Developer in respect of a project seeking planning consent. The EIAR thus becomes an integral informing element in the Competent Authority's EIA. The 2014 Directive has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR (see Appendix 1A below for details on the experts involved in the preparation of this document).

The EIA process may be summarised as follows:

1. Screening – Is EIA Required?
2. Scoping – If EIA is Required, what aspects of the Environment should be considered?
3. Preparation of EIAR
4. EIAR informs EIA (as part of the consent process)

[1] Voyage Property Ltd, Ashbourne Hall, Ashbourne Business Park, Dock Road, Limerick, V94 NPEO.

1.3 The Need for EIA

The proposed development has been screened for EIA in accordance with the *European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018*), in accordance with the EIA Directive.

Section 172(1) of the Acts sets out the requirement for EIA. Mandatory EIA is required for Projects listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001-2020* ("*the Regulations*"), referred to as Annex I Projects, in accordance with the EIA Directive.

The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required in this instance.

With respect to Part 2 of Schedule 5 (Annex II Projects), the Project has been assessed against the following relevant criteria:

Class 10 – Infrastructure Projects

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, this project relates to a site of 10.5 hectares and is located within an area which falls under the definition of "other parts of a built-up area". As the application site exceeds the stated threshold of 10 hectares, it is maintained that the proposed development requires an EIAR in respect of this Class.

1.4 Purpose of the Environmental Impact Assessment Report

As noted, the 2014 Directive has redefined EIA as a process, whereby an EIAR is a key informing element. An EIAR's purpose is to predict and assess likely significant effects (direct and indirect) on the environment arising from the proposed development. It is used during the consent process to inform EIA.

As per Article 5(1) of the amended Directive, an EIAR should provide the following information:

- Description of Project
- Description of Baseline Scenario
- Description of Likely Significant Effects
- Description of Avoidance / Mitigation Measures
- Description of Reasonable Alternatives (and rationale for chosen option)
- A Non-Technical Summary

Annex IV of the Directive sets out a more detailed outline of the information required in an EIAR. The subject EIAR has been prepared in full accordance with these stated requirements of Annex IV.

The preparation of the *Environmental Impact Assessment Report* has been co-ordinated by Tom Phillips + Associates, Town Planning Consultants[2], in association with other members of the Project Team as identified in Table 1.1 below. Details in respect of the competence of the various experts is set out in Appendix 1.

1.5 Scoping of The Environmental Impact Assessment

An informal EIA scoping exercise was undertaken by TPA in May 2021, with respect to the proposed development. The purpose of the EIA scoping exercise was to inform consultees of the proposed development, having regard to the extent of information to be contained within the EIAR for the project.

The scope of the EIAR has been prepared in consultation with the respective specialists within the EIA team. The Report set out a detailed justification relating to the environmental aspects to be considered in detail in the EIAR for the proposed development on the basis of the potential for significant effects.

The non-statutory scoping exercise was documented within the 'Summary of Environmental Impacts' Report that accompanied the pre-application submission to An Bord Pleanála and copied to Limerick City and County Council.

1.6 EIAR Format

In addition to the 2014 Directive, the subject EIAR has been informed by:

- *Draft Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports* (EPA, August 2017);
- *Advice Notes for Preparing Environmental Impact Statements,* Draft, (EPA September 2015);
- *Environmental Impact Assessment of Projects: Guidance on Screening* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on Scoping* (European Commission, 2017);
- *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment,* (August 2018);

1.6.1 Baseline Environment

This section provides a description of the current state of the environment related to the subject site, and a description of its likely evolution in the event that the Project is not implemented.

[2] Tom Phillips + Associates, Town Planning Consultants, 80 Harcourt Street, Dublin 2, D02 F449

1.6.2 Likely Potential Effects of the Proposed Development

This section allows for a description of the direct and indirect impacts that the proposed development is likely to have on aspects of the environment affected. This is done with reference to both the *Baseline Environment* sections and the *Description of the Proposed Project* chapter, while also referring to the magnitude, duration, consequences (including use of natural resources) and significance of any impact.

1.6.3 Mitigation Measures

This section provides a description of the measures envisaged to prevent, reduce and (where possible) offset any significant adverse effects on the environment that are practicable or reasonable, having regard to the potential impacts.

1.6.4 Monitoring

This section outlines monitoring measures (for both construction and operational stages), where appropriate, in cases where significant adverse impacts have been identified.

1.6.5 Consideration of Alternatives

This part of the EIAR describes the reasonable alternatives considered and provides a rationale for the chosen option.

1.6.6 Interactions

This section provides an overview of the inter-relationship between each of the different environmental aspects assessed, as identified by each of the specialists within their respective chapters.

1.6.7 Cumulative Impacts

This chapter has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area. The other projects assessed in combination with the proposed development are outlined in Section 2.7 and Chapter 17 of this NTS.

1.6.8 Schedule of Environmental Commitments

This chapter provides a consolidated list of all of the environmental commitments/ mitigation measures that have been recommended by the various specialists throughout the chapters of this EIAR.

The mitigation and monitoring measures have been recommended on that basis that they are considered necessary to protect the environment during both the construction and operational phases of the proposed project.

1.6.9 Non-Technical Summary

As per the requirements of the Directive, a separate Non-Technical Summary (NTS) comprises an easily accessible summary of the EIAR, using non-technical language. It is formulated to be

understandable to those without a prior background to the project or particular environmental expertise.

1.7 EIAR Study Team and Guarantee of Competency and Independence

The Environmental Impact Assessment Report was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

In accordance with EIA Directive 2014/52/EU, we confirm that the experts involved in the preparation of this EIAR are fully qualified and competent in their respective fields. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality. The individual members of the team and their respective inputs and competency are detailed in Appendix 1A. Table 1.3 below provides an overview of the various consultancies who prepared the relevant chapters.

Table 1.1: EIAR Chapter Headings and Contributors

Chapter	Aspects of the Environment Considered	Contributor
Chapter 1	Introduction	TPA
Chapter 2	The Environmental Impact Assessment Process	TPA
Chapter 3	Planning and Development Context	TPA
Chapter 4	Consideration of Alternatives	TPA
Chapter 5	Description of the Proposed Project	TPA
Chapter 6	Consultation	TPA
Chapter 7	Population and Human Health	TPA
Chapter 8	Biodiversity	Ecology Ireland
Chapter 9	Land, Soils, Geology and Hydrogeology	Gavin + Doherty Geosolutions
Chapter 10	Hydrology	RPS
Chapter 11	Air Quality and Climate	RSK
Chapter 12	Noise and Vibration	RSK
Chapter 13	Landscape and Visual	Murray & Associates landscape Architects
Chapter 14	Archaeological, Architectural and Cultural Heritage	Aegis Ltd.
Chapter 15	Microclimate – Daylight and Sunlight Assessment	ARC Architectural Consultants Ltd.
Chapter 16	Roads and Traffic Assessment	PUNCH Consulting Engineers
Chapter 17	Waste Assessment	Gavin + Doherty Geosolutions
Chapter 18	Built Services Assessment	PUNCH Consulting Engineers/ WoodsPS Ltd.
Chapter 19	Interactions	TPA/ All
Chapter 20	Cumulative Impacts	TPA/ All
Chapter 21	Schedule of Environmental Commitments	TPA/ All

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site History

The site is part of the former Greenpark Racecourse which is situated in the townland of Ballinacurra (Hart) and connected to Limerick City by Dock Road.

The townland of Ballinacurra (Hart) was located beyond the 17th century fortifications and earthworks constructed (or at least proposed at that time) around Limerick City. It also was located beyond the expansion of the town to the south of its medieval core into what was named Newtown Pery in the 18th and 19th centuries. Following increased wealth and prosperity of Limerick City, demand grew for recreational activities. At this time, a racecourse was already established in Newcastle, but due to its poor and infamous reputation, a new racecourse was established at Greenpark in the 1980's. It is thought that the racecourse is likely to be the first development at the site, although not documented.

The Greenpark racecourse was used for horse racing and for other events such as horse shows and trade fairs. It also hosted GAA events prior to the construction of the Gaelic Grounds on the Ennis Road. Greenpark closed as a race course in 1999 after 130 years of racing; the last race meeting at the venue took place on 21st March 1999.

Refer to Chapter 13 (Landscape and Visual) and Chapter 14 (Cultural Heritage, Archaeology and Architectural) for more details relating to the history of the site.

2.2 Current Site Use

The site is currently a disused racecourse. The adjacent lands to the east of the site comprise residential development.

2.3 Site Location and Surrounding Area

The application site is c.10.5 ha and is located c.2km to the south-west of Limerick City Centre and within the townland of Ballinacurra (Hart). The site is principally bounded by existing undeveloped lands to the north, south (open land, formerly part of the racecourse) and west (open ground with the greyhound track) and the adjoining Log na gCapall Housing Estate and Greenpark Avenue to the east and north-east.

The application site has a substantive development area of c.7.9 ha which will accommodate the residential development. The remaining 2.6 ha includes the proposed access road and the 'over burden area' in respect of the earthworks associated with site levelling and achieving the required formation levels.

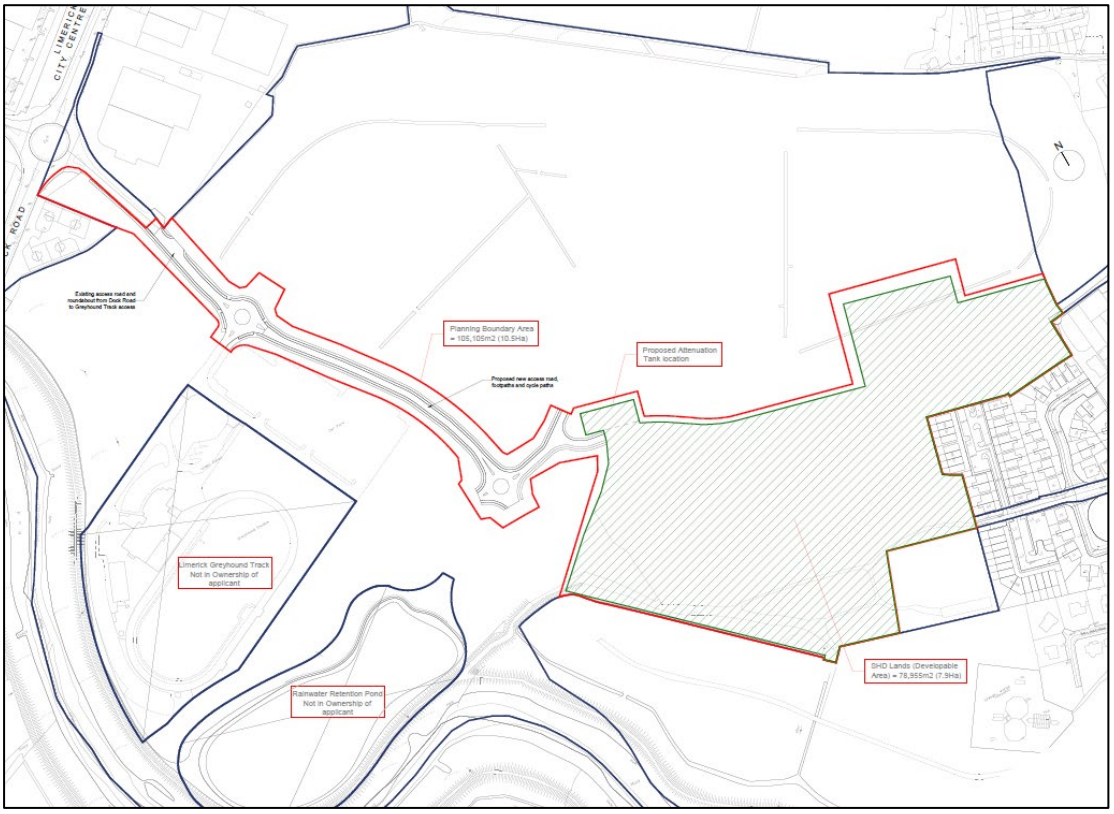

Figure 2.1: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1020 Rev A showing extent of the substantive development area (c. 7.9 ha) hatched in green.

The surrounding area comprises a number of land uses. The primary form of development to the east of the site is low rise residential development. To the north, north-west and west of the site is a number of commercial buildings, with a number of community use, schools and retail buildings in the vicinity. The Limerick Greyhound Stadium adjoins the Applicant's lands and continues to operate as a greyhound stadium.

The Ballinaclogh River, a tributary of the River Shannon, flows to the south-west of the site but does not directly abut its boundary.

In terms of proximity and accessibility to the wider environs, the site is located approximately 2km from Limerick City Centre, 1.2km from Crescent Shopping Centre, 1.6km from the Regional Hospital and 4.1km to Raheen Business Park. There are a number of bus routes (e.g. 304 and 301) that service the bus stops closest to the site, including the stops at Lifford Gardens and on the corner of South Circular Road and Ballinacurra Road and provide access to the City Centre.

2.4 The Proposed Project

The proposed project will comprise 371 no. units arranged in two storey houses, three storey duplexes and three 4 to 5 storey apartment blocks. The proposed project also includes a two storey, 550 sq m childcare facility, designed to accommodate 65 no. children and 14 no. staff.

Figure 2.2: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1004 Rev A showing extent of the site layout plan in respect of the SHD substantive development area.

The housing mix is set out below:

Housing Type	No. of units
Houses	**157**
Duplexes	**76**
Apartment	**138**

The unit mix is as follows:

Unit Mix	1 bed	2 bed	3 bed	4 bed	Total
Houses	**0**	**37**	**110**	**10**	**157**
Duplexes	**24**	**38**	**14**	**0**	**76**
Apartment	**46**	**92**	**0**	**0**	**138**
	70	**167**	**124**	**10**	**371**

The proposed project includes the construction of an access road between the existing Greenpark roundabout within the former Greenpark Racecourse lands and the proposed development site. The proposed road is approximately 374m in length and includes a roundabout, pedestrian footpath and cycle lanes.

Figure 2.3: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1003 Rev A showing extent of the site layout plan in respect of the proposed access road.

The proposed apartment blocks are located in the north east of the site (Apartment Blocks A and B) and to the south (Apartment Block C). The duplex units and houses are arranged across the site, all with street frontage. The proposed childcare facility is located in the north western corner of the site, close to the proposed access road.

Figure 2.4: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1014 Rev A showing the arrangement of the proposed unit typologies (houses, duplexes and apartments).

In terms of access arrangements, vehicular movement will occur via the proposed access road, via the Dock Road. Vehicular access at the Greenpark Avenue and Log na gCapall site entrances will be limited to emergency vehicles only. These site entrances will also facilitate pedestrian and cyclist movement to and from the surrounding road network.

As set out in more detail in section 5.4.1 below, 11,511 sq m of public open space will be provided across the site. Communal amenity space is provided for the apartment blocks and private open space is provided in the form of balconies and terraces at ground floor. Private open space is provided for the proposed duplex units by way of a combination of rear garden and terrace. Private rear gardens are provided for the proposed houses.

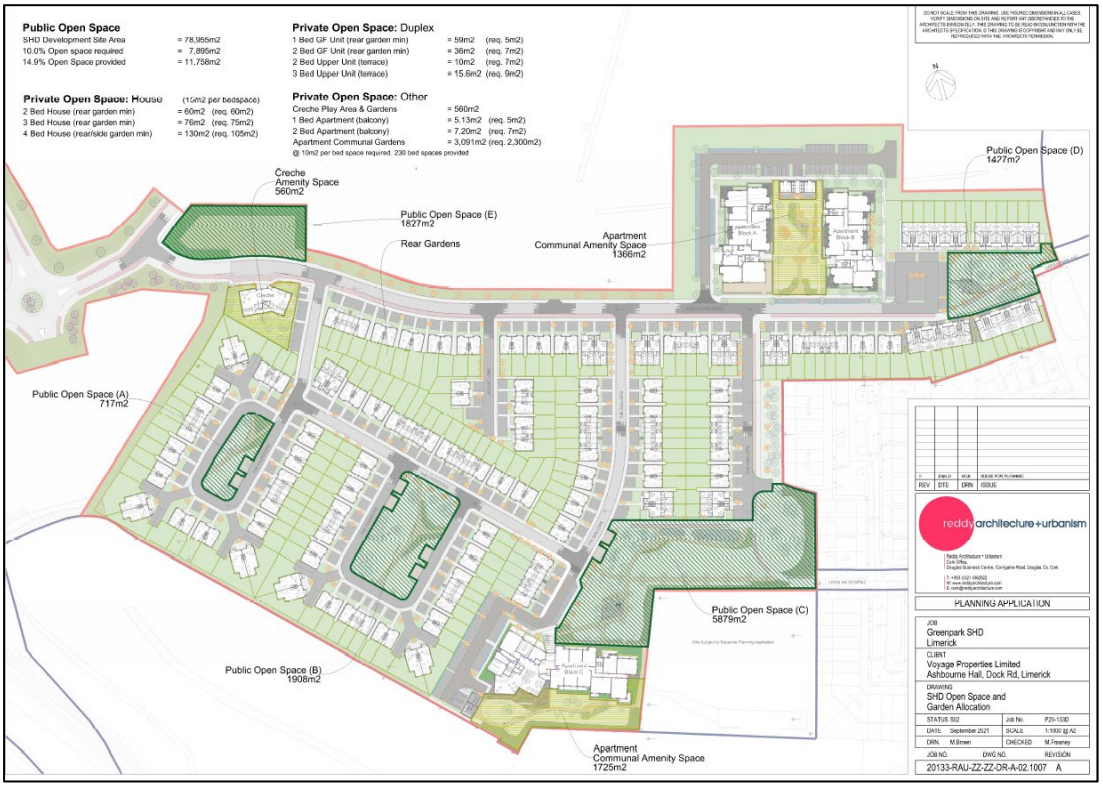

Figure 2.5: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1007 Rev A showing the location of the public open space provision.

2.4.1 Landscape Strategy and Design

The design intent is to create a high quality and appropriate landscape for future residents which will meet their recreational needs and provide an attractive visual setting and associated social amenity spaces. The principles of inclusivity for all age groups, universal accessibility and sustainable development are applied to ensure an inclusive and environmentally responsible design solutions. The main objective of the landscape strategy for the residential area is to place the new residential and community facilities within a cohesive landscape that responds to and integrates the proposed development within the overall site.

The landscape strategy also seeks to create a permeable network of green infrastructure and open spaces throughout the development and pay attention to future links to the development lands outside this application boundary.

Within the proposed project, there are 4 no. public open spaces in total, amounting to 11, 511 sq m (14.6%) of the total net residential area. In addition to the public open space, 3091 sq m of communal amenity space is provided in respect of the apartment development and 560 sq m is provided as creche amenity space.

Natural Play elements will be incorporated within the open spaces. Natural Play incorporates designed elements that enable play spaces to blend in with their surroundings and encouraging interaction with the natural landscape. Local Areas for Play (LAP) and Local Equipped Areas for Play (LEAP) will be incorporated within a five minute walk of the residential developments. All appropriate age ranges will be catered for and play spaces will be fully

accessible, inclusive and comply with the relevant safety standards. In total, 580 sq m of formal and natural play areas are provided.

The proposed soft landscaping includes meadow areas, natural open space areas, native trees and shrub species, ornamental shrubs, perennials and hedging. The landscaping strategy will provide approximately 620 new trees, 2,170 sq m of native woodland and a further 1,300 sq m of native woodland and shrub planting to the access road area (totalling 3,470 sq m).

The proposed hard landscaping includes the following materials to the open spaces: compacted gravel paths/ asphalt paths within open spaces, concrete block pavers within specimen seating areas, reinforced grass/ bark within play areas; brushed concrete footpaths and concrete block to entrances/ thresholds. In terms

For full details, refer to the *Landscape Design Report* and *Outline Landscape Works Specification (incorporating a Landscape Management Plan)*, prepared by Murray & Associates.

2.4.2 Site Utilities

Electricity and Gas Infrastructure

ESB have HV lines traversing the site and MV Lines in close proximity which will be used to facilitate several cabinet Kiosk type MV/LV substations.

There will be a separate Kiosk substation per 150 units, the LV network will be distributed via underground ducting and ESB Mini pillars.

The existing gas infrastructure to the Greyhound Stadium will be retained, new infrastructure is not proposed for this project.

Water Supply

It is proposed to provide a 250mm diameter watermain, 180mm diameter watermain and 125mm diameter watermain branch lines for the development. A connection will be made to the existing 600mm diameter watermain.

Telecommunications

There is currently EIR ducts servicing the Greyhound Stadium, these will be extended into the site to provide telecoms & broadband services to each home user.

A full duct infrastructure to facilitate EIR FTTH (Fibre To The Home) 10 Gigabit Broadband will be provided so each unit will have access to the national broadband plan. This infra structure will ensure EIR can provide current and next generation broadband to each home.

2.4.3 Site Infrastructure

2.4.3.1 Wastewater Services

Foul Water Disposal

It is proposed that foul water from the proposed SHD development shall discharge by gravity to the existing 225mm diameter foul sewer prior to discharging to the Limerick Main Drainage Network.

Surface Water Disposal

A new surface water sewer network will be provided for the proposed SHD development which will be entirely separate from the foul water sewer network. Surface water run-off from roof areas and hardstanding areas are designed to be collected by a gravity pipe network. Surface water will be collected and discharged via a mixture of traditional and Sustainable urban Drainage System (SuDS) to the existing lagoon via existing 1350mm/1500mm diameter surface water sewer. Each unit will have its own independent connection to the surface water sewer network.

It is proposed that surface water will discharge via attenuation tanks, a class 1 bypass separator and flow control device prior to discharging to the existing surface water network at a rate of 4l/s/ha.

2.4.4 Site Access

Vehicular access to the site will be from the N69 Dock Road, via the proposed access road as shown on Reddy Architecture + Urbanism's *Proposed Site Plan – Sht 1* Dwg. No. ZZ-ZZ-DR-A-02. 1003 Rev A. Pedestrian and cyclist access will be from Dock Road, via the proposed access road and also via Log na cGapall and Greenpark Avenue.

2.4.5 Fire Access

Emergency access will be via Greenpark Avenue and Log na gCapall; both access points are sufficiently sized to cater for emergency vehicles.

2.4.6 Car and Bicycle Parking

The proposed project will provide a total of 510 no. spaces which will be broken down as per the below extract from PUNCH Consulting Engineer's *Traffic and Transportation Assessment.*

All houses with on-curtilage car parking will be first fixed for EV charge points. All common area parking spaces will have ducting run to them to facilitate future installation of additional EV charge points. 10% of common area parking spaces will have EV charge points installed.

Development type	No Units	Minimum Requirement per Development Plan	Parking Spaces Provided
Houses - 2 Bed	37	1.5 space per house	56
Houses - 3/4 Bed	120	2 spaces per house	240
Duplexs	76	1 space per 1.43 units (0.70/unit)	53
Apartments	138	1 space per 1.43 units (0.70/unit)	97
Visitor	446 (spaces)	11.0% of residential requirement	49
Creche	14 staff, 65 children		15
Total			510

Figure 2.6: Extract from *Traffic and Transportation Assessment* prepared by PUNCH Engineering Consultants.

In addition, 391 no. cycle parking spaces will be provided, incorporating 1 space per residential unit (371 no. spaces) and 20 no. visitor/ staff spaces associated with the proposed childcare facility.

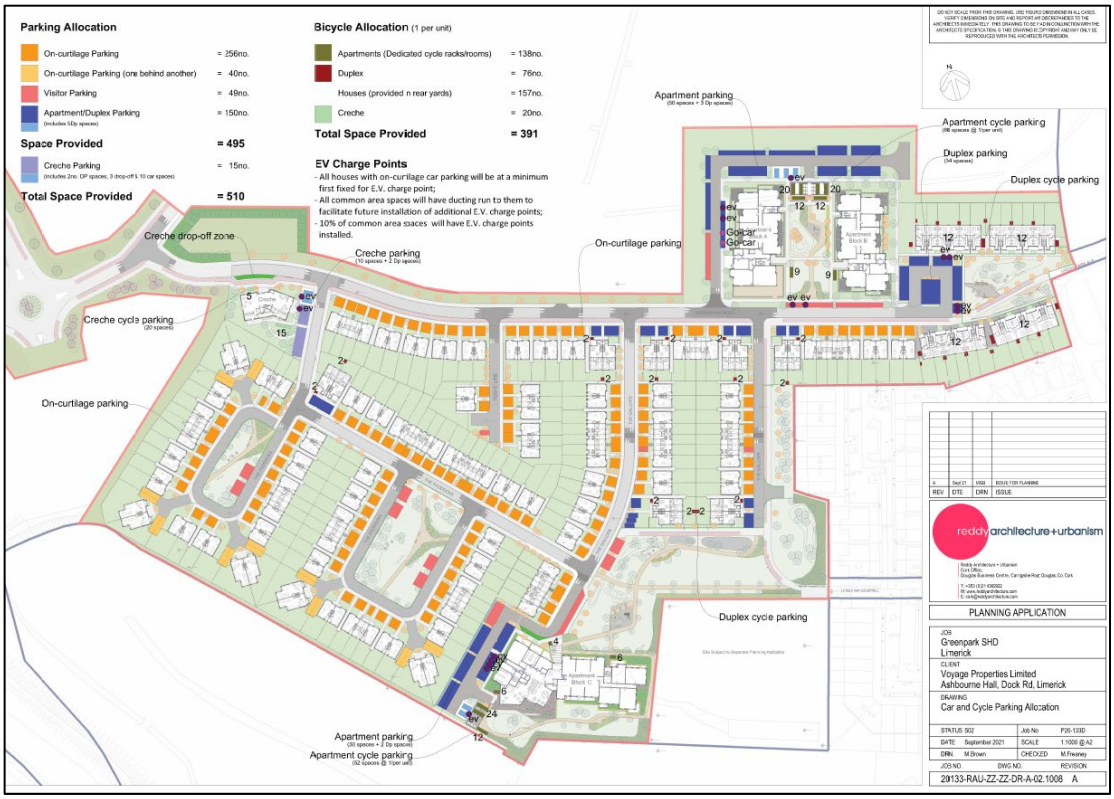

Figure 2.7: Extract from Reddy Architecture + Urbanism's Dwg. No. ZZ-ZZ-DR-A-02.1008 Rev A showing the car and cycle parking allocation across the site.

2.5 Construction Phase and Construction Works

The below paragraphs provide an overview of the construction phase and construction related management. For full details, rjamefer to the *Planning Stage Construction Environmental Management Plan* (CEMP) and *Construction Waste Management Plan* (CWMP), prepared by Gavin & Doherty Geosolutions which accompany this submission.

2.5.1 Construction Phase

This planning application seeks a five year planning permission from An Bord Pleanála. In line with this, it is expected that the construction phase will last for approximately 60 months (five years).

2.5.1.1 Proposed Construction Works and Methods

Site Establishment and Security

The first activity to be carried out at the site will be the establishment of site facilities and security. The site office and welfare facilities (site compound) will be confirmed in advance of the commencement of site works.

All the sub-contractors as well as the main contractor and project managers will occupy offices within the construction compound. The site parking for all staff, contractors and visitors will also be located in this area.

Erection of perimeter hoarding will take place at the start of the project alongside the site establishment and security works. The hoarding will be installed around the complete perimeter, except for dedicated access points. The extent of hoarding will be subject to the detailed phasing of the development and will ensure that areas under construction will be fenced off at all times. Gates will be provided at the access points and will be locked outside of working hours. Hoarding will consist of solid painted plywood on a timber support frame or similar. Hoarding will be properly designed to be secure and durable and will be maintained until it can be dismantled on completion of the development (or phase of the development).

Site Clearance

To facilitate the earthworks operation, site clearance will have to be carried out to remove vegetation. Removal of woody vegetation shall only take place outside the bird breeding season (1st March to 31st August). No removal of habitats or movement of construction machinery will occur outside of the development works area/footprint during the construction phase. Existing trees and hedgerows shall be retained where possible. Temporary surface water management measures will be put in place prior to stripping of topsoil and will remain in place until the completion of the development, or until the completion of each phase.

Topsoil will be stripped from the area to developed and from the area where site won fill is to be excavated to bring the development to the correct level. All excavated topsoil will be stored in dedicated stockpiles with environmental controls in place.

Prior to topsoil clearance, an Invasive Species Management Plan and survey is recommended to ensure areas of invasive plant species (if any) are identified and managed prior to or during site clearance works. There is a responsibility on the Environmental Manager or Ecological Clerk of Works (ECoW) to regularly inspect and supervise maintenance of the environmental controls throughout the process.

Earthworks

Once surface water management measures are in place and topsoil has been stripped, earthworks operations can commence. This will consist of moving fill from the higher ground at the east to the lower ground to the west. Material will be excavated by 360° excavators and transported to the deposition area by articulated dumpers. The fill will then be placed by dozers and compacted using vibratory rollers. A testing regime will be implemented to ensure the acceptability of the fill and that the degree of compaction is sufficient. Fill will be brought to the required level across the site to allow construction of roads and foundations. An overall earthworks balance has been targeted i.e. no imported fill will be required for the bulk earthworks and no soil will be removed from the site.

Construction of Housing

On completion of the bulk earthworks, construction of foundations for housing will commence. The exact construction sequence has not been determined, but it will be similar to what is described below:

- Temporary roads will be constructed to provide access to each row of units. This will include the construction of surface water management and silt control infrastructure, including settlement ponds and silt fencing.
- Construction of foundations. It is envisaged that raft foundations will be used on this site. The locations of foundations will be set out on the ground. Importation of certified stone fill will be required for the layers under the foundations in compliance with the Building Regulations. Reinforcement will be fixed, formwork installed and all required ducting placed prior to placement of concrete. Construction of foundations will require concrete deliveries to the site. Controls will be required to prevent any concrete material reaching local watercourses.
- Once foundations have cured, timber frames will be delivered to site and erected, followed by roofs.
- Scaffolding will be erected and construction of the masonry/brick outer leaf will then be completed.
- Windows and doors will be installed and first fix plumbing and wiring will be completed prior to external and internal rendering.
- On completion of rendering, second fix, plumbing wiring and carpentry will be completed, followed by floors, painting and finishing.
- At this stage, installation of drainage and services is likely to progress and the roads will be completed. Drives, footpaths, boundary walls and lawns will be finished and final road pavements will be installed.

The construction of apartment blocks will generally follow the construction sequence outlined below:

- Installation of piles
- Construction of pile caps, foundations and ground floor
- Erection of steel or reinforced concrete frame
- Construction of floors and roof slab
- Facades
- Fit out

2.5.1.2 Construction Working Hours

The proposed hours of work on site will be stipulated in the planning conditions attached to the planning grant. Any working hours outside the normal construction working hours will be agreed with the planning authority. The planning of such works will take consideration of sensitive receptors.

2.5.1.3 Site Access and Egress

Construction site access will be from the N69 Dock Road. There is an existing track through the site that is connecting to the entrance road at a roundabout junction with the entrance to the Greyhound Stadium. The road will be raised to the correct alignment using compacted stone fill. At the early stages of construction, the access road may be constructed from unbound stone. The access road will be paved and completed, including street furniture, cycle ways and footpaths, in advance of occupation of the first phase of the development.

2.5.2 Air Quality – Dust

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and soil stockpiles will take note of the location of sensitive receptors and prevailing wind directions to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff (e.g. Environmental Manager/ECoW) will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and procedures implemented to rectify the problem. Dust levels shall comply with the mitigation measures and any planning conditions.

Refer to the *Planning Stage Construction Environmental Management Plan* for specific dust control measures to be employed.

2.5.3 Noise and Vibration

Specific noise abatement measures shall comply with the recommendations of BS5228-1 2009. These measures will include:

1. No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
2. The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
3. All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
4. Compressors and generators will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
5. Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
6. Any plant, such as generators or pumps, required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.
7. Location of plant shall consider the likely noise propagation to nearby sensitive receptors.

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors and generators. The noise levels shall comply with the mitigation measures and any planning conditions.

A designated noise liaison will be appointed to site during construction works. Any complaints will be logged and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g. excavation close to a property, etc., the site contact will inform the nearest noise sensitive locations of the time and expected duration of the works.

All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

2.5.4 Preliminary Construction Traffic Management Plan (CTMP)

A Construction Traffic Management Plan (TMP) will be prepared for the site works in accordance with the principles outlined below and shall comply with the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks;

- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010); and
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS).

The Contractor shall prepare a detailed traffic management plan for works at that interface with the existing road network and obtain all required road opening licenses. Access for construction of the development will be via the proposed primary access for the development from the Dock Road.

The earthworks plan has been developed to ensure an earthworks balance on site. Excavated material will be reused as part of the site development works where possible to minimise HGV movements to and from the site via the Dock Road.

2.5.6 Health and Safety

The appointed Contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- Construction Health & Safety training requirements
- Induction procedures
- Emergency protocols
- Details of welfare facilities
- Risk assessments and Method Statements.

2.5.7 Construction Waste

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific *Construction Waste Management Plan* (CWMP) has been prepared and will be employed to ensure sustainable and effective waste management throughout the construction and demolition phases of the project.

Adherence to the CWMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the Waste Management Acts 1996 – 2015 and amendments. The waste management hierarchy to be adopted will be as follows:

1. Prevention and Minimisation
2. Reuse of Waste
3. Recycling of Waste:
4. Disposal

Typical waste materials that will be generated from the demolition and construction works will include:

- Soil and stones
- Concrete, bricks, tiles and ceramics
- Wood, glass and plastics

- Metals
- Gypsum-based construction material
- Paper and cardboard
- Mixed C&D waste
- Chemicals (solvents, paints, adhesives, detergents etc.)

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the CWMP):

- Materials will be ordered on an 'as needed' basis to prevent over supply.
- Materials will be correctly stored and handled to minimise the generation of damaged materials.
- Materials will be ordered in appropriate sequence to minimise materials stored on site.
- A waste tracking log will be established.
- Sub-contractors will be responsible for similarly managing their wastes.
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

The main waste storage area will be located in the site compound A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development.

Waste materials generated will be segregated at the site compound, where it is practical to do so. Where the on-site segregation of certain waste types is not practical, offsite segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled.

The site Construction Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

2.6 Description of Development (Operational Phase of the project)

The proposed project is described as follows on the Statutory Notices:

Voyage Property Limited intend to apply to An Bord Pleanála (the Board) for permission for a strategic housing development with a total application site area of c.10.5 ha (with a substantive residential site development area of c.7.9 ha), on lands at the former Greenpark Racecourse, Dock Road, Limerick, principally bounded by existing undeveloped lands to the north, south and west and the adjoining Log na gCapall Housing Estate and Greenpark Avenue to the east. The application site includes the proposed access road (374m in length, including two lanes for vehicles, a roundabout, cycle lanes and pedestrian footpath) which connects to Dock Road at the north-western corner of the former Greenpark Racecourse lands and runs adjacent to the Limerick Greyhound Stadium.

The development, with a total gross floor area of c. 36, 879 sq m, will consist of the provision of 371 no. residential units comprising 157 no. two storey houses (consisting of 10 no. 4 bedroom units, 110 no. 3 bedroom units and 37 no. 2 bedroom units); 76 no. three storey duplex units (consisting of 14 no. 3 bedroom units, 38 no. 2 bedroom units and 24 no. 1 bedroom units) and 138 no. apartments (consisting of 92 no. 2 bedroom units and 46 no. 1 bedroom units arranged in 3 no. blocks ranging between 4 and 5 storeys together with communal amenity space) and a two storey childcare facility (550 sq m), including all private, communal and public open space provision (including balconies and terraces, private rear gardens and related play areas); surface car parking (510 no. spaces, including accessible spaces); car sharing provision; electric vehicle charging points; bicycle parking (long and short stay spaces); storage areas; internal roads and pathways; hard and soft landscaping and boundary treatments; piped infrastructural services and connections; plant; revised entrances and tie-in arrangements to adjoining roads, including emergency access via Log na gCapall and Greenpark Avenue and pedestrian and cyclist access via Log na gCapall; waste management provision; solar panels; attenuation tank and related SUDS measures; signage; public lighting; bulk earthworks; and all site development and excavation works above and below ground. Vehicular access to the site will be from Dock Road, via the proposed access road.

2.7 Other Projects Identified for Cumulative Assessment

Chapter 20 of the EIAR has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area.

In terms of committed development, a search of Limerick City and County Council and An Bord Pleanála's websites has been conducted. The following development with planning permission has been identified for the purposes of this cumulative assessment: LCCC Reg. Ref. 17/1190; ABP ref. 302015-18. The description of development is as follows:

> *"The construction of a housing development of 31 no. residential dwellings consisting of 11 no. detached dwelling, 20 no. semi detached dwellings with ancillary roads and infrastructure. Permission is also sought for the upgrade of Greenpark Avenue consisting of the installation of speed ramps, the realignment of the junction of Greenpark Avenue with the South Circular Road and the installation of a table top at the junction of Greenpark Avenue and South Circular Road with speed ramps at each approach…"*

It is noteworthy that planning condition no. 2 requires the omission of house no. 25 and therefore, the permitted scheme comprises 30 no. houses.
In terms of planned development, an application for a proposed nursing home development has been submitted to LCCC by the Applicant in respect of the land in the south eastern corner of the wider former Greenpark Racecourse lands (LCCC Reg. Ref. 21/1222). The land is within the ownership of the Applicant for the current SHD application and forms part of the site wide Masterplan for the lands.

This application has been considered as part of cumulative assessment. The description of development is as follows:

"Voyage Property Limited intend to apply for permission for development for a nursing home at this site of c.1.3 ha, in the south-eastern part of the former Greenpark Racecourse, Dock Road, Limerick. The site is principally bound by existing undeveloped lands to the north, south and west and the adjoining Log na gCapall Housing Estate to the east. The proposed nursing home will be accessed via Log na gCapall, via an existing access point.

The development will be 4 storeys in height with a total gross floor area of c.5,237 sq m, consisting of 123 no. rooms, comprising 126 no. bedspaces (120 no. single rooms and 3 no. double rooms) and ancillary facilities, including 777 sq m of day space.

The development will also consist of soft and hard landscaping including 2,954 sq m of open space; 32 no. surface car parking spaces (including 3 no. electric parking spaces); bicycle parking; internal roads and pathways; boundary treatment including sloped embankments; SUDS measures including green roof; piped infrastructural services and connections; plant; revised tie-in arrangements to Log na gCapall (including road widening); waste management provision; public lighting; earthworks; and all site development and excavation works above and below ground."

3.0 CONSIDERATION OF ALTERNATIVES

3.1 Introduction

This chapter of the *Environmental Impact Assessment Report* was prepared by Tom Phillips + Associates and examines the alternative development options which were considered for the subject site during the design development process.

The consideration of alternatives is necessary to evaluate the likely environmental consequences of a range of development strategies for the site within the constraints imposed by environmental and planning conditions.

Reasonable alternatives may relate to project design, technology, location, size and scale which were studied in the preparation of the EIAR relevant to the proposed development and its particular characteristics, together with an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3.2 Rationale for the Proposed Development

The proposed project, a large-scale residential development, is supported by planning policy at all tiers. The project delivers a significant number of new homes as required to meet housing objectives outlined throughout the relevant policy documents.

The relevant national, regional and local planning policy is outlined in in Chapter 3 (Planning and Development Context) and further in the supporting planning documentation.

3.3 Alternative Locations

Voyage Property Limited (The Applicant) acquired the site due to its residential and mixed-use zoning under the *Limerick City Development Plan 2010-2016* which was itself subject to the Strategic Environmental Assessment (SEA) process.

The Core Strategy of the Development Plan envisages makes reference to role that the County's 'Undeveloped Zoned Housing Land' will play in the delivery of the required quantum of housing. In this regard, the Strategy makes specific reference to the subject lands ('Former Racecourse') and notes that the overall site has capacity to deliver 1,188 units.

As such, the site was considered appropriate for a development of the proposed nature (Strategic Housing Development) and scale.

3.4 "Do-Nothing" Alternative

A 'do-nothing scenario' has been considered in respect of the site. It was found to represent an unsustainable and inefficient use of strategically important lands for the delivery of residential development, as reflected by the land zoning objective and Core Strategy contained within the *Limerick City Development Plan 2010-2016*.

As a result of the zoning of the lands and the specific reference to the strategic importance of the site from a residential capacity perspective contained within the Development Plan, together with consideration of the proximity of the lands and accessibility to Limerick City, the 'do-nothing scenario' was discounted.

3.5 Alternative Processes

Due to the scale and nature of the proposed development and the legislative provisions surrounding Strategic Housing Development, the consideration of an alternative process is not considered relevant to this EIAR. Under the provisions of the relevant legislation, a planning application for residential development of the proposed scale is required to be submitted to An Bord Pleanála for determination.

3.6 Alternative Design Approaches

Initial Masterplan

A site wide Masterplan, incorporating the subject site, has been prepared in respect of the overall former Greenpark Racecourse lands. During the design process for the Masterplan and the SHD project itself, a number of design iterations were considered. As part of this, a number of different site layouts were considered in respect of this initial SHD phase.

The key urban design considerations during the preparation of the Masterplan were as follows:

- To preserve the memory of the Greenpark Racecourse;
- To maximise connectivity and permeability with adjoining and future developments;
- To promote a healthy working and living lifestyle close to public open space with a high degree of biodiversity and sustainability;
- The provision of well-defined open spaces/ amenity spaces of varying sizes for the enjoyment of the local community.

The key principles that were applied to the proposed project were as follows:

- The creation of a new residential community;
- The creation of a series of new permeable connections to the surrounding areas that are fully compliant with DMURS;
- The creation of a series of high-quality pocket parks and open spaces overlooked by housing;
- The provision of a new neighbourhood with a mix of residential typologies such as apartments, own door duplex and housing, suiting a range of tenures;
- The provision of different character areas which will enhance the setting for the community; and
- The provision of an appropriate residential density in line with national policy and appropriate for the location.

Alternative Design 1 – Initial Massing and Layout

At initial project inception and feasibility stage, a low-density housing scheme was explored, based on market advice surrounding a demand for 3 no. bedroom and 4 no. bedroom houses in the area surrounding the South Circular Road.

This was discounted due to its failure to provide residential density in line with national policy requirements. It was further considered that a mix of typologies would be required not just

to increase the residential density at the site, but to provide a mix of typologies that could meet the needs of different demographics and tenure typologies.

Different internal road layouts were also explored at this stage, including the provision of vehicular access via Log na gCapall. Through consultation with Limerick City and County Council and concerns relating to impact upon the local road network, vehicular connections were orientated solely to/ from Dock Road.

The issues raised at this stage, from an environmental perspective, related to Population and Human Health and Roads and Transportation.

Figure 3.1: Initial inception drawing of the Phase 1 residential scheme.

Alternative Design 2 – The Pre-Application Scheme

Figure 4.2 provides an extract from the Masterplan showing the SHD scheme submitted to An Bord Pleanála and Limerick City and County Council during the pre-application consultation stages of the SHD process. This scheme comprised majority houses and duplexes and one apartment block. The unit mix was designed to respond to the suburban location of the site and the level of public transport connectivity associated with the site.

The Alternative Design 2 resulted in increased residential density, good pedestrian and cyclist permeability and a vehicle access strategy that did not result in adverse impacts upon the local road network. It was however considered by An Bord Pleanála and Limerick City and County Council that the proposed residential density should be further considered in the context of national policy requirements and the locational characteristics of the site.

This scheme resulted in environmental improvements in terms of Population and Human Health and Roads and Transportation.

Figure 3.2: Pre-application Consultation stage SHD scheme in wider Masterplan context.

Alternative Design 3 – The Proposed Project

The proposed project constitutes the final alternative, and preferred, option. The design has been progressed via an iterative process with design amendments arising from consultation with An Bord Pleanála and Limerick City and County Council during the pre-application process. The current design takes account of both planning and environmental considerations and has particular regard to the following items:

- Increased residential density;
- Changes to housing mix, including provision of increased number of smaller units;
- Enhanced potential for future connectivity to adjoining lands; and
- Revised site attenuation.

Figure 3.3: Extract from Design Report prepared by Reddy Architecture + Urbanism showing the final alternative and preferred option.

4.0 POPULATION AND HUMAN HEALTH

Introduction

TPA prepared an assessment of the potential impacts of the proposed SHD development upon population and human health.

In order to assess the likely significant impacts of the proposed development on population and human health, an analysis of recent Census data was undertaken relating to the economic, demographic and social characteristics of the study area. For the purposes of this demographic analysis, the study area comprises 2 No. distinct enumeration areas identified by the Central Statistics Office (CSO) of relevance to the subject development, as follows:

1. The local Electoral Division (ED) study area to which the subject site belongs, comprised of 6 No. ED's within a c. 1km radius of the site (ED Study Area comprised of Ballinacurra A to which the site belongs; Ballinacurra B; Ballycummin; Dock C; Dock D; and Prospect B); and
2. The larger combined Limerick City and County Local Authority (LA) administrative boundary.

Potential Effects during Construction Phase

Social Patterns (Population): During the construction phase of the proposed project, it is unlikely that there will be any significant impact upon social patterns in the surrounding area. The construction phase will result in a number of workers at the site, however, it is not envisaged that their place of residence will change as a result of the development. For example, it is envisaged that construction workers would travel from their existing place of residence rather than moving, temporarily, to the area surrounding the site.

As a result, the impact on the local population during the construction phase is considered to be neutral, not significant and temporary in nature and therefore, no significant impacts are expected to arise in this regard.

Giving consideration to local residents, it is predicted that there may be some impacts which are likely to be associated with construction traffic, nuisance and disturbance. Such impacts are dealt with separately and assessed elsewhere in the EIAR and are considered to be short-term negative impacts.

The level of impact predicted above is considered to align with the normal disturbance associated with the construction industry where a site is efficiently, sensitively and properly managed in the context of surrounding existing neighbouring development. The Construction Environmental Management Plan (CEMP) employs mitigation to address and minimise any potential impacts to nearby residents.

Land use and Settlement Patterns: In terms of land use, the proposed project accords with the statutory land use zoning policies of the Limerick City Development Plan 2010-2016 (as amended) and the national and regional planning policies pertaining to the delivery of housing, the efficient use of currently underutilised land and compact growth.

The construction phase will comprise earthworks and construction works and will not result in any severance of land, loss of rights of way or amenities. However, given the nature of construction, this phase has the potential to result in short-term negative impact due to the temporary degradation of the visual environment.

Economic and Employment Activity: The construction arising from the proposed project is considered to give rise in a positive impact in terms of economic activity within the area. This is likely to include the construction sector and building services industries. The positive impact is expected to last for the duration of the construction phase.

In terms of extent of employment, it is predicted that there will initially be 15-30 no. staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 70-100 no. staff and contractors on site per day. It is anticipated that the key project managers and main contractor representatives will maintain a presence on site for the whole duration of the project and the labour workforce will be determined by the specialist contractors required on site.

In terms of indirect impacts, ancillary local support services such as professional and technical services, retail services, the extraction sector, building support services.

As a result, the proposed project will have a positive, temporary impact upon employment and the economy.

Social Infrastructure and Amenity: During the construction phase, there will be no social infrastructure or amenity provision at the site. The impact is therefore considered to be neutral in that regard.

Due to the presence of construction workers, the use of existing surrounding services and amenities may increase, however it is not considered likely that this would generate a significant adverse impact.

Human Health: The EPA Draft Guidelines (2017) sets out how human health should be considered through assessment environmental pathways through which health could be affected.

The relevant pathways in relation to human health during the construction phase are considered to be air quality, noise and vibration, water and soil.

The expected air quality effects are detailed in Chapter 11 of the EIAR along with proposed mitigation measures to ensure the protection of human health.

Similarly, the potential noise and vibration related impacts arising from the construction phase and associated mitigation measures are contained in Chapter 12 of the EIAR.

As with all construction projects, there will be inherent health and safety risks at this stage of the development. In order to manage this, a *Planning Stage Construction Environmental Management Plan* has been prepared for the project to ensure that the relevant health and safety legislation is complied with.

Potential Effects during Operational Phase on Population

Social Patterns (Population): The proposed development will consist of 371 no. residential units and a childcare facility of 550 sq m. Based on the number of bedspaces proposed, the project has the potential to yield approximately 2,186 no. persons. This will result in a sizeable population addition to the local area but provide much needed homes in the Limerick City area. This will help contribute to the significant demand for housing within Limerick as outlined within national, regional and local planning policy which is not being met at present.

Further to this, the introduction of additional residents to the local area will improve the vibrancy and support existing community and social infrastructure. The proposed childcare facility, designed at a sufficient size to support the child yield arising from the development, will mitigate any pressure upon existing childcare facilities.

In light of the above, it is considered that the proposed project will have a positive, significant and permanent impact on the local population.

Land Use and Settlement Patterns: The site is currently a disused racecourse which is subject to a residential land use zoning objective in the *Limerick City Development Plan 2010-2016*. The proposed project will introduce 371 no. residential units to the site. Which, in addition to bringing a currently underutilised site back into active use, will provide a notable contribution to the delivery of much needed housing in the local area and wider Limerick City area.

The proposed project also constitutes a continuation of existing adjacent residential development and associated social infrastructure.

On this basis, it is considered that the proposed project will have no significant adverse impact upon land use or settlement patterns.

Economic and Employment Activity: The operational phase of the development will result in 371 no. residential units and a 550 sq m childcare facility. Based on the maximum number of bedspaces per unit, the development will yield up to 2,186 no. persons. It is likely that the increase in persons residing in the local area will increase local spending and support a wide range of local businesses, services, transport infrastructure and employment opportunities.

The proposed childcare facility will also generate a small number of employment opportunities.

The impact is therefore considered to be positive and have a medium to long term duration.

Social Infrastructure and Amenity: The proposed project is located on residentially zoned lands, close to existing residential development and in close proximity to a multitude of social infrastructure.

The Social Infrastructure Audit demonstrates that there is a good range of existing social infrastructure in the surrounding area to serve the proposed project. The development will create an increased demand for such services but due to the range of services available, it is not envisaged that the development would result in a significant adverse impact in this regard.

The play areas and public open space included within the development will provide a slight long term positive addition to the local area from a recreational amenity perspective.
Human Health: Given the nature of the proposed project, it is not likely that any significant impacts on health and safety will arise during the operational phase.

The development has been designed to provide a safe environment for future occupiers and visitors. The public realm, inclusive of pathways, roads and communal open spaces, have been designed in accordance with the best practice and relevant planning policy standards. Similarly, the proposed residential units are all designed in accordance with the relevant guidelines and standards and are capable of meeting all relevant building standards and regulations. Having regard to the above, it is considered that the proposed project will result in a high standard of health and safety for all residents and visitors.

Once operational, the proposed project will not result in any significant impact on human health and safety.

Mitigation Measures

Construction Phase: The potential impacts upon human environment relate to other environmental aspects such as air quality, noise and vibration and traffic. Where required, the related mitigation measures are dealt with in the corresponding chapters of this EIAR. Other than this, no significant adverse effects will arise in respect of the population during the construction or operational phase of this development.

Otherwise, all of the proposed mitigation measures contained within the *Planning Stage Construction Environmental Management Plan* will be implemented in respect to potential impacts arising from the construction phase.

Operational Phase: The operational phase is likely to have positive impacts on human beings as a result of the provision of additional residential units, amenity spaces and a childcare facility. The development will contribute to the delivery of additional housing and related facilities for the growing population, in line with national, regional and local planning policy objectives, including the residential zoning objective for the site.

There have been no significant risks to the population and human health identified in respect of the operational phase of the proposed project. The proposed project is considered to have a positive and significant impact and as a result, no further mitigation measures are proposed.

Cumulative Effects

The proposed project, when considered in combination with the nursing home development currently under assessment by LCCC (Reg. Ref. 21/1222) and the permitted residential development at Greenpark Avenue (LCCC Reg. Ref. 17/1190; ABP Ref. 302015-18), is not expected to give rise to significant adverse effects upon population and human health. Any cumulative impacts arising in respect of inter-related environmental topics are outlined in the relevant chapters.

Residual Effects

Adherence to the mitigation measures referred to above will ensure that the proposed project will not give rise to significant adverse effects upon population and human health during the construction and operational phases of the proposed project.

As noted above, the proposed provision of residential accommodation will likely result in significant positive effects for the local area.

5.0 BIODIVERSITY

Introduction

Ecology Ireland Wildlife Consultants Ltd. prepared an assessment of the potential impacts of the proposed SHD development at Greenpark, Co. Limerick on the receiving environment.

Methodology and Baseline Environment

In the Biodiversity Chapter of the EIAR (Chapter 8) the desktop and field surveys that were carried out to inform the ecological impact assessment of the proposed development are described in detail. A separate Natura Impact Statement was also prepared in support of the Appropriate Assessment process.

In addition to a comprehensive desktop review of available ecological information on the site and adjoining lands, a series of field surveys were carried out in 2020 and 2021 to record the fauna, flora and habitats that are present in the receiving environment. The proposed development site is not located within any designated nature conservation area. However, there are seven Natura 2000 sites located within 15km of the proposed development site, the closest of these are; the Lower River Shannon SAC (002165; c. 60m distant) and the River Shannon & River Fergus Estuaries SPA (004077; c. 130m distant). There are 16 NHA and pNHA (nationally designated) sites located within this 15km hinterland area: the closest of which is Inner Shannon Estuary - South Shore pNHA (000435; 0.12km).

A mosaic of habitats are present at the site, dominated by Scrub (WS1), Wet Grassland (GS4), Dry Meadows & Grassy Verges (GS2) and disturbed and recolonising areas of spoil and bare ground (ED2/ED3). There are also areas of Immature Woodland (WS2) and Dry Calcareous and Neutral Grassland (GS1). No plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (i.e. species of which it is a legal offense to disperse, spread or otherwise cause to grow in any place) or classified as a 'risk of high impact invasive species' were present.

The drainage channels in the area were classified as local lower-higher value. However, aquatic survey sites on the hydrologically connected Ballynaclogh River are of international importance given the sites were located within the Lower River Shannon SAC (002165). Furthermore, the channel is known to support a range of transitional fish species including European eel as well as Annex II Otter and the Flora (Protection) Order, 2015 plant species Triangular club rush and Opposite-leaved pondweed. Common Frog was recorded at several locations across the former racecourse site.

The breeding and wintering bird assemblages recorded in the area are typical of the garden, parkland and scrub-type habitats present. There were relatively few waterbirds recorded in the area. Winter bird surveys included night-time walkovers using a thermal imager to record birds present in the hours of darkness.

A total of 9 mammal species (excluding livestock and domestic pets) were recorded on wildlife cameras deployed at the site. Of these several had not previously been recorded in the 2km Grid Squares in which the study area is located (including Red Squirrel, Pine Marten and Stoat). The most frequent and widespread of the non-volant mammals recorded during each period of deployment at the site was Fox, closely followed Wood Mouse. None of the species

recorded is of conservation concern in Ireland. Evidence of the presence of three further non-volant mammal species was noted during the walkovers of the wider racecourse and adjoining lands: Irish Hare, Rabbit and Otter (signs along the Ballynaclogh River). No burrows or resting places of protected mammal species were recorded within (or close to) the proposed development site.

A total of 6 bat species were confirmed to be present at the overall Greenpark site: Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat, Daubenton's Bat, Brown Long-eared Bat and Lesser Horseshoe Bat. Common Pipistrelle was by some distance the most abundant species in the calls recorded from the site. Overall, over 99.5% of the bat calls detected at the study area were accounted for by three species: Common Pipistrelle (72.4%), Leisler's Bat (16.7%) and Soprano Pipistrelle (10.4%). The most notable finding from the bat surveys was the confirmation of Lesser Horseshoe Bats from the study area. None were recorded from within the proposed housing development boundary and overall, only 16 of over 30,000 registrations were Lesser Horseshoe Bat.

Potential Effects and Mitigation Measures

The Biodiversity Chapter of the EIAR presents a detailed assessment of the potential effects of the proposed development (construction phase and post-construction impacts) on the receiving environment. The potential for impacts on hydrologically connected sensitive habitats and species is given particular consideration, given the close proximity of the SHD site to the River Shannon.

An iterative process of Mitigation by Design was employed for the proposed housing development whereby independent ecological expertise was utilised at an early design stage in identifying the ecological constraints and designing the site layout to take account of these constraints. Ecology Ireland was retained at an early stage and fed into the scoping of surveys and preparation of draft Masterplan for the overall Greenpark site. This mitigation by design approach greatly reduces the risks of adverse impacts arising from the development from the outset, on flora, fauna and their habitats. A dedicated planning phase Construction and Environmental Management Plan has been prepared for the proposed development and this provides details of responsibilities and timeframes for the implementation of measures and management controls.

Detailed mitigation measures to address the construction and operational phase risks of impacts on the sensitive habitats and species are presented. With the implementation of the mitigation measures outlined in the EIS it is concluded that the residual impacts will be slight negative, to neutral.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

Introduction

The impact of the proposed SHD at Greenpark on land, soils, geology and hydrogeology has been assessed. The objectives of the assessment were to:

- Produce a baseline study of the existing environment;
- Identify likely significant effects of the proposed development during the construction phase and operational phase of the development;
- Identify mitigation measures to avoid, remediate or reduce significant negative effects and,
- Assess significant residual effects and cumulative effects of each aspect of the proposed project cumulatively and in-combination with other developments.

Potential Effects during Construction Phase

Bulk earthworks are required to reprofile the site to the design levels of the development. It is proposed to keep all soils on site to achieve an earthworks balance. Mitigation measures have been proposed to manage the impact of the development on land, soils, geology and hydrogeology. The mitigation measures principally relate to good construction practice in terms of surface water management and pollution control in relation to fuel, oils and chemicals.

Operational Phase

The operational stage of the residential development consists of the typical activities in a residential area and will not involve significant disturbance on land, soils, geology and hydrogeology.

Cumulative impact

The cumulative impact of other adjacent developments has been assessed. No significant cumulative impacts on land, soil, geology and hydrogeology will occur due to the proposed development.

Conclusion

The development of the project will have a not-significant negative long-term effect on the land, soil, geological and hydrogeological environment, through the application of identified mitigation measures and appropriate management throughout the life cycle of the development.

7.0 HYDROLOGY

Introduction

This chapter assesses the potential impact of the development of the proposed Strategic Housing Development (SHD), on receiving water quality environment and Water Framework Directive (WFD) compliance. Existing water quality in the vicinity of the project is established based on available water quality information and WFD monitoring programmes. The likely significant effects on water quality of the implementation of the SHD are assessed and measures to reduce, avoid and prevent these likely significant effects are proposed, where they are necessary.

Baseline water quality within the receiving environment has been established through review of national monitoring data used to establish water quality status in the context of the EU Water Framework Directive (WFD) and supporting environmental standards.

An assessment has then been made of the components of the development that have the potential to have a significant impact on water quality using criteria for rating significance and magnitude set out in the National Roads Authority (NRA) publication "Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes" (NRA, 2008).

The significance of impact on surface water quality likely to occur during the construction and operation phases of the development are determined through consideration of a combination of receptor sensitivity and the potential magnitude of the impact on the water environment, in order to determine significance.

Mitigation measures are proposed to reduce, avoid and prevent these likely significant effects, where appropriate. This enables a "with mitigation" assessment to be made of any residual impact as a result of the construction and operational phases of the project and/or in combination with other existing or approved projects in the vicinity of the development.

Baseline Environment

The development is located within Ballynaclogh_SC_010 sub catchment and the Shannon Estuary South sub-catchment. The Limerick Dock (IE_SH_060_0900) transitional water body runs parallel to the proposed development and incorporates the tidal reaches of the Ballynaclogh River. The Ballynaclogh_010 (IE_SH_24B040800) river water body is upstream of the Limerick Dock transitional water body. These river and transitional water bodies ultimately discharge into the Upper Shannon Estuary (IE_SH_060_0800). The project lies within the 'Limerick City Southwest' groundwater body (SH-G-141). This water body has achieved 'good' status during the 2013-2018 WFD monitoring cycle. Although, the 2010-2015 monitoring programme recorded 'poor' status as a result of impact of groundwater on surface water ecological status which were attributed to nutrient pressures from agriculture (EPA, www.catchments.ie). All the waterbodies are grouped into the Ballynaclogh_SC_010 sub-catchment (24_10), are within the Shannon Estuary South Catchment (Hydrometric Area 24) in the Irish River Basin District.

The most recent EU Water Framework Directive status classification for the water bodies has been established through a national monitoring programme by the EPA. The Limerick Dock

was classified as “good”, while the Ballynaclogh_010 has not been assigned a status whilst the downstream Upper Shannon Estuary has most recently been reported as “poor” status. The objective for these water bodies is at least ‘good’ water quality.

A significant proportion of the area of the Shannon Estuary South catchment is protected under existing EU legislation requiring special protection due to the sensitivity to pollution or particular environmental importance. All of the areas requiring special protection in the Irish River Basin District have been identified by EPA, mapped and listed in a national register of protected areas (required under Article 6 of the WFD Directive). The project will not have a direct impact on any protected areas. However, there is the potential for water dependent protected areas downstream of the proposed development to be indirectly affected in the event of water pollution, in the absence of mitigation.

These protected areas have their own monitoring and assessment requirements to determine their condition. They are often assessed for additional pollutants or requirements relevant to their designation.

Potential Effects and Mitigation Measures

The SHD has the potential to directly impact upon the Limerick Dock water body given the location of the works. The potential to indirectly impact upon the downstream Upper Shannon Estuary water body and sensitive areas further downstream has also been considered.

The significance of any environmental effect is rated based on the magnitude of the impact and the importance of the attribute. Based on the criteria detailed in NRA Guidelines the receiving environment is considered to be of high importance due to the fact that the water bodies are within the Shannon Estuary South catchment which has nutrient sensitive areas, drinking water protected areas, Natura 2000 sites and shellfish waters. Whilst there will be no direct impact on these areas there is a possibly hydrological link.

Based on the nature of the components of works proposed for this development temporary impacts on water quality have the potential to occur during the construction phase of the works. Mobilised suspended sediment, fuel, oil and cement release through construction activities are the principal potential sources of water quality impact.

The operational phase impacts associated with the project represent general water quality issues associated with surface and foul water drainage. General water quality impacts associated with runoff from parking areas and other hard standing areas that will be directed towards storm water network via gullies and channels. The development has incorporated a variety of Sustainable Drainage Systems (SuDS) techniques to counteract the potential increased runoff as a result of increased hardstanding. SuDS include attenuation by bypass separators on the storm water network, green roofed apartments and creche, permeable paving of driveways and visitor car parks, tree lined areas, infiltration trenches, attenuation tanks, rain gardens, swales as well as, grassed and open space landscape portions of the site. It is proposed that surface water will discharge via attenuation tanks, a class 1 separator and flow control device prior to discharging to the existing surface water network. The development has an existing lagoon, which has sufficient capacity to attenuate flows from the SHD and adjoining lands. After attenuation in the lagoon discharges via the existing outfall structure which allows discharge of water to the river at low tide but prevents backflow into the lagoon in times of high tide.

The foul sewerage from the development will be collected in the existing Irish Water foul water sewer. Foul Water will therefore be collected into the existing system and will be taken forward for appropriate treatment prior to discharge to the receiving environment. Both the surface water and foul system are to be entirely separate developments.

The CEMP includes emergency response procedures to mitigate against contamination to water systems, in particular in relation to oil spillage, uncontrolled silt discharge and sewage spill. The CEMP will also have procedures for monitoring the performance and effectiveness of mitigation measures employed during construction to ensure they are operating as intended and are providing the necessary protection to the receiving environment.

Potential cumulative impacts may arise from the project when combined with other existing and/or approved projects for example a planned nursing home development LCCC Reg. Ref. 21/1222 and an application for 31 residential dwellings (30 no. units permitted) (Reg. Ref. 17/1190 ABP-302015-18). In accordance with the European Commission (2017) and EPA Draft Guidelines (2017), existing and/or approved projects with the potential for cumulative impacts have been identified. Cumulative impact assessments have been undertaken in this section for relevant pressures that could potentially give rise to cumulative impact. Each development with the potential to impact on the water environment has been considered through a review of the environmental supporting information (where available) for the existing or approved developments.

Where the appropriate mitigations measures for water quality are fully implemented during the construction and operational phases, the impact of the project on the water quality in the area will be imperceptible. The project is therefore not expected to have a significant effect on the water quality of the receiving waters either directly, indirectly or cumulatively.

It can therefore be concluded that the project works are compliant with the requirements and environmental objectives of the EU Water Framework Directive and the other relevant water quality objectives for these water bodies.

8.0 AIR QUALITY AND CLIMATE

Potential Effects during Construction Phase and Mitigation Measures

The construction phase dust emitting activities can be effectively controlled by appropriate dust control measures and any adverse effects can be greatly reduced or eliminated. It is anticipated that an agreement on a dust management plan (DMP) or Construction Environmental Management Plan (CEMP) will be reached with the local authority to ensure that any adverse effects are minimised. The dust risks identified have been used to define more site-specific mitigation measures.

Other developments are planned in the vicinity of the Proposed Development. These proposed developments are anticipated to follow DMPs or CEMPs agreed with the local authority and apply appropriate mitigation measures during the construction phase. Therefore, the cumulative impact is considered to be insignificant.

Potential Effects during Operational Phase and Mitigation Measures

The air quality impacts of the Proposed Development on existing receptors and the impact of future local air quality upon the Proposed Development receptors have been assessed. The estimated and predicted nitrogen dioxide (NO_2) and particulate matter concentrations at the assessed receptors for the with development scenarios would not exceed the relevant air quality objectives.

Best practice operational phase mitigation measures to reduce the impact of emissions to air at sensitive receptors are recommended to ensure the air quality impacts are minimised. These include good design principles, and measures to help minimise vehicular trips and encourage more sustainable modes of travel.

All other developments are anticipated to operate as per agreed planning conditions and implement agreed mitigation to minimise air quality impacts. Therefore, the impact is considered to be insignificant.

Emissions to air from construction plant and vehicles and operational phase vehicles would be expected to be the dominant source of greenhouse gas emissions resulting from this development. Due to the size of the proposed development, the impact on national greenhouse gas emission is predicted to be insignificant in terms of Ireland's obligations under the EU 2020 target.

9.0 NOISE AND VIBRATION

Introduction

As assessment of the likely noise and vibration impacts associated with the proposed strategic housing development (SHD) at the former Greenpark Racecourse, Limerick City has been undertaken by RSK.

Baseline Environment

The existing noise climate has been surveyed across the site over the course of typical day and night-time periods. The key noise sources noted at the site were distant and local road traffic. Other sources of intermittent noise included activity in the nearby greyhound stadium, nearby factory operations, birdsong, occasional distant aircraft, distant construction noise and occasional slight wind generated noise on nearby foliage.

Potential Effects and Mitigation Measures

The noise and vibration impact assessment has focused on the potential outward impacts associated with the construction and operational phases of the proposed development, along with the potential inward impact of road traffic on the proposed development itself.

During the construction phase of the project there will be some impact on nearby residential properties due to noise emissions from site traffic and other activities. The application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. The resultant residual noise impact from this source will be of negative, moderate, short-term impact.

During the operational phase, the outward noise impact to the surrounding environment will be limited to noise from any proposed new building services plant, noise due to additional vehicular traffic on public roads and noise due to car parking on site. The impact assessment has concluded that the residual impact of the operational phase of the proposed development will be of neutral, not significant, permanent impact.

A noise risk assessment of the proposed site has been conducted in accordance with relevant guidelines (ProPG) in order to assess the inward noise impact of road traffic on the development. The methodology that has been followed provides a risk-based assessment of the suitability of the proposed site for residential development. The analysis conducted confirms that the site is of Low Risk, in terms of inward noise emissions, and thus is suitable for residential development.

10.0 LANDSCAPE AND VISUAL

Baseline Environment

The site is located within the planning boundaries of the Limerick City Development Plan (2010-2016). The subject site is located to the south of the Dock Road, to the east of the existing Greyhound Stadium. Under the land-use zoning objectives the subject lands are defined as '2A' – 'Residential'., as are lands to the immediate north. Lands to the north-west are zoned '5A' - Mixed/general commercial/industrial/enterprise uses.

There are residential land uses in the wider contextual area. Lands to the north and west are established residential areas, with a mixture of older one-off housing and newer apartment developments.

The closest dwellings are located in the Log Na gCapall residential development, immediately adjacent to the southeast, at approximately 25 metres from the site.

Other dwellings lie further to the, east, north-east and north. These dwellings range from some 60m to the east to over 500 metres further north.

The site is currently accessed via the road leading to the existing Greyhound Stadium, and then by a small vehicular track leading south-east.

Other features of note include The Ballynaclogh River, situated to the south-west, and the large arterial route of the N18.

The site itself forms part of the old Greenpark Racecourse, closed in circa 1999, and is currently unmanaged grassland with colonising stands of vegetation. A large portion of the southern area of the site sits on the demolished racecourse grandstand and ancillary buildings.

The northern portion of the site sits over the old grass racetrack. Within the site some copses of immature vegetation have appeared since 2006 when the grandstand and ancillary buildings were demolished, and the Log Na gCapall development was extended to the west.

In terms of broader site characteristics, Limerick City lies some 2km to the north-east; the land uses between the city and the site are composed of a variety of typical edge of city uses, including commercial, residential, office and retail. Generally, the majority of land uses are residential estates in this area.

The Shannon River is approximately 1.1km to the north-west. The land between the site and the Shannon is mainly commercial and light industrial developments to the north of the Dock Road. To the west lie agricultural lands and the cement factory at a distance of approximately 2km. Some 300 metres to the south, the landscape is bisected by the N18. Beyond this lies further agricultural lands and the Crescent shopping centre, surrounded by low-density suburban housing.

In terms of the sensitivity of landscape, in landscape terms this site is categorised as being within the Limerick City Council Administrative Area and is not included in any other Landscape Character Assessment designations. There are no protected views or prospects and

no Tree Preservation Orders within the site. Furthermore, the site is zoned for development within the Development Plan.

Within the site the ecological assessment has identified some habitats as being of Local Importance (ranging from a lower to a higher value).

There are no Natura 2000 Protected Areas or nationally designated NHA or pNHA within the site. However, the Lower Shannon SAC (002165), running along the Ballynaclogh River, is some 60 metres to the south-west of the site. The River Shannon and River Fergus Estuaries SPA is approximately 130 metres to the north-west of the site, while the Inner Shannon Est. - South Shore pNHA is 110m distance and the Fergus Est. & Inner Shannon - North Shore pNHA is some 590m distance. The adjacency of the Lower Shannon SAC and the on-site habitats of Local Importance have an impact on the sensitivity of the landscape within the site, which would generally be considered medium. This assessment is tempered by the residential zoning designation as per the Limerick City and County Development Plan. This would be characterised as areas with the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area.

In terms of visual sensitivity, visual receptors have greater potential sensitivity to change in the landscape. This sensitivity is reduced by the following existing factors:

- The distances from the site to some of the visual receptors is relatively large and therefore the sensitivity is accordingly diminished.
- Most views from residential dwellings appear to be from 1st floor windows. This results in lower sensitivity as these rooms are potentially un-occupied during daylight hours. However, some duplex units within the Log Na gCapall development are adjacent to the site, whose first floor windows are generally living areas. The sensitivity of these dwellings would be considered to be medium.
- There are visual barriers for many of the receptors, including fencing, existing hedgerows/trees, tree planting, etc.

Sensitivity of views is also mitigated by the residential zoning designation of the lands. Sensitivity of visual receptors is therefore considered to be mainly low. Sensitivity is occasionally moderate/significant for residential receptors that are adjacent to the proposed site with direct views of the proposed development.

Potential Effects and Mitigation – Construction Phase

Landscape: This landscape will undergo a change from that of an area of agricultural fields to a large construction site. This results in a very significant magnitude of change in the landscape.

There will be significantly negative impacts on the landscape associated with the construction works of this development. This will be due to the site clearance and the building processes required to erect the proposed development and associated works.

Visual: Visual impacts during construction will affect all sensitive receptors. This is due to construction activities, vehicles, structures associated with development.

The following recommendations are put forward to mitigate against the negative impacts mentioned above and to reinforce the positive impacts of the proposed development. Mitigation measures are proposed and considered only on the lands of the subject site.

During the construction phase, site hoarding will be erected to restrict views of the site during construction. Hours of construction activity will also be restricted in accordance with local authority guidance. Tree protection measures will be installed to the existing trees and hedges identified on site.

Potential Effects and Mitigation – Operational Phase

Landscape: Short-term landscape impacts after the construction works (up to seven years). Following construction, the main landscape impacts of the proposed development are associated with the change in land use from agricultural lands of medium sensitivity to a more intensified, residential use, as specified in the Limerick City and County Council zoning designation. This is considered to be a moderately negative impact, as the existing landscape is of medium sensitivity.

This short-term impact is likely to persist into the medium and long term in the absence of mitigation measures.

The following recommendations are put forward to mitigate against the negative impacts mentioned above and to reinforce the positive impacts of the proposed development. Mitigation measures are proposed and considered only on the lands of the subject site.

- Planting of native trees and shrubs on raised berms to the proposed roadway leading from Dock Road. This treatment will screen the traffic and associated roadway elements from the potential viewpoints, creating an attractive immediate buffer to the visual environment. softening and screening the development over time.
- Native trees, shrubs and wildflowers will be used where possible throughout the development, particularly in the buffer spaces surrounding the development site. Where native planting is not specified, planting has reference to the All-Ireland Pollinator Plan.
- Where possible, screening of proposed structures with tree lines and woodland planting is proposed.
- Mitigation measures are shown on the submitted landscape drawings. At time of planting, the proposed standard trees in the landscaped buffer zones will be at least 3.0m in height. The trees will reach a mature height of at least 7 to 15 metres, dependant on species within the medium term.

Residual Effects

Landscape: Short-term landscape impacts after the construction works (up to seven years); following construction, the main landscape impacts of the proposed development are associated with the change in land use from agricultural lands of low sensitivity to a more intensified, residential use, as specified in the Limerick City and County Council zoning designation. This is considered to be a moderately negative impact, as the existing landscape is of medium sensitivity.

Medium-term landscape impacts (seven to twenty years); as the existing planting matures on site there will be a slight positive impact upon the subject site. However, the potential cumulative effect of future development of the lands at Greenpark by others, in line with the permitted development to the north-east and future development of lands to the north and south, would result in further development on existing agricultural land.

Long-term landscape impacts (over twenty years); maturing trees and hedgerows will further integrate the proposed development into the existing landscape, resulting in a long term slightly negative impact on the landscape.

Visual: During construction there will be a change to the landscape and there will be negative visual impacts for residents and visitors to the areas adjacent to the site associated with construction activity.

Due to the distance from the proposed development and interceding existing vegetation and boundary treatments, negative effects on views will not be significant for receptors to the north, north-east due to the distance from the site and the oblique views from the assessed areas.

Effects on views from properties immediately to the east, closest to the site will be moderately negative. This is due to the proximity of the site. A screening element consisting of a bank of native trees contributes towards screening the development at this eastern edge.

There will be a slightly negative effect on views towards the site from the south-east. This is due to the screening element of proposed trees and vegetation within the new open spaces that abut this portion of the site.

Monitoring

Construction Phase: Landscape tender drawings and specifications will be produced to ensure that the landscape work is implemented in accordance with best practice. This document will include tree work procedures, soil handling, planting and maintenance. The contract works will be supervised by a suitably qualified landscape architect.

The planting works will be undertaken in the planting season after completion of the main civil engineering and building work.

Operational Phase: This will consist of weed control, replacement planting, pruning etc. All landscape works will be in an establishment phase for the initial three years from planting. A landscape management plan accompanies the planning application. Prior to completion of the landscape works, a competent landscape contractor should be engaged and a detailed maintenance plan, scope of operation and methodology be in place.

Cumulative Effects

There are two current projects immediately adjacent to the site that will have likely significant effects on views. There is a current proposal in the process of planning for a nursing home to the immediate south of the site adjacent to viewpoint 9 (LCCC Reg. Ref. 21/1222), and a recently permitted residential scheme of 31 no. units to the north-east of the proposed development (Reg. Ref. 17/1190 ABP-302015-18) (permitted at a 30 no. unit development).

Further development proposals may occur in line with the zoning designations within the Greenpark lands as per the current Limerick City and County Council Development Plan.

Any further development within the vicinity of the proposed lands could have the possibility of impacting on the same sensitive receptors as identified above. This could lead to potential impacts of a slightly higher level of significance on the identified receptors when assessed cumulatively. These future developments will have further impact on the named receptors above that cannot, at this stage, be fully quantified. The most likely of these potential impacts will be loss of vegetation and an impact on views.

'***Do-Nothing' Effect***

The do-nothing impact refers to the non-implementation of the proposed development. The primary effect of this would be that the impacts and effects identified would not directly occur. In this regard the following issues are relevant.

The current land use of the subject site is not a land use which is likely to persist in the longer term due to the current zoning within the Development Plan. This envisages a considerable development for the land in the proposed development area.

In the event that the development does not proceed it is likely that the subject site would be developed in the future for some residential and open space use in line with its zoning. If the site is left in its current state, the management, or lack thereof, will be likely to continue in its current manner and hence a neutral impact will persist on the existing landscape.

11.0 ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

Introduction

The archaeological, architectural, and cultural heritage assessment of the development at Greenpark examines the potential significance and sensitivity of the existing archaeological and cultural heritage environment and evaluates the likely and significant impacts of the proposed development on this environment. Ameliorative (remedial or reductive) measures are proposed where necessary to safeguard any monuments, features or finds of antiquity or features of local cultural heritage interest that are identified during the course of the present study. The assessment involved a desk study and field inspection within the proposed development area.

Baseline Environment

The proposed development site is located in the townland of Ballincurra (Hart) and civil parish of Saint Michael's, in the barony of Pubblebrien. There are no recorded archaeological monuments within the boundary of the subject site. The closest recorded monument is *c.* 209m from the boundary and is an unclassified castle in Ballinacurra (Hart) (LI013-114--). It is not upstanding. There is some archaeological potential on the subject site due to its proximity to the River Shannon. There are no protected structures, or structures in the National Inventory of Architectural Heritage (NIAH) recorded within or immediately adjacent to the proposed development site. The nearest NIAH structure is c. 209m from the subject site. Nothing of archaeological or architectural interest was noted as upstanding during the walkover inspection.

Potential Effects

It is possible that the groundworks associated with the development of the subject site may negatively impact on unrecorded subsurface archaeology, or less likely, subsurface historical architectural features, destroying them without record.

Recommendations

It is recommended that pre-construction archaeological testing be undertaken on the portion of the subject site that was previously undisturbed, and should archaeological remains be encountered during this exercise, then further advice will be sought from the National Monuments Service (NMS) on how best to deal with that archaeology. This may include preservation *in situ* or preservation by hand (archaeological excavation).

It is recommended that the portion of the site previously disturbed and filled in its southern portion should be archaeologically monitored during construction ground works. In the event that archaeological remains are uncovered during monitoring then works will cease in that area pending a decision on how best to deal with the remains. The NMS will advise on whether preservation *in situ* or preservation by record is the most suitable means of mitigation. All mitigation requirements will be subject to approval by the NMS of the Dept of Housing, Local Government, and Heritage and the planning authority.

12.0 MICROCLIMATE – DAYLIGHT AND SUNLIGHT

Daylight

ARC Architectural Consultants Ltd has been commissioned by the Applicant to carry out an analysis of the impact of the proposed development on lands at Greenpark Racecourse, Limerick on daylight access in the surrounding area. The application site, which includes a former racecourse, is largely vacant and is surrounded on three sides by greenfield lands. Given this, it is to be expected that the construction of any new development on these lands has the potential to result in a change to the daylight environment within existing buildings.

A three dimensional digital model of the proposed development, of nearby planned and permitted developments, and, of existing buildings in the area was constructed by ARC Consultants based on drawings and three dimensional models supplied by the Design Team; on drawings and information available from the online planning register; and with reference to on-site, satellite and aerial photography. ARC analysed the three digital models of the proposed development, of nearby planned and permitted developments and of the existing buildings surrounding the development site using proprietary sunlight and daylight analysis software in order to quantify the likely impact of the proposed development on daylight access within chosen sample rooms in buildings in close proximity to the development site.

ARC's analysis did not identify any existing buildings to the south, west or north of the application site that are sufficiently close to the site to have the potential to experience impacts on daylight access as a result of the construction of the proposed development. ARC's analysis indicates that the construction of the proposed development is likely to result in little or no change in daylight access within neighbouring existing buildings. The potential impact of the proposed development on daylight access within neighbouring existing residences surrounding the application site (e.g. on residential lands to the east of the site at Log Na gCapall and Greenpark Avenue) is, therefore, likely to range from none to "imperceptible" to "not significant".

ARC's analysis further indicates that there is a potential for the proposed development, in combination with nearby planned and permitted developments, to result in cumulative impacts on daylight access within existing buildings. However, notwithstanding this, the overall cumulative impact of the proposed development, in combination with nearby planned and permitted developments, on daylight access within neighbouring existing buildings at Log Na gCapall is also likely to fall in the range of "imperceptible" to "not significant".

While permission has been granted for the development of 30 no. residential dwellings and associated development (LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18) on lands to the east of the application site at Greenpark Avenue, South Circular Road, this development has yet to be constructed. ARC's analysis indicated that, if it were assumed that the planned nursing home development (LCC Reg. Ref. 21/1222) and the residential development permitted under LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18 were constructed, the construction of the proposed development would result in little or no impact on daylight access to houses permitted under LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18. The impact of the proposed development, in combination with the planned nursing home development, on daylight access to the permitted (but not yet constructed) residential development at Greenpark Avenue would range from none to "imperceptible".

Given that the potential for development to result in effects on daylight access diminishes with distance, it is the finding of ARC's analysis that the proposed development will have no undue adverse effect on daylight access within buildings in the wider area surrounding the application site.

Sunlight

ARC Architectural Consultants Ltd has been commissioned by the Applicant to carry out an analysis of the impact of the proposed development on lands at Greenpark Racecourse, Limerick on sunlight access to the surrounding area. The application site, which includes a former racecourse, is largely vacant and is surrounded on three sides by greenfield lands. Given this, it is to be expected that the construction of any new development on these lands has the potential to result in a change to the shadow environment surrounding the application site.

A three dimensional digital model of the proposed development, of nearby planned and permitted developments and, of existing buildings in the area was constructed by ARC Consultants based on drawings and three dimensional models supplied by the Design Team; on drawings and information available from the online planning register; and with reference to on-site, satellite and aerial photography. Using the digital model, shadows were cast by ARC at several times of the day at the equinox and presented on shadow study diagrams submitted with this Environmental Impact Assessment Report. ARC also analysed the three digital models of the proposed development, of nearby planned and permitted developments and of the existing buildings surrounding the development site using proprietary sunlight and daylight analysis software in order to quantify the likely impact of the proposed development on windows with a reasonable expectation of sunlight within chosen sample rooms in buildings and on existing amenity areas in close proximity to the development site.

ARC's analysis indicates that shadows cast by the proposed development have the potential to extend beyond the western boundary of the site during the mornings throughout the year. However, the extent of additional overshadowing of lands to the west is likely to be minor and, as lands to the west are undeveloped, the potential for material impacts to arise on the shadow environment are low. Similarly, shadows cast by the proposal have the potential to extend to undeveloped lands to the north at various times of the day around mid winter when the sun is low and to undeveloped lands to the south during the early mornings and late evenings around mid summer. The potential impact of shadows cast by the proposed development on sunlight access to lands to the west, north and south of the application site is assessed as ranging from none to "imperceptible" to "not significant".

To the east, the proposed development has the potential to result in minor additional overshadowing of residential lands at Greenpark Avenue and Log Na gCapall during the afternoons and evenings throughout the year. The potential impact of shadows cast by the proposed development on sunlight access to lands to the east of the application site is assessed as ranging from none to "imperceptible" to "not significant".

ARC's analysis further indicates that there is a potential for the proposed development, in combination with nearby planned and permitted developments, to result in cumulative impacts on sunlight access to the area surrounding the application site. ARC's analysis indicates that the cumulative impact of the proposed development, in combination nearby planned and permitted developments, on sunlight access to neighbouring residential lands to

the east at Log Na gCapall is likely to fall in the range of "imperceptible" to "slight" under a worst case scenario.

While permission has been granted for the development of 30 no. residential dwellings and associated development (LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18) on lands to the east of the application site at Greenpark Avenue, South Circular Road, this development has yet to be constructed. ARC's analysis also indicated that, if it were assumed that the planned nursing home development (LCC Reg. Ref. 21/1222) and the residential development permitted under LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18 were constructed, the construction of the proposed development would result in little or no impact on sunlight access to houses permitted under LCC Reg. Ref. 17/1190; ABP Ref. ABP-302015-18. The impact of the proposed development, in combination with the planned nursing home development, on sunlight access to the permitted (but not yet constructed) residential development at Greenpark Avenue would range from none to "imperceptible" to "slight" on those houses and gardens closest to the application site boundary.

13.0 MATERIAL ASSETS – ROADS AND TRAFFIC

Introduction

The proposed residential development is located in Greenpark, approximately 2 km to the southwest of Limerick City with good access to public transport and the Dock Road. The Proposed Development has the potential to affect pedestrians, cyclists, public transport and vehicular traffic during the construction and operational phases.

The proposed residential development is Phase 1 of an overall Masterplan for Greenpark. The masterplan development will include additional residential units, office accommodation, neighbourhood centre, a café, a nursing home and open space.

As per the request of Limerick City and County Council (LCCC), the impact of the proposed residential development on the existing Greenpark Roundabout on the Dock Road was assessed. LCCC also requested the development traffic from the masterplan development to also be assessed which included analysis of the Cahirduff Rd/Dock Road signalised junction, Log na gCapall and Greenpark Avenue. The details of this analysis are provided in the PUNCH Traffic and Transportation Assessment (TTA) prepared for this planning application. The analysis determined that there will be a slight long term neutral impact to local traffic.

Potential Effects – Construction Phase and Mitigation Measures

Construction operations on site and deliveries to the site will be in accordance with the Construction and Environmental Management Plan (CEMP).

Construction traffic will access the site via the existing eastern arm of the Greenpark Roundabout. The traffic volume associated with the construction phase is not considered to be excessive, will be spread out over the duration of the construction period of the development, and there will be no significant disruption to the traffic flows on the Dock Road. A Construction Traffic Management Plan (CTMP) and Construction & Demolition Plan will be prepared by the appointed Contractor prior to commencement of any works. The CTMP will identify haulage routes and restrictions, construction traffic and times and an assessment of the nearby employment, education and commercial facilities to establish peak times, which will inform the optimum start/finish/delivery times to minimise impacts.

Potential Effects – Operational Phase and Mitigation Measures

There is likely to be a slight long-term neutral impact on the surrounding roads as a result of the proposed development. The Greenpark Roundabout is currently exceeding theoretical capacity.

The design of the site layout, roads and accesses are in accordance with the relevant guidelines and codes of practice which is likely to mitigate any potential roads and traffic impacts during the operational phase.

In conclusion, it is considered that the development will have a slight long term neutral impact in traffic and transport terms with the mitigation measures proposed implemented.

14.0 MATERIAL ASSETS – WASTE MANAGEMENT

Introduction

The impact of the proposed SHD at Greenpark on waste management has been assessed. The site is currently undeveloped. There is therefore no waste currently generated from the site.

The objectives of the assessment were to:

- Produce a baseline study of the existing environment.
- Identify likely significant effects of the proposed development during the construction phase and operational phase of the development.
- Identify mitigation measures to avoid, remediate or reduce significant negative effects.
- Assess significant residual effects and cumulative effects of each aspect of the proposed project cumulatively and in-combination with other developments.

Potential Effects – Construction Phase and Mitigation Measures

Bulk earthworks are required to reprofile the site to the design levels of the development. It is proposed to keep all soils on site to achieve an earthworks balance and therefore minimise spoil generation. Construction and Demolition (C&D) waste will be generated during the construction process, the anticipated volumes of each waste stream have been estimated. Details on the management of waste during the construction phase are presented in the Construction Waste Management Plan (CWMP). Mitigation measures have been proposed to manage the impact of the development on waste management during construction.

Potential Effects – Operational Phase and Mitigation Measures

The operational stage of the development will generate domestic waste streams that will be generally managed through good design practice and regular collection regimes. Details on the management of waste during the operational phase are presented in the Operational Waste Management Plan (OWMP). Mitigation measures have been proposed to manage the impact of the development on waste management during the operational phase.

Cumulative impact

The cumulative impact of other adjacent developments has been assessed. The cumulative impact during construction will be short term if construction of adjacent developments overlaps with construction of the SHD. The cumulative impact during the operational phase will be an overall increase in waste generation and associated management over life of the development.

Conclusion

Overall, the construction phase of works is not expected to have any significant waste generation with a low to moderate and short-term impact. The use of the site post development, will generate domestic refuse, managed as part of a collection regime. While the effects will be cumulative and long term, the impacts will be low to moderate on the basis of good waste management practices.

15.0 MATERIAL ASSETS – BUILT SERVICES

A review of the material assets built services of the site carried out by PUNCH Consulting Engineers and Woods PS Building Services Engineers to assess the likely effects of the proposed development on the built services and infrastructure present in the environment which may be impacted as a result of the project.

Potential Effects – Construction Phase and Mitigation Measures

Foul Water Disposal: The proposal will involve providing a connection to the existing foul water infrastructure. The connection will be made before the development is occupied. The impact is likely to be neutral, imperceptible and temporary.

Surface Water Disposal: The proposal will involve providing a connection to the existing surface water infrastructure, a connection to the existing surface water sewer from Log na gCapall, a proposed manhole at the site boundary to accommodate attenuated surface water flows from the proposed nursing home (planning reference 21/1222) and a proposed manhole at the site boundary to accommodate a future surface water sewer from the proposed residential development on Greenpark Avenue, planning number 17/1190 (ABP-302015-18). The connections will be made before the development is occupied. The impact is likely to be neutral, imperceptible and temporary.

Potable Water Supply: The proposal will involve providing a new connection to the existing potable water supply network. There is potential for some short-term impacts by way of disruption in water supply due to these works to facilitate connecting the development to the existing public water supply network. This could lead to disruption in water supply to nearby residences and buildings for short periods. The potential impact on the local public water supply network is likely to be negative, not significant and temporary.

Natural Gas Supply: As there is no requirement for Gas this will not impact the site. The impact is likely to be not significant.

Electrical Supply: We have engaged the ESB and they have advised that there is capacity in both the HV & LV network to facilitate the project. The impact is likely to be neutral, imperceptible, and temporary.

Information and Communications Technology: EIR Duct network is to be extended along roadway to service the SHD. The impact is likely to be neutral, imperceptible and temporary.

Potential Effects – Operational Phase and Mitigation Measures

Foul Water Disposal: The impact of the proposed SHD development on the public foul sewerage system is likely to be an increase in the quantity of wastewater discharging to the Bunlicky Waste Water Treatment Plant, Dock Road, Limerick.

A pre-connection application enquiry (Customer Reference No. CDS20006611) was issued to Irish Water in October 2020 and a response was received in December 2020 stating that "subject to a valid connection agreement being put in place, your proposed connection to Irish Water network(s) can be facilitated."

The potential impact of the proposed SHD development on the public foul sewerage system is likely to be negative, slight and long term.

Surface Water Disposal: It is proposed that surface water will discharge to an existing lagoon via surface water sewers, attenuation tank, class 1 bypass separator and flow control device that were designed to receive unattenuated surface water from the proposed SHD development. The potential impact of the proposed SHD development on the surface water network is likely to be neutral.

Potable Water Supply: The impact of the proposed SHD development on the public water supply is likely to be an increase in demand on the existing supply.

A pre-connection application enquiry (Customer Reference No. CDS20006611) was issued to Irish Water in October 2020 and a response was received in December 2020 stating that "subject to a valid connection agreement being put in place, your proposed connection to Irish Water network(s) can be facilitated."

The potential impact of the proposed SHD development on the public water supply network is likely to be negative, slight and long term.

Natural Gas Supply: As there is no requirement for Gas this will not impact the site. The impact is non existent.

Electrical Supply: The impact of the proposed SHD development on the electricity supply is likely to be an increase in demand on the existing supply. We have engaged Dan Clancy of the ESB and he has advised that there is capacity in both the HV & LV network to facilitate the project. The potential impact of the proposed SHD development on the electricity network is likely to be neutral.

Information and Communications Technology: EIR Duct network is to be extended along roadway to service the SHD. The potential impact of the proposed SHD development on the electricity network is likely to be neutral.

16.0 INTERACTIONS

16.1 Introduction

Schedule 6 Item 2(d) of the Planning and Development Regulations, 2001 as amended requires that projects are examined with regard to the inter-relationship of aspects referred to in Item 2(d) of Schedule 6.

The matrix incorporated in Table 19.1 inter-relates the various Chapters of the EIAR to the various impact headings referred to in Schedule 6 Item 2(d) of the Planning and Development Regulations, 2001, As Amended. This matrix does not represent a form of relative assessment of impacts, but merely identifies and amalgamates areas of principal interaction.

16.2 Description of Potential Interactions

Population and Human Health

All environmental factors interact with Population and Human Health (Chapter 7). The key areas of interactions are:

- Land, Soils, Geology and Hydrogeology
- Air and Climate
- Noise and Vibration
- Landscape and Visual
- Daylight and Sunlight
- Waste

There are no significant adverse effects for Population and Human Health.

Biodiversity

The water environment and impact on water quality has the potential to impact on water dependent habitats and species in the water bodies affected and therefore there is a strong interaction with biodiversity. The key areas of interaction are considered to be:

- Hydrology
- Land, Soils, Geology and Hydrogeology
- Landscape and Visual

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Land, Soils, Geology and Hydrogeology

The earthworks for the site has the potential to impact on the surface water quality, by silt generated from runoff or chemicals/oils from construction vehicles carrying out the works.

Potential health effects arise mainly through the potential for soil and ground contamination. Residential developments are not a recognized source of significant potential pollution and so the potential for effects during the construction and operational phases are not of concern.

The key areas of interaction are:

- Biodiversity
- Hydrology
- Population and Human Health

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Hydrology (Surface Water)

The water environment and impact on water quality has the potential to impact on water dependent habitats and species in the water bodies affected and therefore there is a strong interaction with biodiversity. The protection of the water environment will help to ensure that biodiversity is not significantly impacted by the implementation of the SHD.

Geology and soils also have a strong interaction with the water quality with the interaction of surface and sub surface water important to the generation of run-off and the mitigation of same. The key areas of interaction are therefore considered to be:

- Biodiversity
- Land, Soils, Geology and Hydrogeology

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Air Quality and Climate

Both the construction and operational phases of the proposed project have the potential to result in dust soiling and possible exposure to air quality pollutants. The key areas of interaction are therefore:

- Population and Human Health
- Biodiversity
- Roads and Traffic

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Noise and Vibration

Noise and vibration interacts with human health, especially during the construction phase of the project there will be some negative impact on nearby noise sensitive locations due to noise/vibration emissions from construction activity. In terms of construction noise emissions to nearby off-site receptors, provided that noise emissions are controlled to comply with the recommended significance thresholds, as outlined in previous sections, and considering the short-term nature of the works, the potential health impacts associated with construction noise is not significant.

There is also interaction between noise and additional traffic arising from the development, both during the operational phase.

The key areas of interaction are therefore considered to be:

- Population and Human Health
- Roads and Traffic

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Landscape and Visual

The long-term effects of the proposed development will have a positive effect on the tree cover associated with the development and the inclusion of native species of shrub planting.

The proposed project generates visual effects. The landscape and visual impact associated with human beings focuses on the effects to dwellings.

The key areas of interaction are therefore considered to be:

- Population and Human Health
- Biodiversity

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Cultural Heritage, Archaeology and Architectural

No interactions are identified in respect of Cultural Heritage, Archaeology and Architectural.

Microclimate – Daylight/ Sunlight

The proposed project will result in a change to the sunlight environment of an area. It is therefore considered that impacts upon sunlight access will result in interactions with the following factors:

- Population and Human Health
- Landscape and Visual

It is noted that an interaction with Daylight and Sunlight is not explicitly identified within the Landscape and Visual Chapter. The author of that Chapter is of the professional opinion that as there are no significant changes arising from the proposed project in respect of daylight and sunlight there is no material interaction between the two Chapters.

On the basis that there are no significant adverse effects expected in this regard, the potential interaction between Daylight and Sunlight and Landscape and Visual is not considered to change the overall conclusions of this EIAR.

Material Assets - Roads and Traffic

The changes to traffic in the surrounding area during both the construction and operational phase of the development is considered to interact with air quality and noise related impacts. The key areas of interaction are therefore considered to be:

- Air Quality and Climate
- Noise and Vibration

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Material Assets – Waste Management

The construction and operational phases of the proposed project will generate waste which has the potential to interact with human health. The key areas of interaction are therefore considered to be:

- Population and Human Health

Subject to adherence to the proposed mitigation measures, no significant adverse impacts are anticipated.

Material Assets – Built Services

No interactions are identified in respect of Built Services.

16.3 Summary Interactions Table

Table 16.1 provides a summary of the interactions between potential environmental effects that have been identified in this EIAR.

Table 16.1: Matrix of Interactions Between Environmental Factors

Interactions Between Environmental Factors												
	Population & Human Health	Biodiversity	Land, Soils, Geology and Hydrogeology	Hydrology	Air Quality/ Climate	Noise & Vibration	Landscape & Visual	Cultural Heritage, Archaeology and Architectural	Daylight and Sunlight	Roads and Traffic	Waste	Built Services
Population & Human Health			✓		✓	✓	✓		✓		✓	
Biodiversity			✓	✓			✓					
Land, Soils, Geology and Hydrogeology				✓								
Hydrology												
Air Quality/ Climate										✓		
Noise & Vibration										✓		
Landscape & Visual									✓			
Cultural Heritage, Archaeology and Architectural												
Daylight and Sunlight												
Roads and Traffic												
Waste												
Built Services												

17.0 CUMULATIVE IMPACTS

17.1 Introduction

This Chapter has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area.

Cumulative impact is defined by the EU Guidelines as:

> *"Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. For example:*
>
> - *Incremental noise from a number of separate developments;*
> - *Combined effect of individual impacts, e.g. noise, dust and visual, from one development on a particular receptor; and*
> - *Several developments with insignificant impacts individually but which together have a cumulative effect."*

17.2 Committed Development

In terms of committed development, a search of Limerick City and County Council and An Bord Pleanála's websites has been conducted. The following development with planning permission has been identified for the purposes of this cumulative assessment: LCCC Reg. Ref. 17/1190; ABP ref. 302015-18. The description of development is as follows:

> *"The construction of a housing development of 31 no. residential dwellings consisting of 11 no. detached dwelling, 20 no. semi detached dwellings with ancillary roads and infrastructure. Permission is also sought for the upgrade of Greenpark Avenue consisting of the installation of speed ramps, the realignment of the junction of Greenpark Avenue with the South Circular Road and the installation of a table top at the junction of Greenpark Avenue and South Circular Road with speed ramps at each approach…"*

It is noteworthy that planning condition no. 2 requires the omission of house no. 25 and therefore, the permitted scheme comprises 30 no. houses.

Each environmental issue assessed within this EIAR has been considered in respect to the cumulative impact of the proposed project with the above referenced development.

17.3 Planned Development

In terms of planned development, an application for a proposed nursing home development has been submitted to LCCC by the Applicant in respect of the land in the south eastern corner of the wider former Greenpark Racecourse lands (LCCC Reg. Ref. 21/1222). The land is within the ownership of the Applicant for the current SHD application and forms part of the site wide Masterplan for the lands.

This application has been considered as part of cumulative assessment. The description of development is as follows:

"Voyage Property Limited intend to apply for permission for development for a nursing home at this site of c.1.3 ha, in the south-eastern part of the former Greenpark Racecourse, Dock Road, Limerick. The site is principally bound by existing undeveloped lands to the north, south and west and the adjoining Log na gCapall Housing Estate to the east. The proposed nursing home will be accessed via Log na gCapall, via an existing access point.

The development will be 4 storeys in height with a total gross floor area of c.5,237 sq m, consisting of 123 no. rooms, comprising 126 no. bedspaces (120 no. single rooms and 3 no. double rooms) and ancillary facilities, including 777 sq m of day space.

The development will also consist of soft and hard landscaping including 2,954 sq m of open space; 32 no. surface car parking spaces (including 3 no. electric parking spaces); bicycle parking; internal roads and pathways; boundary treatment including sloped embankments; SUDS measures including green roof; piped infrastructural services and connections; plant; revised tie-in arrangements to Log na gCapall (including road widening); waste management provision; public lighting; earthworks; and all site development and excavation works above and below ground."

Each environmental issue assessed within this EIAR has been considered in respect to the cumulative impact of the proposed project with the above referenced development.

17.4 Conclusions

Having regard to the above, this EIAR considers the total impact associated with the proposed project, in combination with committed and planned development within the area surrounding the site.

Each chapter that covers an environmental aspect has specific regard to any potential cumulative impacts arising from the proposed project in combination with the above identified projects. It is considered that no significant cumulative impacts are likely to arise.

18.0 ENVIRONMENTAL COMMITMENTS/ MITIGATION MEASURES

This Chapter provides a consolidated list of all of the environmental commitments/ mitigation measures that have been recommended by the various specialists throughout the Chapters of this EIAR.

The mitigation and monitoring measures have been recommended on that basis that they are considered necessary to protect the environment during both the construction and operational phases of the proposed project. A summary table is provided in Chapter 21 of Volume 2.

APPENDIX 1

Details in respect of the competence of the various experts

Name	Role	Company	Qualification/ Experience
Lizzie Donnelly	EIAR Project Manager, Planner, Co-ordinator and Population and Human Health.	Tom Phillips + Associates	• MA (Planning, Policy and Practice) • Associate Planner • Corporate Member of the Irish Planning Institute (IPI) and Chartered Member of the Royal Town Planning Institute (RTPI) • Over 7 years' experience in Planning and EIA.
Gavin Fennessy	Biodiversity Assessment	Ecology Ireland Ltd.	• BSc (Zoology) PhD MCIEEM • Director & Principal Ecologist • Full member of the Chartered Institute of Ecology & Environmental Management (CIEEM) • Member of Irish Policy Group of CIEEM • Over 20 years of experience in professional consultancy, acting as lead ecological consultant on numerous projects including large infrastructural developments. • Guest Lecturer at University College Cork on topics including Environmental Impact Assessment & Appropriate Assessment.
Daniel Hopkins	Land, Soils, Geology Assessment	Gavin + Doherty Geosolutions	• Senior Engineering • Geologist BSc (Hons) Geology) • eight years post graduate experience. • Associate Member of Royal Institute of Chartered Surveyors
Joseph McGrath	Hydrogeology Assessment	RPS	• BSc Biochemistry MSc Applied Environmental Science • Chartered Water and Environmental Manager with the Chartered Institute of Water and Environmental Management (CIWEM) • Chartered Scientist • Over 15 years experience with contaminated land and EIA
Mark Magee	Hydrology Assessment	RPS	• Technical Director • Chartered Scientist (CSci), Chartered Environmentalist (CEnv), Chartered Water and Environmental Manager (CWEM), Member of the Chartered Institute of Water and

			Environmental Management (MCIWEM) • Over 22 years' experience in Environmental Assessment and Catchment Management
Christina Higgins	Air Quality and Climate Assessment	RSK	• Chartered Environmentalist (CEnv) with PhD in Chemistry, University of Bristol • Senior Air Quality Consultant • Full member of the Institute of Environmental Science (MIEnvSc), full member of the Institute for Air Quality Management (MIAQM) and associate member of the Royal Society of Chemistry (AMRSC) • Over 7 years' experience as project manager for air quality consultancy, modelling and monitoring, including EIAR and development planning applications.
James Mangan	Noise and Vibration Assessment	RSK	• PgDip (Acoustics and Noise Control), University of the West of England • Associate Director • Corporate Member of the Institute of Acoustics (MIOA) • Chairman of the Irish Branch of the Institute of Acoustics; • Over 16 years' experience in Planning and EIA Noise & Vibration Chapters.
Jim Bloxham	Landscape and Visual Assessment	Murray + Associates	• Senior Associate • Master's in Landscape Architecture • Full corporate Member of the Irish Landscape Institute • Over 8 years experience in LVIA.
Frank Coyne	Cultural Heritage Assessment	Aegis Archaeology Ltd.	• BA (Archaeology and History NUIG) and H Dip in Ed (NUIG) • Currently undertaking an MA in Conservation of the Historic Environment (Birmingham City University). • Founder member of the Institute of Archaeologists of Ireland (AIA) • Director of Aegis Archaeology Ltd since 1998, with 23 years experience in EIAR and Archaeological and Cultural Heritage Impact Assessments.
Amy Hastings	Microclimate – Daylight and Sunlight Assessment	ARC Architectural Consultants Ltd.	• BCL BL MSc. (Spatial Planning) MIPI • Over 17 years' experience in undertaking sunlight and daylight analysis

Julie Tiernan	Roads and Traffic Assessment	PUNCH Consulting Engineers	• Julie Tiernan BE MSc CEng MIEI • Julie is a Technical Director at PUNCH consulting engineers. • Over 15 years' experience as a civil/traffic engineer.
Tim O'Shea	Waste Assessment	Gavin + Doherty Geosolutions	• BE CEng, MIEI • Civil Engineer with 18 years post graduate experience
Donal Gallery Aiden O'Connell	Built Services Assessment	PUNCH Consulting Engineers	Donal: • BEng MIEI • Donal is a Technical Director at PUNCH consulting engineers. • Over 14 years' experience as a civil engineer. Aiden: • BE CEng MIstructE CEng MIEI • Aidan is a Director at PUNCH consulting engineers. • Over 20 years' experience as a civil/structural engineer.
Norman Woods	Built Services Assessment	WoodsPS Ltd.	• BEng MCIBSIE • Managing Director WPS • Over 20 Years Experience • Building Services Eng