3. REASONABLE ALTERNATIVES

3.1 Introduction

Article 5(1)(d) of Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) as amended by Directive 2014/52/EU (the EIA Directive) requires that the Environmental Impact Assessment Report (EIAR) prepared by the developer contains *"a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment."*

Article 5(1)(f) of the EIA Directive requires that the EIAR contains *"any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected."*

Annex IV of the EIA Directive states that the information provided in an EIAR should include a *"description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

This section of the EIAR presents a description of the reasonable alternatives studied by the developer, relevant to the Proposed Development and its specific characteristics, including site location, layout, unit types, design, construction methods and the project's size and scale.

The consideration of alternatives is an effective means of avoiding environmental impacts. As set out in the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR)* (EPA 2022)[1], the presentation and consideration of reasonable alternatives investigated is an important part of the overall EIA process.

It is important to acknowledge that although the consideration of alternatives is an effective means of avoiding environmental impacts, there are the existence of difficulties and limitations when considering alternatives. These include hierarchy, non-environmental factors and certain site-specific issues as outlined below.

Hierarchy

EIA is concerned with projects. The EPA guidelines (EPA, 2022) state that, in some instances, neither the applicant nor the competent authority can be realistically be expected to examine options that have already been previously determined by a higher authority, such as a national plan or regional programme for infrastructure which are examined by means of a Strategic Environmental Assessment (SEA), the higher tier form of environmental assessment.

Non-environmental Factors

EIA is confined to the potential significant environmental effects and that influences consideration of alternatives. However, other non-environmental factors will be important to the developer of a project, for example project economics, land availability, engineering feasibility or planning considerations.

[1] *Environmental Protection Agency (EPA), 2022. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR). [online] Available at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf*

Site Specific Issues

The consideration of alternatives also needs to be set within the parameters of the availability of the land, i.e. the site may be the only suitable land available to the developer, or the need for the project to accommodate demands or opportunities that are site-specific. Such considerations should be on the basis of alternatives within a site itself, such as variations in design and layout.

3.2 Consideration of Alternatives

3.3 Methodology

The European Union Guidance Document[2] (EU, 2017) on the preparation of EIAR outlines the requirements of the EIA Directive and states that, in order to address the assessment of reasonable alternatives, the developer needs to provide the following:

- A description of the reasonable alternatives studied; and,
- An indication of the main reasons for selecting the chosen option with regards to their environmental impacts.

There is limited European and National guidance on what constitutes a 'reasonable alternative' however the EU Guidance Document[2] (EU, 2017) states that reasonable alternatives "*must be relevant to the proposed project and its specific characteristics, and resources should only be spent assessing these alternatives.*"

The guidance also acknowledges that *"the selection of alternatives is limited in terms of feasibility. On the one hand, an alternative should not be ruled out simply because it would cause inconvenience or cost to the developer. At the same time, if an alternative is very expensive or technically or legally difficult, it would be unreasonable to consider it a feasible alternative."*

The EPA Guidelines[1] (EPA, 2022) state that "*It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required.*"

Consequently, taking consideration of the legislative and guidance requirements into account, this chapter addresses alternatives under the following headings:

- 'Do-Nothing' Alternative;
- Alternative Sites
- Alternative Layouts
- Alternative Design Considerations
- Alternative Processes
- Alternative Routes; and
- Alternative Mitigation Measures.

Each of these is addressed in the following sections.

3.4 "Do-Nothing Alternative"

Article IV, Part 3 of the Directive 2014/52/EU states that the description of reasonable alternatives studied by the developer should include *"an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge."* This is referred to as the 'Do-nothing' Alternative. The *Environmental Impact Assessment of Projects:*

Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)[2] states that this should involve the assessment of "*an outline of what is likely to happen to the environment should the project not be implemented – the so-called 'do-nothing' scenario."*

If the Proposed Development was not to proceed, the opportunity to develop 362 no. residential units comprising a mixture of houses, apartments, open space, landscaping and ancillary works at this appropriately zoned site would be lost.

A comparison of the potential environmental effects of the 'Do-Nothing' Alternative when compared against the chosen option of constructing a Large-Scale Residential Development (LRD) at this site are presented in Table 3-1 below.

Table 3-1 Comparison of environmental effects when compared against the chosen option (upgrades)

Environmental Consideration	Do Nothing Alternative	Chosen Option (Development of Large-Scale Residential Development (LRD))
Population & Human Health	No new build residential units available locally and regionally at a time when there is a significant shortage of housing in Ireland. No potential for dust and noise to affect sensitive receptors.	362 new residential homes introduced to the housing market in Galway. The Proposed Development would help alleviate a chronic housing shortage in Galway City and its environs. Based on the assessment detailed in Chapter 9 Air, Chapter 10 Climate and Chapter 11 Noise & Vibration and the mitigation measures proposed, there will be no significant effects related to air quality and noise from the Proposed Development.
Biodiversity (including Bats)	No habitat loss	The development has been designed to avoid or minimise impacts on biodiversity. Areas of scrub and trees will be removed as part of the proposed construction works. However, a number of biodiversity enhancement measures are proposed and outlined in Chapter 6-Biodiversity. Following consideration of the residual

[2] *European Commission, 2017. Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report. Available at: https://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf .*

Environmental Consideration	Do Nothing Alternative	Chosen Option (Development of Large-Scale Residential Development (LRD))
		effects (post mitigation) it is concluded that the Proposed Development will not result in any significant effects on any of the identified key ecological receptors.
Land, Soils & Geology	No excavation works carried out.	Based on the assessment in Chapter 7, no significant effects on soils and subsoils will occur as a result of the Proposed Development provided that the mitigation measures are implemented.
Water (Hydrology and Hydrogeology)	No potential for effects on surface water and groundwater.	The Proposed Development is designed to protect the receiving water and general environment. No significant effects on surface water or groundwater quality will occur provided that the proposed mitigation measures are implemented.
Air & Climate	No potential for exhaust and dust emissions to affect sensitive receptors.	Based on the assessments detailed in Chapter 9 Air and Chapter 10 Climate and the mitigation proposed, residual impacts of exhaust emissions and dust generation from the construction phase will have a short term imperceptible negative effect. Whilst the operational phases of the Proposed Development will give rise to minor increases in vehicle emissions, these are anticipated to be imperceptible.
Noise & Vibration	No potential for noise impacts on nearby sensitive receptors.	Based on the assessment detailed in Chapter 11 and the mitigation measures proposed, there will be no

Environmental Consideration	Do Nothing Alternative	Chosen Option (Development of Large-Scale Residential Development (LRD))
		significant effects on sensitive receptors due to an increase in noise levels from the Proposed Development during the construction, operational and decommissioning phases. Mitigation measures in relation to potential noise impacts during the construction phase are outlined in detail in Chapter 11 and also in the accompanying Construction Environmental Management Plan (CEMP).
Landscape & Visual	No potential for landscape and visual effects.	The EIAR completed for the Proposed Development concluded that likely landscape and visual effects anticipated from the Proposed Development are not deemed to be significant. Considering the zoning of these lands, residual effects upon the landscape and visual amenity are deemed to be acceptable and in line with the sustainable development of the area
Cultural Heritage & Archaeology	No potential for impacts on unrecorded, subsurface archaeology.	As detailed in the assessment in Chapter 12, no direct or indirect effects to the recorded cultural heritage resource as a result of the Proposed Development have been identified. Mitigation measures have been proposed which include for archaeological test trenching to be carried out prior to the start of the construction phase.
Material Assets	No additional traffic generated and therefore no	As detailed in Chapter 15, there will be a short term negative imperceptible effect

Environmental Consideration	Do Nothing Alternative	Chosen Option (Development of Large-Scale Residential Development (LRD))
	direct or indirect effects on roads and traffic.	on traffic volumes during the construction phase of the Proposed Development. A detailed Traffic Management Plan incorporating all the mitigation measures will be agreed with the roads authority prior to construction works commencing on site. The traffic effects during the operational phase will be slight.

3.5 Alternative Locations

As outlined in the Chapter 2 of the EIAR, the Proposed Development site is partly located on lands identified as "Knocknacarra District Centre (South) Opportunity Site". Policy Objective 10.21 of the Galway City Development Plan 2023-2029 (GCDP 2023-2029), sets the vision for the lands and this is outlined in detail in Section 2.4 of Chapter 2 of this EIAR. The vision emphasises creating an attractive, liveable, and well-designed urban centre that integrates into the community, prioritising placemaking and sustainable mobility. In line with the city's population growth targets, a significant portion of the site's development capacity will be dedicated to housing, as per this Proposed Development.

Under the GCDP 2023-2029, the lands are zoned for '*Enterprise, Light Industry and Commercial*' as well as '*R - Residential*' uses, both of which permit residential and commercial development. This residential zoning presented an opportunity to advance the site through a co-design process with relevant landowners, supporting the development objectives of the GCDP for the Knocknacarra area, as set out in Policy 3.4 *Sustainable Neighbourhoods*.

The lands comprising the site of the Proposed Development are available to the applicant for development and consideration of alternative sites which are not available to the applicant for the Proposed Development is not considered necessary or appropriate. During the design process for the Proposed Development, as set out below, several iterations of the site layout and alternative designs were considered. The documentation submitted with this planning application demonstrates that the subject site and the surrounding area have the environmental capacity to accommodate the Proposed Development without any significant impacts on the environment.

Further to this, the environmental assessments undertaken as part of this EIAR have proved that there will be no demonstratable harm to the environment, built or archaeological heritage or human health that cannot be prevented or controlled by mitigation measures.

In conclusion, the Proposed Development location is the preferred/optimum site.

3.6 Alternative Design and Layouts

This section discusses the layout of the Proposed Development and provides an overview as to the manner in which the Proposed Development design has evolved and provides evaluation of the comparable potential for environmental effects.

The design process was an iterative process, where findings at each stage of the design's evolution were used to further refine the design, always with the intention of minimising the potential for environmental impacts.

In particular, in developing the proposed design, cognisance was taken of the opinion from Galway City Council (GCC) through the various Large Scale Residential Development (LRD) process consultations. The opinion of various other consultees also informed the design of this Proposed Development.

The Proposed Development site is located within a Masterplan Area for Knocknacarra District Centre (South). As outlined in the Planning Report which accompanies this application to GCC, in 2023, a design team was appointed to design the Knocknacarra District Centre (South) and the broader "Kingston lands," as outlined in the Planning Report.

By incorporating adjacent lands to the north and northeast, zoned as 'Regeneration and Opportunity Sites', and coordinating a joint approach, the land bank's full potential could be realised through a number of distinct planning applications, which were informed by early master planning exercises in consultation with the planning authority. Through this process, a cohesive plan for access, connectivity, permeability and a diverse mix of uses could be established, with individual developers and landowners then progressing to detailed design and eventually would seek permission for individual development from GCC. The Proposed Development site application has been informed by this design process which is detailed in brief below.

An initial meeting was held with GCC in January 2023 with follow up meetings in March and December 2023 and January 2024. The purpose of the meetings was to discuss the main constraints of the subject lands and agree basic design principles for the lands. GCC offered input on what, in their view were the key deliverables for the subject lands, as well as high level agreement on site access strategies, connectivity and character areas.

1. **Links and Connectivity**

The Proposed Development site benefits from its proximity to important green network projects like Kingston Park and Millars Lane. The connectivity between these new developments and the broader urban context is vital. Early integration with the future public park and associated infrastructure supports green network objectives of the GCDP 2023-2029, provides access to green spaces and promotes permeability and walkability design principles.

The Proposed Development site design incorporates pedestrian-friendly green corridors that link these spaces which will not only make the Proposed Development more cohesive but also foster community interaction and social engagement.

2. **Transport**

The provision of access to the Proposed Development site was one of the most critical considerations in the design process. With Altan Road identified as a primary access point, it was essential to ensure these access routes were designed to facilitate ease of movement while promoting sustainability. Access from Kingston Road has also been included in the design. However, it is important to note that access points aim to prioritise active travel over car dependency. The design ensures a seamless integration of pedestrian and cycling infrastructure which align with sustainability goals and will create a more liveable, human-centred environment.

3. **Green Infrastructure**

The design of the Proposed Development addresses environmental resilience through biodiversity and nature-based solutions. Biodiversity corridors are maintained and enhanced where possible Landscape design integrates sustainable urban Drainage Systems (SuDS) such as rain gardens, bioswales, and

permeable surfaces to mitigate flooding risks. Nature based solutions have been considered from an ecological enhancement point of view as well as from an aesthetic and recreational quality of the environment. The inclusion of these features ensures that nature-based solutions become part of the long-term resilience strategy for the area.

The Proposed Development presented for assessment as part of this EIAR can be considered to be informed by co-design from a large team who have been guided by meaningful input by the Planning Authority (GCC) from the various consultations carried out and informed by current European, National and Local policy regarding design, housing quality, biodiversity, sustainable drainage, sustainable transport and placemaking. In addition, the proposed design takes into account updated guidance and legislation at a local and national level which would influence the scheme design.

3.6.1 Proposed Development Layout Iterations

The final Proposed Development site layout takes account of all site constraints as well as feedback from the various stage meetings with GCC as part of the LRD process and also opinions from various consultees. Two design iterations are discussed below which provide an indication of how the layout evolved during the design process.

Stage 2 Proposed Layout

At this stage it was proposed to construct 518 no. residential units at the site along with all associated works. This layout was to comprise 5 no. development areas with a mix of apartment and house types.

Figure 3-1 Layout Iteration for LRD Stage 2 Application

Figure 3-2 Layout Iteration for LRD Stage 3

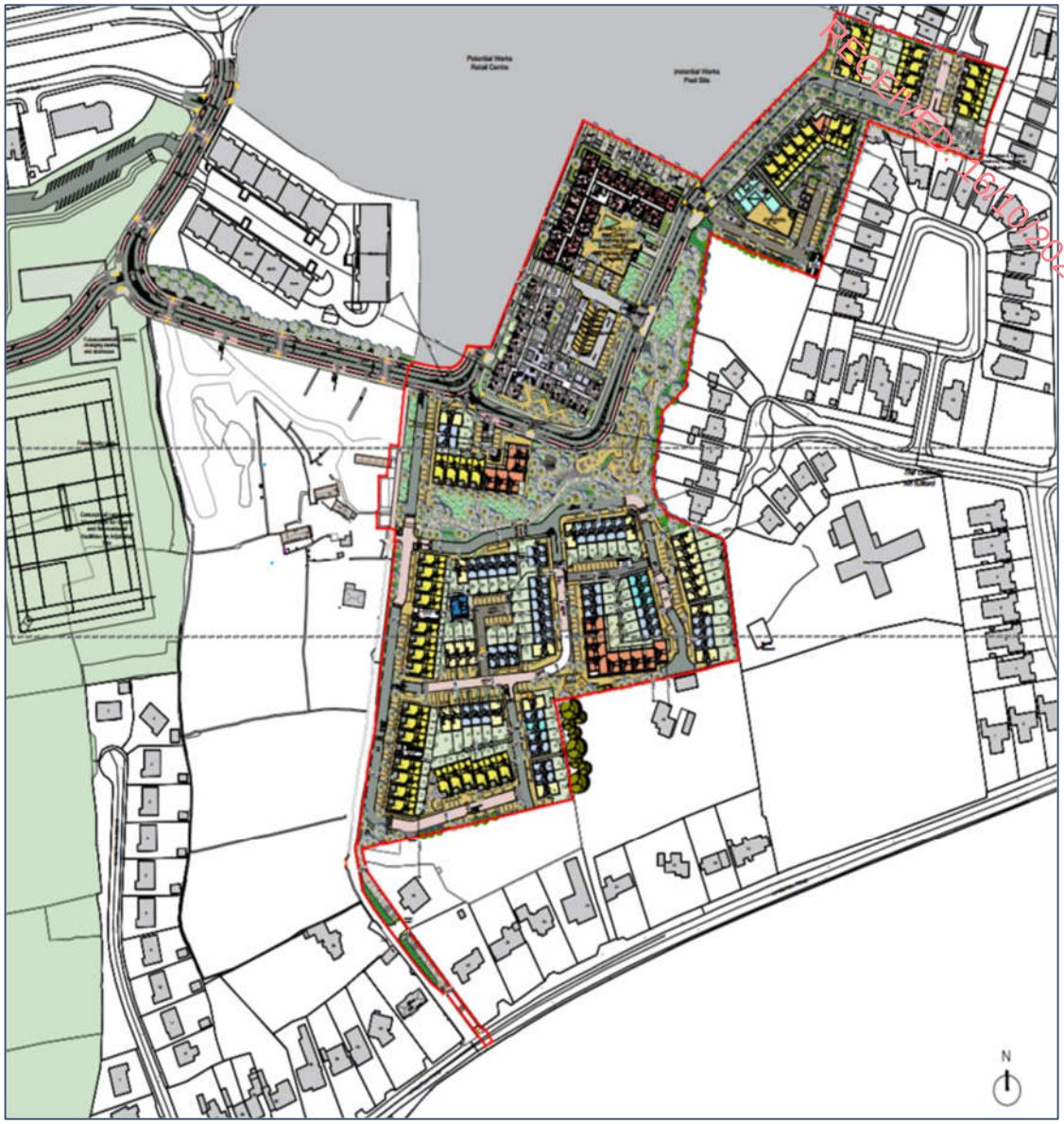

Figure 3-3 Final Layout Iteration

On foot of the Stage 2 meeting with GCC on the 26th March 2025 and their subsequent opinion, which was issued on the 17th April 2025, a number of changes were suggested. The primary reason for the reduction in the number of residential units from 518 at the Stage 2 LRD application to the 503 no. residential units which is currently proposed was to allow for the construction of a larger creche in Phase 1. This is outlined in the proposed layout for the final Stage 3 LRD Application in Figure 3-2 below.

Stage 3 Proposed Layout

The Proposed Development site layout for the Stage 3 LRD application was reached after a substantive consultation process with the Planning Authority (GCC) and with various other consultees. The reason for changes to the layout are outlined briefly above and in further detail in the Opinion Letter issued by GCC on the 17th April 2025 which is included in Appendix 3-1. The Proposed Development layout at this stage comprised of 503 residential units and all associated site works and is shown in Figure 3-2 below.

Stage 4 Finalised Layout

The final design upon which this environmental impact assessment is based comprises the development of 362 no. residential homes, creche and all associated works. The Proposed Development is part of the overall Proposed Project which has been defined in Section 1.2.1 of this EIAR.

3.7 Alternative Land Uses

The Proposed Development comprises residential uses, a creche facility and public amenity uses. It is considered that the proposed land uses are deemed appropriate for these zoned lands as outlined in the GCDP 2023-2029. As such consideration of alternative land uses were not considered necessary.

3.8 Alternative Processes

The management of processes that affect the volumes and characteristics of emissions, residues, traffic and the use of natural resources has formed part of the consideration of reasonable alternatives through the project's development.

The construction works on the Proposed Development site will require the use of raw materials in the form of energy to supply plant and machinery, standard building materials including stone, metals, pipework, concrete, electrical, plumbing, etc. and raw materials are consumed to manufacture building materials. The use of these resources will be controlled by using best practice construction techniques including waste management practices which are outlined in the Construction Environmental Management Plan (CEMP) (Appendix 4-1) and Construction Demolition Waste Management Plan (CDWMP).

The processes to be employed during the construction of the Proposed Development, and described in Chapter 4 of this EIAR, are standard best practice for the construction industry in Ireland. There will be no novel processes or methods employed. Since the proposed processes represent industry standard best practice, alternative processes were not considered to be reasonable and were therefore not considered further in the EIAR.

3.9 Alternative Mitigation

The best practice design and mitigation measures set out in this EIAR will contribute to reducing any risks and have been designed to break the pathway between the site and any identified environmental receptors. The mitigation methods proposed follow the principle of avoidance of impact where possible

in the first instance, followed by minimisation of impacts where full avoidance is not possible. The mitigation methods proposed represent best practice in the industry. The alternative is to either not propose these measures or propose measures which are not best practice and effective, neither of which is a sustainable option.