BESSBOROUGH, CORK

NTS

Non-Technical Summary

VOLUME I

Environmental Impact Assessment Report

CONTENTS

1 INTRODUCTION

1.1 Background

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of Estuary View Enterprises 2020 Limited to assess the likely significant environmental effects of a proposed development comprising two Strategic Housing Development [SHD] applications to An Bord Pleanála which include two distinct phases, namely Phase 1 'The Meadows' and Phase 2 'The Farm' at Bessborough, Ballinure, Blackrock, Cork. As set out in the submitted site masterplan, the applicant has intentions for a third follow-on phase of development to the west and south of Bessborough House, subject to zoning which is under consideration as part of the preparation of the Cork City Development Plan 2022-2028.

The EIAR has been completed in accordance with Directive 2011/92/EU (as amended by 2014/52/EU) and relevant Irish legislation as well as in conformity with guidance in the European Commission's 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report' (2017) and EPA's Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (2017).

The proposed developments at Phase 1 'The Meadows' and Phase 2 'The Farm' in combination consist of the construction of 420 no. build to sell residential units with two creches, a café, tenant amenities, landscaping, pedestrian/cycleway infrastructure and associated site development works. The proposed developments will be constructed on lands of circa 7.44 hectares in area, to the west of the Mahon District Centre and Passage West Greenway, in lands which formed part of the former Bessborough Estate. The prepared masterplan provides for a further 200 no. apartments, records building and public parkland in a proposed follow-on phase of development at Phase 3 'The North Fields' on circa 10.56 hectares of land. A full description of the proposed development is provided in Chapter 2 of this EIAR.

The sites' location within the wider settlement of Mahon is illustrated in Figure 1.1 as shown.

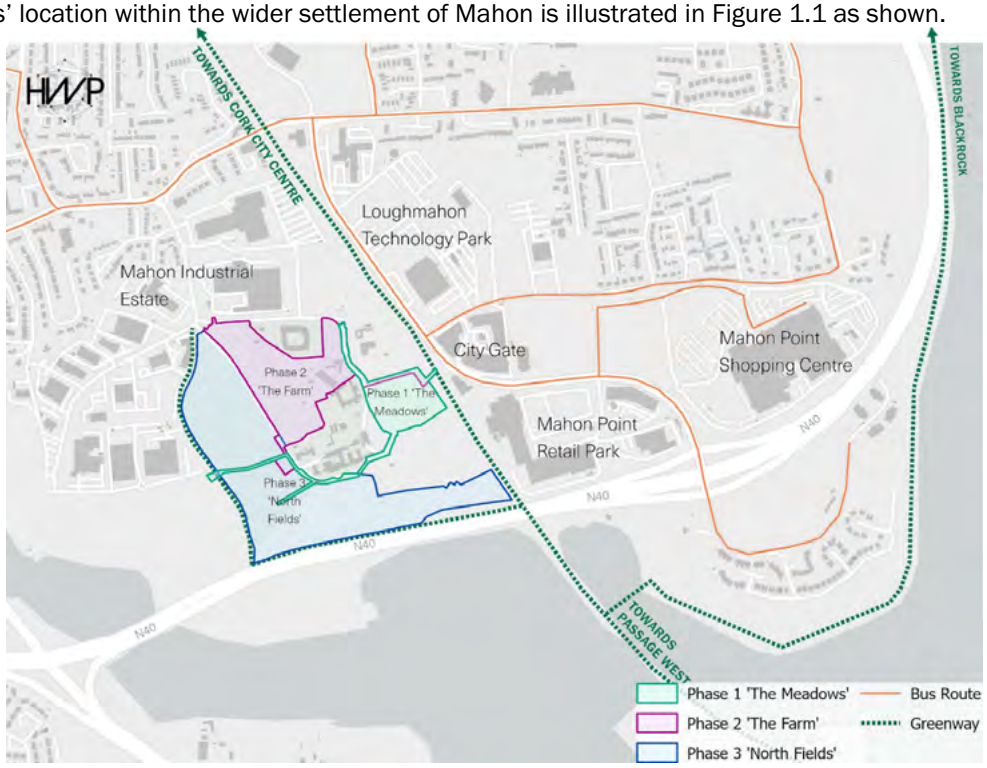

Figure 1.1 Site Location Map

1.2 Purpose of EIA

EIA requirements are now governed by Directive 2014/52/EU, which amends Directive 2011/92/EU ("the EIA Directive"). The primary function 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.

Ireland's obligations under the EIA Directive have been transposed into Irish law and, in particular, the planning consent process through the provisions of Part X of the Planning and Development Act 2000, as amended, and the Planning and Development Regulations, 2001, as amended.

This EIAR has been prepared in accordance with the relevant provisions of the EIA Directive, the Planning and Development Acts and Planning and Development Regulations. In addition, the EIAR conforms to the guidance contained in the relevant EU and Irish guidance in respect of the preparation of an EIAR.

The objective of the EIA Directive is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for EIA, prior to development consent being given, of developments that are likely to have significant effects on the environment.

1.3 EIA Methodology

As per Article 5(1) of the 2014 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); and
- 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.

1.4 EIA Screening & Scoping

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment.

Article 93 of, and Schedule 5 to, the Planning and Development Regulations 2001 set out the classes of development for which a planning application must be accompanied by an EIAR.

Part 1 and Part 2 Schedule 5 of the Planning and Development Regulations, 2001 prescribes the categories of, and thresholds for, prescribed development requiring EIA.

The subject proposals do not come under any of the prescribed development contained in Part 1 of Schedule 5.

By way of example, paragraph 10(b) of Part 2 of Schedule 5, which refers to Infrastructure Projects includes, includes:

(i) Construction of more than 500 dwellings

(ii) Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of, a development.

(iii) Construction of a shopping centre with a gross floor space exceeding 10,000 square metres.

(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 this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)"

At a combined 420 no. residential units and a site area of 7.44 hectares, the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' do not meet or exceed the unit or area-based thresholds prescribed under 10(b) of Part 2 of Schedule 5. However, when Phase 3 'North Fields' is considered as per the prepared masterplan, both of these thresholds are exceeded at a combined 620 no. residential units and site area of circa 16.59 hectares, respectively. Accordingly, the proposed development in its entirety exceeds the thresholds set out in paragraph 10(b)(i) and (iv) of Part 2 of Schedule 5 requiring EIA.

On this basis, the developer decided to prepare an EIAR in respect of the cumulative proposed development on these masterplan lands, so as to enable the Competent Authority to carry out an Environmental Impact Assessment in respect of the proposed development.

Indeed, in circumstances where the application for permission relates to proposed strategic housing development, the provisions of Part 23 of the Planning and Development Regulations 2001, as amended, apply to the Board's consideration of the application. In this context, it is noted that in circumstances where, as in this case, a planning application for a sub-threshold development is accompanied by an EIAR and a request for a screening determination was not made, then the application shall be dealt with as if the EIAR had been submitted in accordance with section 172(1) of the Act.

EIA Scoping is the process of determining the content and extent of the matters which should be considered in the environmental information contained in an EIAR.

In determining the extent and content of this EIAR, the authors have carefully considered the applicable EU and Irish legislative requirements, relevant EU and Irish guidance and pre-planning consultation meetings held with Cork City Council in accordance with Section 247 of the Planning and Development Act 2000 in May and June 2021. In addition, the following prescribed bodies were notified of the extent of the proposed development and of the fact that an EIAR was being prepared:

1. Minister for Culture, Heritage and the Gaeltacht (Development Applications Unit)
2. The Heritage Council
3. An Taisce
4. An Chomhairle Ealaíon
5. Fáilte Ireland
6. Irish Water
7. Transport Infrastructure Ireland
8. National Transport Authority
9. Cork City Childcare Committee
10. Minister for Children, Equality, Disability, Integration and Youth

11. National Parks & Wildlife Service
12. Department of Housing, Local Government, and Heritage
13. Department of Education
14. Inland Fisheries Ireland (Southwest Region)
15. Office of Public Works

The particulars sent to the above bodies are contained in Appendix 1-1 with any responses received contained in Appendix 1-2.

1.5 Purpose & Structure of the EIAR

The primary purpose of this EIAR is to inform the EIA process, by identifying likely significant environmental impacts resulting from the proposed development, to describe the means and extent by which they can be reduced or mitigated, to interpret and communicate information about the likely impacts and provide an input into the decision-making planning process.

The fundamental principles to be followed when preparing an EIAR are:

- Anticipating, avoiding and reducing significant effects
- Assessing and mitigating effects
- Maintaining objectivity
- Ensuring clarity and quality
- Providing relevant information to decision makers
- Facilitating better consultation.

The EIAR is divided into 3 volumes:

- the non-technical summary comprising a concise, but comprehensive description of the project, its environment, the effects of the project on the environment, the proposed mitigation measures, and the proposed monitoring arrangements;
- The main report consisting of 16 chapters as outlined in the table of contents;
- The Appendices numbered in accordance with the chapter they relate.

1.6 EIAR Team & Qualifications

HW Planning have coordinated the subject EIAR. Environmental specialist consultants were also commissioned for the various technical chapters of the EIAR document which are mandatorily required as per the EIA Directive and Planning and Development Regulations 2018. Each environmental specialist was required to characterise the receiving baseline environment; evaluate its significance and sensitivity; predict how the receiving environment will interact with the proposed development and to work with the EIA project design team to devise measures to mitigate any adverse environmental impacts identified.

A full list of all consultants and the corresponding chapters that have been prepared is detailed below.

Planning Consultants: HW Planning

Address: 5 Joyce House, Barrack Square, Ballincollig, Co. Cork

Chapters Prepared: Chapter 1 – Introduction, Chapter 2 - Project Description, Chapter 3 - Alternatives Considered, Chapter 14 - Population & Human Health, Chapter 15 - Interaction of Impacts and Chapter 16 - Summary of Mitigation Measures

Personnel: Harry Walsh - BA HONS, Master of Regional and Urban Planning, MIPI.

Landscape Architects: Macro Works Ltd.

Address: Cherrywood Business Park, Loughlinstown, Dublin 18

Chapters Prepared: Chapter 4 – Landscape & Visual

Personnel: Jamie Ball, Senior Landscape Architect.

Project Engineers/Traffic Consultants: MHL & Associates Consulting Engineers

Address: Carrig Mor House, 10 High Street, Douglas Road, Cork.

Chapters Prepared: Chapter 5 - Material Assets – Traffic & Transportation

Personnel: Ken Manley - BE CEng MIEI HDip Envm Eng FConsEI

Project Civil Engineers: JB Barry & Partners

Address: 3 Eastgate Road, Eastgate Business Park, Little Island, Co. Cor, T45 KH74

Chapters Prepared: Chapter 6 - Material Assets – Services, Infrastructure & Utilities, Chapter 7 – Land, Soils & Geology, Chapter 8 – Water (Hydrology & Hydrogeology).

Personnel: Ray Sheehan (Chapter 6) is a Chartered Civil Engineer and a Senior Engineer, John Fallon (Chapter 7 & 8) is a Senior Environmental Engineer, Kieran O'Dwyer (Chapter 8) is an Associate Director.

Project Ecologist: Dixon Brosnan – Environmental Consultants

Address: Steam Packet House, 12 Railway St, Maulbaun, Passage West, Co. Cork, T12 CF90

Chapters Prepared: Chapter 9 - Biodiversity

Personnel: Carl Dixon a Senior Ecologist. Sorcha Sheehy PhD (ecology/ornithology) is an Ecologist and Ornithologist. Cian Gill MSc (Ecology) is a qualified Ecologist.

Environmental Consultant: DKPartnership

Address: 70 Main Street, Applewood , Swords, Co. Dublin, Ireland / Reen Kenmare Co. Kerry

Chapters Prepared: Chapter 10 - Noise & Vibration, Chapter 11 - Air Quality and Chapter 12– Climate.

Personnel: Gerard van Deventer C.Eng. BE(Mech). HDip CIOB. (Chapters 10, 11 and 12) is a Mechanical Engineer. Jasmine van Deventer BSc (Chapter 11) is an science graduate with air quality analysis experience.

Built Heritage/Archaeology: John Cronin & Associates

Address: Unit 3a Westpoint Trade Centre, Ballincollig, Co. Cork.

Chapters Prepared: Chapter 10 - Cultural Heritage

Personnel: John Cronin - (B.A., University College Cork (UCC), 1991), regional and urban planning (MRUP (University College Dublin (UCD) 1993) and post-graduate qualifications in urban and building conservation (MUBC (UCD), 1999).

Project Architects: Shipsey Barry Architecture.

Address: 28 Richmond Hill, Cork

Chapters Prepared: Chapter 3 – alternatives (in conjunction with HW Planning)

Personnel: Glen Barry, Director - Director at SHiPSEYBARRY and Principal Architectural lead over the Proposed Project at Bessborough.

1.7 Cumulative Impacts

Each of the projects listed in table 1.1 have been assessed for potential cumulative impacts. These projects were identified by using Cork City Council's Planning Enquiry Systems and An Bord Pleanála's website.

Application Reference	Applicant(s)	Description	Outcome/Current Status
Cork City Council Ref: 17/37565	Denis O' Brien Developments (Cork) Ltd.	Construction of 66 no. residential units and all associated ancillary development works including vehicular access, parking, footpaths, landscaping, drainage and amenity areas.	Granted by way of Material Contravention of City Development Plan on 24/04/2018. Crawford Gate Development. Last phase under construction.
Cork City Council Ref: 18/37820	Bessboro Warehouse Holdings Ltd	The demolition and removal of the existing warehouse/distribution building and associated structures and the construction of 135 no. residential units comprising 24 no. dwelling houses, 64 no. duplex apartments and a three storey apartment block (comprising 20 no. apartments) and a four storey apartment block (comprising 27 no. apartments) and 1 no. creche.	Granted by way of Material Contravention of City Development Plan on 28/02/2019.

Cork City Council Ref: 21/40481	The Bessborough Centre Limited	Permission for the construction of a new single storey detached classroom to be associated with the existing Bessborough Creche including all associated site works.	Conditional Grant on the 13/12/2021
Cork City Council Ref: 2140503	The Bessborough Centre Limited	Permission for the change of use of an existing building from office use to classrooms and associated educational use. The building area subject to the change of use is the ground floor of the existing two storey Coach Building, the existing single storey Anvil Building with attached toilet block, and the existing two storey Gallery Building, all part of an enclosed courtyard structure.	Conditional Grant on the 22/12/2021
Cork City Council Ref: 2140453	First Step Homes Ireland Ltd	Permission to alter and extend the previously granted Creche building granted under planning reference No. 18/37820 and An Bord Pleanala ABP-302784-18 to incorporate a larger ground floor Creche/ Community facility and bin store. The application is also to include for the permission of 10. no. first and second floors apartments to consist of the following: 5 no. first floor apartments: 2 no. 1 bed and 3 no. 2 bed with communal storage and 5 no. second floor apartments: 2 no. 1 bed and 3 no. 2 bed with communal storage and all associated site works.	Conditional Grant on 17/1/2022

Table 1.1 Cumulative Impacts – Projects Considered

The assessment also has regard to the development opportunity that remains in the nearby site where the following planning applications were refused in 2021

Application Reference	Applicant(s)	Description	Outcome/Current Status
An Bord Pleanala Ref: ABP-308790-20	MWB Two Limited	Permission for the construction of a strategic housing development of 179 number residential units. Bessboro, Ballinure, Blackrock, Co Cork.	Refused on the 25/05/2021 on basis of prematurity related to resolution of matters concerning a potential burial ground on the site.

Cork City Council Ref: 2039705/ ABP-309560-1	MWB Two Limited	Permission for the construction of 67 apartments in an 8-storey apartment. A Natura impact statement (NIS) will be submitted to the planning authority with the application. Bessboro, Ballinure, Blackrock, Co Cork.	Refused on the 15/07/2021 as would result in Haphazard form of Development. The ABP Inspector considered that, in principle, should the lands immediately to the north be developed the subject site would be suitable for residential development whereby a material contravention of the zoning provisions of the development plan could be countenanced. These lands therefore are included in this assessment as they retain development potential. At the time of writing this EIAR, the zoning in the operative CDP supports the principle of development on the ABP-308790-20 lands. It is included here on that basis.

Table 1.2 Cumulative Impacts – Projects had regard to

The potential impact on the environment of the Cork City Development Plan was assessed for cumulative impact and were considered in the preparation of this EIAR.

1.8 Availability of EIAR Documentation

This EIAR will be available in printed form at the offices of Cork City Council (City Hall, Anglesea Street, Cork, T12 T997) and An Bord Pleanála (64 Marlborough St, Rotunda, Dublin 1, D01 V902).

The EIAR will also be available to view electronically at the following websites: www.thefarmshd.ie and www.the meadowsshd.ie

1.9 Typographical Errors

Every effort has been made to ensure that the content and findings of this EIAR is consistent and error free. However, it is acknowledged that some minor grammatical/spelling and typographical errors may occur. These typographical minor inconsistencies are unlikely to result in any material impacts on the overall findings and conclusions of the EIAR.

2 PROJECT DESCRIPTION

2.1 Introduction

The EIA Directive requires that an EIAR should provide an overview of:

- the location, site, design, size, etc.;
- the physical characteristics of Project (including any demolition or land-use requirements);
- the characteristics of the operational phase of the Project;
- any residues, emissions, or waste expected during either the construction or the operational phase.

2.2 Description of the Project

The proposed development comprises two planning applications to An Bord Pleanála and includes two distinct phases, namely Phase 1 'The Meadows' and Phase 2 'The Farm'.

Phase 1 'The Meadows'

The proposed development provides for the construction of a residential development of 280 no. residential apartment units with supporting tenant amenity facilities, cafe, crèche, and all ancillary site development works. The proposed development includes 280 no. apartments to be provided as follows: Block A (6 no. studio apartments, 14 no. 1-bedroom, 34 no. 2-bedroom & 1 no. 3-bedroom over 1-6 storeys), Block B (37 no. 1-bedroom & 49 no. 2-bedroom over 6-10 storeys), Block C (31 no. 1-bedroom, 36 no. 2-bedroom & 6 no. 3-bedroom over 5-9 storeys) and Block D (30 no. 1-bedroom, 31 no. 2-bedroom & 5 no. 3-bedroom over 6-7 storeys).

The proposal includes a new pedestrian/cycle bridge over the adjoining Passage West Greenway to the east, connecting into the existing down ramp from Mahon providing direct access to the greenway and wider areas.

The proposed development provides for outdoor amenity areas, landscaping, under-podium and street car parking, bicycle parking, bin stores, 2 no. substations one of which is single storey free standing, a single storey carpark access building, public lighting, roof mounted solar panels, wastewater infrastructure including new inlet sewer to the Bessborough Wastewater Pumping Station to the west, surface water attenuation, water utility services and all ancillary site development works. Vehicular access to the proposed development will be provided via the existing access road off the Bessboro Road.

Phase 2 'The Farm'

The proposed development provides for the demolition of 10 no. existing agricultural buildings /sheds and log cabin residential structure and the construction of a residential development of 140 no. residential apartment units over 2 no. retained and repurposed farmyard buildings (A & B) with single storey extension and 3 no. new blocks of 3-5 storeys in height, with supporting resident amenity facilities, crèche, and all ancillary site development works. The proposed development includes 140 no. apartments to be provided as follows: Block C (9 no. 1-bedroom and 25 no. 2-bedroom over 3 storeys), Block D (34 no. 1-bedroom & 24 no. 2-bedroom over 3-4 storeys), Block E (27 no. 1-bedroom, 20 no. 2-bedroom & 1 no. 3-bedroom over 4-5 storeys). It is proposed to use retained Block A and Block B for resident amenities which include home workspace, library, lounge and function space.

The proposal includes a new pedestrian/cycle bridge over the adjoining Passage West Greenway to the east, connecting into the existing down ramp from Mahon providing direct access to the greenway and wider areas, as well as new pedestrian access to Bessborough Estate to the north including upgrades to an existing pedestrian crossing on Bessboro Road.

The proposed development provides for outdoor amenity areas including publicly accessible parkland, landscaping, surface car parking, bicycle parking, bin stores, substation, public lighting, roof mounted solar panels, wastewater infrastructure including new inlet sewer to the Bessborough Wastewater Pumping Station to the west, surface water attenuation, water utility services and all ancillary site development works. Vehicular access to the proposed development will be provided via the existing access road off the Bessboro Road.

Other Planned Development

Phase 3 'The North Fields'

As set out in the submitted site masterplan, the applicant has intentions for a third follow-on phase of development to the west and south of Bessborough House, subject to zoning which is under consideration as part of the preparation of the Cork City Development Plan 2022-2028. The prepared masterplan provides for 200 no. apartments across 5 blocks ranging in height from 2-4 storeys as part of a landscaped parkland setting. The development will consist of 5 no. 3-bedroom apartments, 100 no. 2-bedroom apartments, 92 no. 1-bedroom apartments, and 3 no. studio apartments. The proposal includes a National Memorial and Records Centre building and remembrance park to the south. Provision is made for a creche and shared communal facilities across the buildings comprising gym, lounges and home work areas. The development includes new pedestrian/cycle path infrastructure, including connections to the Passage West Greenway. Vehicular access to the proposed development will also be provided via the existing estate access road off the Bessborough Road, with the entrance subject to modification and upgrade works.

Phase 3 'The North Fields' will be subject to a separate planning consenting process, with the designed particulars of the proposal assessed as part of that application. Notwithstanding this, the EIAR considers the full combined development for the purposes of completing a robust assessment of the entire project and having regard to the outline level of design detail that presently exists for the Phase 3 'North Fields'.

The subject lands are situated within the Cork City boundary and both Phase 1 and Phase 2 comprise areas zoned for 'Residential, Local Services and Institutional Uses' and 'SE4 – Landscape Preservation Zone'. The governing site-specific objectives in relation to the latter allow for development on lands within the immediate environs to the north of Bessborough House, subject to it being consistent with the landscape and protected structure significance of the site.

2.3 Description of Construction Phase

2.3.1 Construction Programme and Phasing

Construction access to the site for Phase 1 'The Meadows' and Phase 2 'The Farm' will be provided from the access road off the Bessboro Road which serves existing buildings including the Bessboro Day Care Centre and the Cork Community Mediation Service. The proposed development of Phase 1 'The Meadows' will be constructed in a single phase which it is estimated will take 24 months to complete. The construction of Phase 2 'The Farm' will comprise a separate phase of development also with an estimated duration of 24 months.

Both phases will involve the provision of temporary construction compounds. In both phases the site staff parking area may be located off-site and away from the site compound, in which case appropriate pedestrian access measures will be put in place.

The compound will contain:

- Site offices, canteen and toilet / changing facilities c/w temporary water supplies and wastewater treatment unit.
- Secure compound and containers for storage of materials and plant.
- Contained area for machinery refuelling and construction chemical storage.
- Contained area for washing out of concrete and mortar trucks.
- An automatic wheel-washing unit shall be installed and maintained at the entrance to the site. This will be available for use at all times. Maintenance will include for cleaning out of the equipment and disposal of any material gathered within. The required equipment for supplying water and power to the wheel washing facility shall be made available and maintained in good working order. At the end of the construction phase, the wheel washing facilities shall be removed from site.

2.3.2 Working Hours

Construction works will occur within the hours outlined below.

- 07.00am – 06.00pm* (Monday – Friday inclusive)
- 08.00am – 2.00pm* (Saturday)
- There will be no work on Sunday and Bank Holidays.

* Subject to the agreement of the Local Authority, out-of-hours working may be required for water main connections, foul drainage connections, tower crane erection and removal etc. Any such arrangements will be agreed at construction stage.

2.3.3 Construction Traffic Management Plan

Based on the calculated quantities of cut and the fill requirements for Phase 1 'The Meadows', it is estimated in Chapter 5 that over the 2-year construction stage this would equate to approximately 1,000 HGV trips to the site for imported structural fill material. Similarly, for Phase 2 'The Farm' this would equate to approximately 1,100 HGV trips during the construction phase. Other construction stage deliveries include concrete, concrete blocks, timber, structural steel, reinforcing steel, road construction materials, finishing materials, subsurface drainage works (including attenuation and storage systems), public lighting columns, windows and doors which will be delivered to site during both phases of the proposed development.

As noted in the accompanying Construction and Environmental Management Plans (ref Appendices 2.1 and 2.2) detailed Construction Traffic Management Plans will be prepared and submitted to the Planning Authority for approval prior to the commencement of any construction.

2.4 Description of Operational Phase

An overview of the key statistics of the proposed Phase 1 'The Meadows' development is provided in Table 2.1.

Key Figures of Proposed Phase 1 'The Meadows' SHD Development	
No. of units	280 apartment units
Site Area	2.29ha / 5.66a
Residential Developable Site Area	1.53ha / 3.78a
Density (Residential Developable site area only)	122.3 units/ha site area 183 units/ha developable area
Plot Ratio	2.27
Open Space provision	3,958 m2 (25.83%)
Creche Details	A 35 no. child capacity creche
Total Residential Car Parking spaces	102 (4 of which are creche drop-off spaces)
Total Residential Bicycle spaces (including creche)	604 no. serving apartment units
Access	Provided from existing access road off Bessboro Road

Table 2.1 – Phase 1 'The Meadows' - Key Statistics of Proposed Development

Figure 2.1 Proposed – Phase 1 'The Meadows' Development

2.4.1 Phase 2 'The Farm' Mixed-Use Development

An overview of the key statistics of the proposed Phase 2 'The Farm' development is provided in Table 2.2.

Key Figures of Proposed Phase 1 'The Meadows' SHD Development	
No. of units	140 apartment units
Site Area	5.13ha / 12.66a
Residential Developable Site Area	4.28ha / 10.58a
Density (Residential Developable site area only)	27.3 units/site area 32.7 units/ha developable area
Plot Ratio	0.4
Open Space provision	27,136 m2 (63.3%)
Creche Details	A 25 no. child capacity creche
Total Residential Car Parking spaces	158 (4 of which are creche drop-off spaces)
Total Residential Bicycle spaces (including creche)	330 no. serving apartment units
Access	Provided from existing access road off Bessboro Road

Table 2.2 – Phase 2 'The Farm' Key Statistics of Proposed Development

Figure 2.2 Phase 2 'The Farm' development

2.4.2 Proposed Connectivity/Road Works

- As referenced previously, both Phase 1 'The Meadows' and Phase 2 'The Farm' utilise the existing access road off the Bessboro Road to provide for vehicular access to the proposed developments.
- Both phases of the proposed development also provide for enhanced pedestrian access to the sites, via a proposed new pedestrian/cycle bridge over the adjoining Passage West Greenway to the east, connecting into the existing down ramp from Mahon providing direct access to the greenway and wider areas and the 215/215A bus stop. The proposed pedestrian links to the site will not only provide direct and convenient access to the Mahon District Centre, but also satisfy a long-standing Council objective to address severance between Mahon and the Bessborough lands.
- In addition, the Phase 2 'The Farm' development includes new pedestrian/cycle path infrastructure to the north of Bessborough Estate with a new archway access point in the estate wall with upgraded pedestrian crossing tying into the local footpath network. This will facilitate easy access to the high frequency 202/202A bus route that runs along the nearby Skehard Road

2.4.3 Proposed Layout & Landscape Strategy

The design rationale for both Phase 1 'The Meadows' and Phase 2 'The Farm' of the proposed development has been influenced by an analysis of the sites' historical and cultural sensitivities, natural constraints, setting in the wider Mahon neighbourhood. Their location adjacent to the Passage West Greenway and a short distance from a variety of employment, recreational, retail and service outlets has also been a key consideration.

The design rationale for the proposed development has been 'landscape-led', with the site topography and setting in its local and wider contexts forming a critical component of the development strategy of the lands. The proposed landscape, recreation and amenity strategies of the development are based upon a number of key features and landscape proposals including the following in relation to Phase 1 'The Meadows':

- The creation of a landscaped plaza and enhanced pedestrian streetscape.
- The southern communal space including a pedestrian route through a landscaped park providing connection to the pedestrian bridge.
- The eastern communal space comprising grasslands/meadow beneath existing mature trees.
- A central landscaped podium area with lawns, a water feature, seating and a play area.
- Removal of 13 no. trees to accommodate proposed infrastructure which will be offset by the planting of 108 no. new trees as part of the construction phase.

In relation to Phase 2 'The Farm the following landscaping is proposed:

- The creation of a landscaped courtyard in the old farmyard area.
- New landscaping along the existing access road.
- Introduction of Memorial 'Farm Girl' Bench.
- Upgrading of play facilities.
- Addition of pocket parks under existing trees.
- Publicly accessible parkland amenity.
- Focused measures to provide for reinstatement of historic landscape including removal of modern interventions, reinstatement of historic paths, re-wilding of large areas, historic geometry and distinguishing features of historic parkland.
- Dedicated parkland management strategy to proactively manage trees on the site with a view to reinstating visual character.

- Removal of 54 existing trees, 3 of which are to accommodate the bridge development. This will be offset by the planting of 116 no. predominantly native species new trees.

The proposed layouts, pedestrian links, amenity areas/walks and landscaping treatments will contribute towards restoring the historic landscape character of the area. The proposals not only provide amenities for future residents of the developments, but also serve as local 'destinations' in their own right, benefiting the existing residents of the Mahon neighbourhood.

2.4.4 Site Services & Infrastructure

The Traffic and Transport Assessment (Appendix 5-1) prepared by MHL and Associates and the Services Infrastructure Report prepared by JB Barry and Partners (Appendix 2-7, 2-8) outlines the proposed engineering and servicing details relating to the proposed development. An overview of the main servicing proposals includes:

- The internal estate roads have been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS). The public realm upgrades will improve pedestrian, cyclist and motorist safety in the area.
- The proposed surface water drainage system is in accordance with Sustainable Urban Drainage Systems (SUDS) principles. The proposed system for Phase 1 'The Meadows' divides the site into two (2) drainage catchments, with the proposed Phase 2 'The Farm system contained in a single catchment. All catchments are proposed for attenuation utilising Stormtech attenuation chamber systems. Each attenuation system is designed with a controlled flow rate of less than the greenfield run-off rate for the catchment area. The various SuDS components being proposed as part of the development will provide some attenuation, reduce flow rates and will disperse surface water via evapotranspiration and infiltration. However, to ensure a robust design, JB Barry and Partners have designed for the worst case and have not assumed a reduction in runoff volume from the various SuDS features and permeable surfaces in the required attenuation storage calculations. This will be revisited closer to construction stage, subject to a granted planning permission, to reduce the required attenuation storage volume if possible.
- The wastewater collection within the development will be via a network of gravity sewers. The wastewater flows will be collected and conveyed in in a westerly direction, from the western boundary of the proposed development site and will connect directly to the Bessborough Wastewater Pumping Station (WWPS) to the south-west of the site. Irish Water have advised that the proposed connection should be made directly to the WWPS, via a new inlet sewer. The WWPS is almost at design loading capacity. However, Irish Water has a project underway to replace the existing pumps which will increase the pump rate and provide sufficient capacity to accommodate this development. This upgrade project is scheduled to be completed by Q4 2022 and the proposed connection could be completed as soon as possibly practicable after this date. Irish Water has confirmed that following the upgrade, the pumping station will have sufficient capacity to adequately process the additional input from the operational demand of the proposed development. A Confirmation of Design Acceptance from Irish Water accompanies the Services Infrastructure Report (Appendix 2-7, 2-8).
- Cork City Council watermain records show there is an existing 150mmØ watermain in the existing access roadway within both sites, an existing 300mmØ watermain in the roadway to the north of Phase 2 'The Farm', a 200mmØ watermain to the south, and an existing 1200mmØ trunk watermain running through the greenfield area in the ownership of the Applicant.
- To serve Phase 1 'The Meadows' development it is proposed that a 40mmØ watermain will be connected to the existing 150mmØ ductile iron watermain in the existing access roadway. To serve Phase 2 'The Farm', a 150mmØ watermain will be connected to the existing 300mmØ ductile iron watermain in the roadway to the north of the site.

- To prevent any increased flooding that may arise from this development, it is proposed to implement SuDS measures in order to limit the discharge from the site to the greenfield discharge rates development.

2.5 Impact Assessment

2.5.1 Do-Nothing Scenario

In the 'do nothing' scenario, the Phase 1 'The Meadows' lands and the Phase 2 'The Farm' lands will remain undeveloped. If the proposed development of 420 no. units does not proceed the population of Mahon and the wider city will continue to be adversely impacted due to housing shortages. It will result in the continuation of the recent trend of underperformance of the Study Area in terms of population growth. With a growth rate of 2.7% in the last intercensal period, this designated 'Strategic Growth' area experienced lower growth than the city as a whole, contrary to national and regional policies of co-locating employment, public transport and population growth.

Similarly, in the 'do nothing' scenario, the lands will remain inaccessible for public recreational use. The potential public health benefits arising from the proposed enhanced connectivity via the proposed pedestrian/cycle bridge over the adjoining Passage West Greenway or the proposed enhancement of public facilities and amenities in the form of public open space, 2 no. creches or café will not ensue. Notwithstanding the above, in this scenario there will be no additional impacts on population and human health factors.

2.5.2 Construction Phase

The construction phase will be temporary in nature and will be implemented in accordance with the requirements of the accompanying construction management plans. Without the implementation of the proposed mitigation measures, the construction stage of the development could result in potential significant indirect, cumulative and residual effects on the surrounding environment such as impacts on the local road network, potential ground/water contamination, noise, vibration, dust, air quality, pollution and waste management.

2.5.3 Operational Phase

Once constructed, the proposed development of Phase 1 'The Meadows' and the Phase 2 'The Farm' lands will result in the availability of an additional 420 no. residential units, 2 no. creches, a café and shared resident facilities. Longer term, and subject to zoning, this will increase to 620 no. residential units with the planned development of Phase 3 'The North Fields'.

The 2016 Census confirms that the average household size of the Mahon neighbourhood is c. 2.82 no. persons per household which indicates that the proposed development may provide for an uplift in population of approximately 1,184 no. persons. This is consistent with adopted planning policy objectives of concentrating population growth around high frequency public transport links in existing settlements and close to employment hubs.

The proposed residential development will result in several positive effects in the local area by providing sustainable housing units which will serve all aspects of the current housing market and address the current housing shortage in the Metropolitan Cork Area. The development will support the continued operations of local public transport routes and justify future improvements and investment in local bus routes and proposed Light Rail Transit identified in CMATS.

The proposed increase in population has potential for significant effects on the demand for local services such as water, wastewater, roads, childcare/educational, and on recreation and amenity provision locally without appropriate mitigation measures. When assessed cumulatively with other developments taking place in the area (as detailed in Chapter 1 of this EIAR), the proposed development will result in the increase in housing stock and population in the area and profound positive impacts to the local pedestrian and cyclist environment as well as enhancing access to local employment and public transport opportunities.

3 ALTERNATIVES CONSIDERED

3.1 Introduction

Article 5(1) of the Directive 2011/92/EU, as amended by Directive 2014/52/EU states that.

d) 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;

f) 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 point 2 expands further.

2) 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.

Article 94 and Schedule 6, paragraph 1(d) of the Planning and Development Regulations 2001, as amended, requires the following information to be furnished in relation to alternatives:

> *"(d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment."*

The purpose of this Chapter is to describe the reasonable alternatives considered by the developer, including alternatives considered through the design and consultation phases of the project, taking into account and comparing environmental effects and illustrating the manner in which, and reasons for, choosing the proposed development.

Regarding 'Reasonable Alternatives', the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment' (2018) states that:

> *''The Directive requires that information provided by the developer in an EIAR shall include a description of the reasonable alternatives studied by the developer. These are reasonable alternatives which are relevant to the project and its specific characteristics. The developer must also indicate the main reasons for the option chosen taking into account the effects of the project on the environment.*
>
> *Reasonable alternatives may relate to matters such as project design, technology, location, size and scale. The type of alternatives will depend on the nature of the project proposed and the characteristics of the receiving environment. For example, some projects may be site specific so the consideration of alternative sites may not be relevant. It is generally sufficient for the developer to provide a broad description of each main alternative studied and the key environmental issues associated with each.* ***A 'mini- EIA' is not required for each alternative studied.''***

Further the Draft 2017 Guidelines are also instructive in stating:

> *"Analysis of high-level or sectoral strategic alternatives cannot reasonably be expected within a*

project level EIAR... It should be borne in mind that the amended Directive refers to 'reasonable alternatives... which are relevant to the proposed project and its specific characteristics'".

This chapter provides an outline of the main alternatives examined throughout the design and consultation process to indicate the primary reasons for choosing the proposed development, considering and providing a comparison of the environmental effects.

3.2 Alternative Locations

As stated above, regarding alternative locations, Section 3.4.1 of the Draft 2017 EPA Guidelines, recognise that *"in some instances some of the alternatives described below will not be applicable"* – e.g. there may be no relevant 'alternative location'...".

The Phase 1 'The Meadows' and the Phase 2 'The Farm' lands are situated within the Cork City boundary and are the only zoned lands in the ownership or control of Estuary View Enterprises 2020 Limited. The Cork City Development Plan 2015, has been subject to Strategic Environmental Assessment which will have taken into account of environmental considerations associated, for example, with the cumulative impact of an area zoned for development on a sensitive landscape.

We note the Draft 2017 EPA Guidelines, which state.

'Analysis of high-level or sectoral strategic alternatives cannot reasonably be expected within a project level EIAR... It should be borne in mind that the amended Directive refers to 'reasonable alternatives... which are relevant to the proposed project and its specific characteristics'

3.3 Do-Nothing Alternative

In consideration of a 'do nothing' scenario on the Phase 1 'The Meadows' and the Phase 2 'The Farm' lands, the following would result:

- Serviced and zoned lands, within the rapidly growing, south-eastern suburb of the Cork City would remain undeveloped and in private ownership, in their current disused form.
- The significant security issues which currently pertain to these lands would remain. Unauthorised public access and antic-social behaviour would continue to pose risks. In a 'do-nothing' scenario these security issues would need to be addresses in the future.
- The 'do nothing' scenario would undermine the viability of proposed and planned upgrades to the adjacent greenways and public transport (and in the longer term the planned Light Rail Transit (LRT)). The critical mass required to support these infrastructure developments would be constrained by the continued under-utilisation of these accessible lands.
- The public realm and public open space provision associated with the proposed development would not be delivered, with an associated loss to the public amenity in the Mahon area.
- Enhanced connectivity to the Bessborough Estate, via the proposed pedestrian bridge would not be delivered.
- The landscape enhancement opportunities presented by the proposed development, in terms of tree management, replanting and rewilding of certain areas would not be available.

In addition the following would also apply specifically to the Phase 2 'The Farm' lands:

- Heritage landscape routes, currently in disuse or lost, would not be re-activated or restored.
- The state of the currently dilapidated farm buildings, would deteriorate.

A “do-nothing” scenario is considered to represent an inappropriate unsustainable and inefficient use of these serviced lands in this highly sustainable location.

3.4 Alternative Uses

The Phase 1 ‘The Meadows’ and the Phase 2 ‘The Farm’ lands are situated within the Cork City boundary and comprise areas zoned for ‘Residential, Local Services and Institutional Uses’ and ‘SE4 – Landscape Preservation Zone’ in the Cork City Development Plan 2015. The governing site-specific objectives in relation to the latter zoning allow for development on lands within the immediate environs to the north of Bessborough House, subject to it being consistent with the landscape and protected structure significance of the site.

In assessing the most suitable land uses at the subject site, it is considered that high-intensive employment or industrial development would not be appropriate at this sensitive location. It is also considered that an alternative consisting entirely of open space, recreation, community or education uses would not reflect the most efficient use of the lands, due to the accessibility of the site, served by an existing high frequency public transport system with proposals for further enhancement and its adjacency of several significant employments hubs in the immediate area. In this context, the proposed pre-dominantly residential development, which contributes to addressing Mahon’s future residential needs, represents the most appropriate land-use alternative of the lands, and is in accordance with the proper planning and sustainable development of the area.

3.5 Alternative Layouts

This section explores the design evolution of the individual phases from early design stage to the alternatives explored in response to engagement with Cork City Council and An Bord Pleanála (refer Appendix 3.2), through to the final iteration as proposed as part of the current applications.

3.5.1 Phase 1 ‘The Meadows’ Alternative A – May 2021

A Section 247 pre-application consultation meeting took place on 13th May 2021 with Cork City Council. The layout presented at the Section 247 meeting is illustrated in Figure 3.1 as shown.

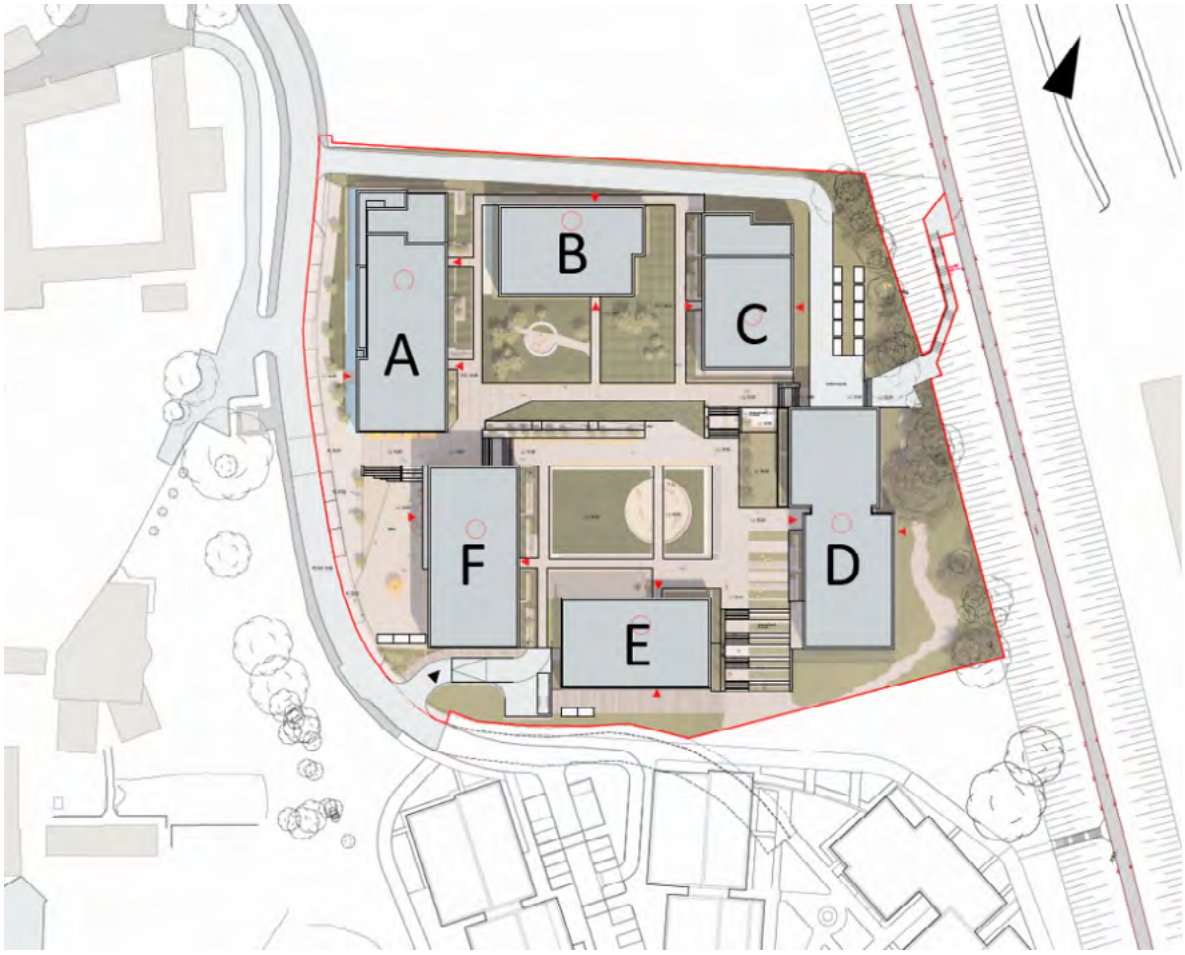

Figure 3.1 Phase 1 'The Meadows' - Alternative A

The scheme is set out orthogonally to the main Bessborough House, reflecting its geometry, to create a large internal central amenity space surrounded by 6 no. apartment blocks. Heights range between 5 – 9 storeys over the blocks with Building E at 5 storeys, Building A and Building B comprising 6 storey, Building C and Building F comprising 8 storey and Building D extending to 9 storeys. A split-level podium is proposed with parking contained below buildings D, E & F 's amenity space. This split level offers definition to a lateral desire line through the scheme from east to west connecting the Bessboro Road to the west with the Passage West Greenway to the east via stepped access. A northern boundary access road is provided for service to be offered in charge for orderly development of the residentially zoned site to the north.

The buildings' architectural expression is a simple ordered brick mono-form expression to offer contrast to the large landscape central areas. Building D is stepped in plan to reduce its mass from eastern vistas. A large public plaza is intended in front of Building F with active communal uses presenting to the square. A 25 no. child creche is located at ground floor of Building A, with a drop-off set down on the western Road. Basement/under-croft parking access is proposed to south-west corner of the site. A full photomontage pack was presented at the Section 247 meetin with the Council to facilitate assessment of the visual impacts in detail. An overview of the key statistics of Alternative A is summarised in Table 3.1 as shown.

Key Data of Alternative A	
Total site area (red line)	15,428 sqm (1.542 ha)
Development area	15,428 sqm (1.542 ha)
Residential density	294 units total - 190/ha
Height range	5-9 storey
Housing mix	34% 1 bed ,60% 2 bed, 6% 3bed
Public open space	17% @ 2625sqm
Resident Amenity space	3696 sqm (1896 sqm min required)
Other uses	25 Child Creche
Carparking spaces	35.4% - 104 spaces
Access to development	From Bessboro Road to West and steps to East (Greenway)
Tree removals	3
Trees replanted	25+ interior landscaping

Table 3.1 - Phase 1 'The Meadows' - Alternative A – Key Statistics

At the Section 247 meeting Cork City Council had significant concerns around the master-planning of the design. Principally they identified issues with placemaking, residents' amenity separation, building heights and the orientation of the buildings in relation to the Passage West Greenway to the east. The design team re-assessed certain approaches to allay these concerns. The design team subsequently liaised with the City Architect to develop upon the more macro master-planning issues and building assembly approach prior to further submission.

3.5.2 Phase 1 'The Meadows' Alternative B – November 2021

Following a series of workshop meetings with the City Architect the geometry of the now 4 no. L-shape blocks was re-arranged to incorporate a number of environmental generators (the historic Bessborough House and the former railway line) to respond more sensitively to the setting. A much larger scale urban gesture in the form of a new east-west streetscape was proposed with active communal-use frontages along with more articulation of the plan form and heights, presenting opportunities for more place-making being present in the configuration.

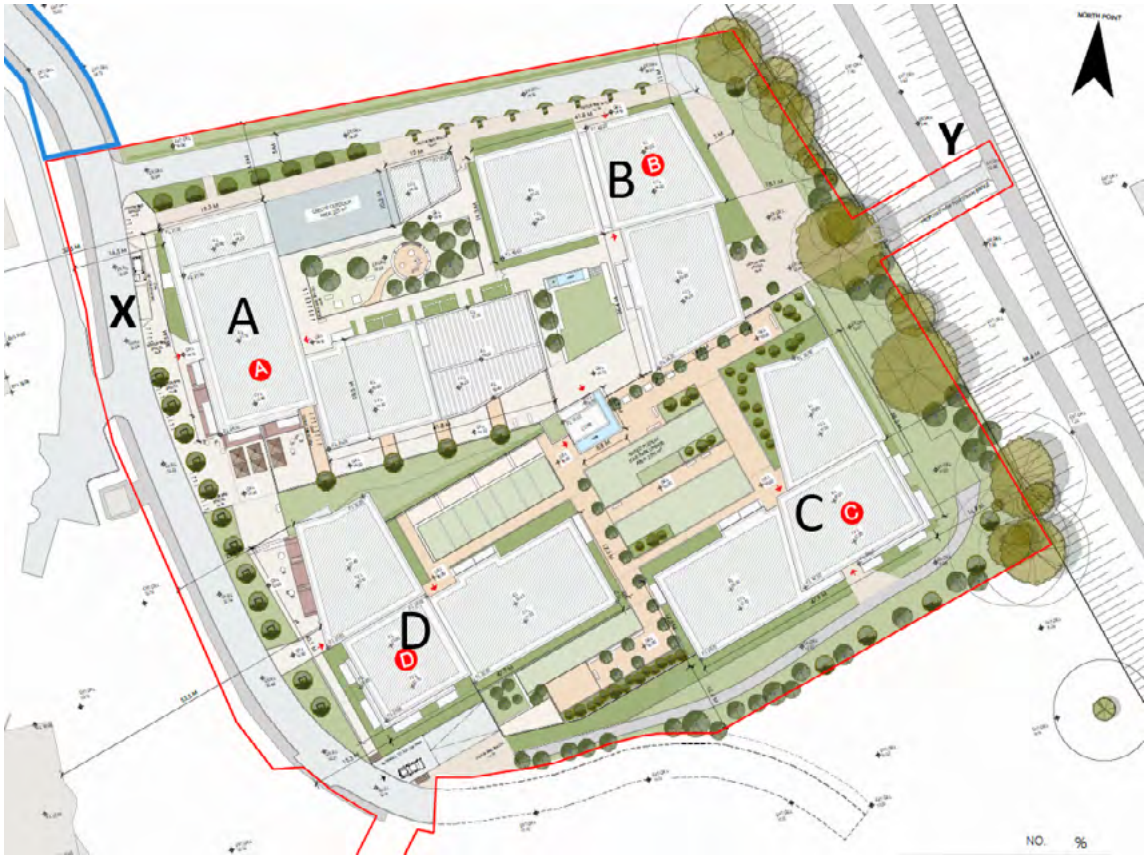

Figure 3.2 Phase 1 'The Meadows' Alternative B

A further Section 247 meeting was held with the City Council to present the revised approach to the Masterplan. The revised layout 'Alternative B' was then submitted as part of the pre-planning consultation with An Bord Pleanala –'Tripartite Submission'.

An overview of the key statistics of Alternative B is summarised in Tables 3.2 as shown.

Key Data of Alternative B	
Total site area (red line)	19,358 sqm (1.93 ha)
Development area	19,358 sqm (1.93 ha)
Residential density	283 units - 146/ ha
Height range	5 – 10 storey
Housing mix	2% studio, 40% 1 beds ,53% 2 beds ,5% 3 beds
Public open space	21% 4,242 sqm
Resident Amenity space	2315 sqm (1764 sqm minimum)
Other uses	Creche, café
Carparking spaces	35% 101 spaces
Access to development	Via Western Bessboro Road
Tree removals	3
Trees replanted	25+ interior scheme planting

Table 3.2 The Meadows – Alternative B

3.5.3 Phase 1 'The Meadows' Alternative C – March 2022

Alternative C is a refinement of Alternative B based on the feedback from the Tripartite Meeting with An Bord Pleanála and Cork City Council. The heights broadly remain unchanged with the exception of Building A which is reduced by one floor to improve its relationship with the stables building directly to the west. Other height assessments were carried out across the scheme, with the team's analysis concluding that with the exception of Building A, the heights of the other blocks were visually acceptable. The views and visual environment are discussed in more detail in Chapter 4 of this EIAR. Vehicle circulation was reconsidered around the site resulting in the creche drop-off area moving to the north ('X' *Fig 3.3)* onto the new northern roadway. A turning facility is provided for the facility to allow collection and drop off. The creche itself is increased for a 25-child to a 35-child space facility. Parking access was also reviewed and considered with the optimum location still remaining in the southwest corner given the levels in this area. The pedestrian bridge was adjusted in design to allow for a 4.9-meter clearance with the eastern-end requiring adjusting further north to meet the correct existing ramp levels ('Y' *Fig 3.3).* The bridge was also given a wider clearance to allow for a future Light Rail Transit (LRT) route alignment along the greenway. Landscape elements to the northern courtyard were adjusted to incorporate the larger creche play area and facilitate the turning area.

Apartment numbers were subsequently reduced to 280 units with modest revisions to internal layouts required. The redline area was increased to take in the part of the eastern road in control of the applicant in order for it to be offered in charge to Cork City Council as commented on by their department.

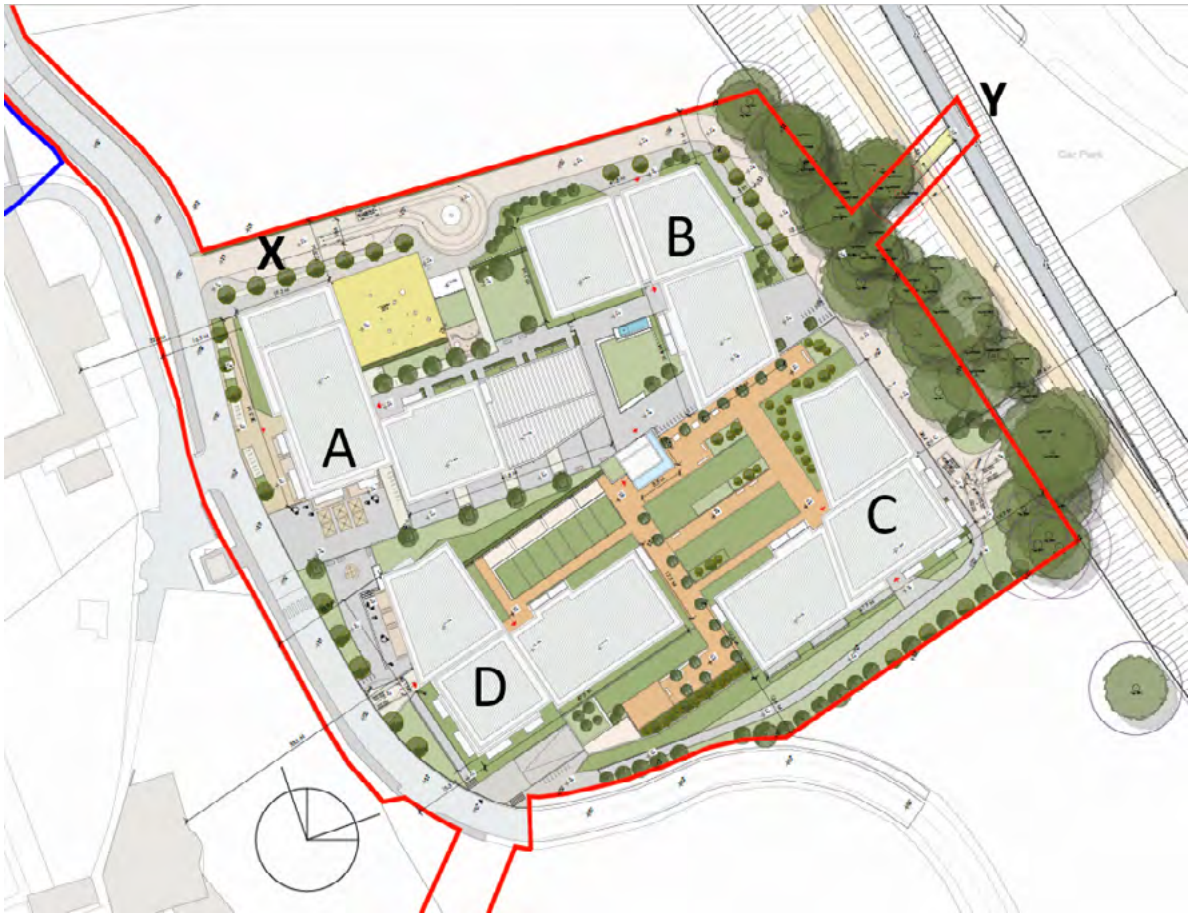

Figure 3.3 Phase 1 'The Meadows' Alternative C

Key Data of Alternative C	
Total site area (red line)	23,121 sqm (2.31 ha)
Development area	15,307 sqm (1.53 ha)
Residential density	280 units
Height range	5-10 storeys
Housing mix	2% studio ,40% 1 beds ,53% 2 beds ,5% 3 beds
Public open space	26% 3,958 sqm
Resident Amenity space	2172 sqm (1742 sqm minimum)
Other uses	Creche, café
Carparking spaces	35% 98 residential spaces and 4 creche drop-off spaces
Access to development	Via Western Bessboro Road
Tree removals	10 in wayleave and 3 to facilitate bridge
Trees replanted	108 + interior scheme planting

Table 3.3 The Meadows – Alternative C

3.5.4 Phase 2 'The Farm' – Alternative A – June 2021

The Phase 2 'The Farm' application area incorporates two distinct character areas: 'The Farm' including unlisted heritage elements of old agricultural buildings and 'The Park' which is predominated by a parkland area. An Historic Landscape Assessment Report prepared by Forestbird Design (refer Appendix 3.4), identified 'The Farm' area as an appropriate location for development at an early stage in the design process. This element was subsequently designed in consultation with John Cronin & Associates, Heritage Consultants. Buildings were weighted on the basis of their historic and fabric value for retention and conservation. The more macro-heritage landscape elements, including the sense of enclosure and the boundary created to the park area to the west were also identified. A masterplan for this specific character area was developed with the farm shed to the west identified for demolition along with later single-storey out -buildings to the north. The buildings to the east were earmarked to be retained and it was determined that new development immediately to the west of the farm area should reflect the original enclosure and function as a clearly defined boundary to 'The Park', area to the west. 'The Park' area was assessed in terms of sensitivity and capacity to absorb development, in line with the historic landscape assessment report.

Alternative A, as depicted in Figure 3.4, represents the design development stage at the Section 247 Pre-planning Consultation Meeting with Cork City Council. 'The Farm' provides for two main residential buildings, E (2-5 storey) and F (3-4 storey) with Building E forming the main enclosure and boundary to 'The Farm' area. 'The Park' area has 4 no. pavilion blocks, Buildings A-D, organically placed to minimise tree removals, ranging in height from 4-5 storeys. Buildings A-D are accessed via the historic entrance, while Buildings E and F are accessed by the main access roadway to the east. The traditional farmyard area provided the main location for communal uses in a hub location format while a 25-child crèche is provided for in Building A. Parking is at surface level with care given to focus it in locations between trees in the park area.

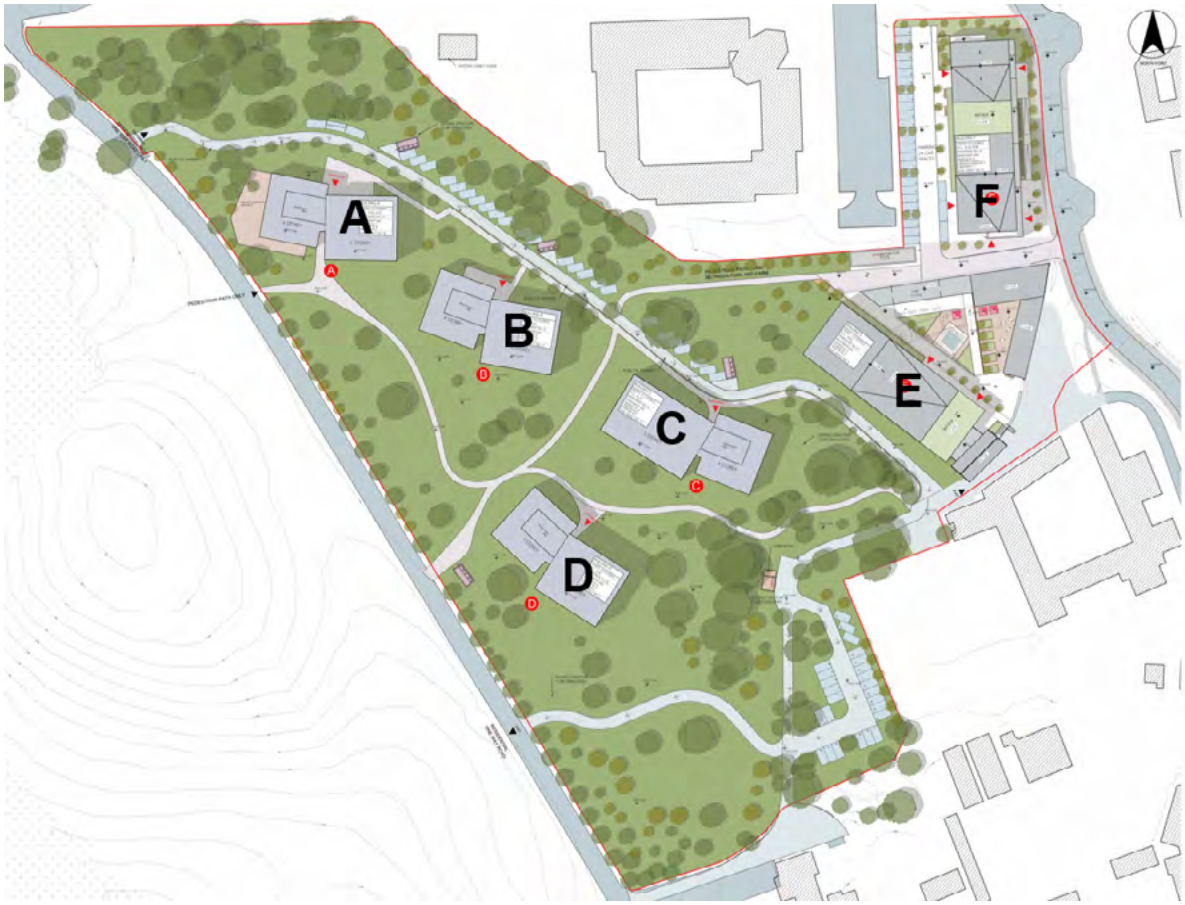

Figure 3.4 Phase 2 'The Farm' Alternative A

Key Data of Alternative A	
Total site area (red line)	38,853 sqm (3.88 ha)
Development area	38,853 sqm (3.88 ha)
Residential density	233 units - 60/ha
Height range	1-5 storeys
Housing mix	44% 1 bed ,53% 2 bed ,3% 3 bed
Public open space	60%
Resident Amenity space	1269 sqm (1433 sqm min)
Other uses	creche
Carparking spaces	32% - 76 spaces
Access to development	Via Bessborough Avenue to West and main access roadway to East
Tree removals	9% 30
Trees replanted	60 +

Table 3.4 The Farm – Alternative A

3.5.5 Phase 2 'The Farm' – Alternative B

At the Section 247 meeting significant concerns were raised by Cork City Council in relation to development in 'The Park' area of the proposal. 'The Farm' approach was generally well received with some technical comments to be address around privacy and proportions. The design team subsequently reconsidered the development approach to 'The Park' and revised the design to reference the original historic intent of open landscape areas and incorporate the renewal of the original circulation patterns.

Alternative B, as depicted in Figure 3.5, is the design as submitted for the Tripartite Pre-consultation Meeting with An Bord Pleanála and Cork City Council. Building heights in 'The Farm' remain the same as Alternative A, with Building D lengthened to address issues raised by the Council in relation to proportions and give stronger definition to the separation between 'The Park' and 'The Farm'. Building D incorporates an integrated archway access through to 'The Park' area from the east. A significantly larger public park element is proposed to the west with 3 no. pavilion buildings proposed (A, B and C) just north of the main house, consistent with the specific objectives of the zoning, with redefined historic routes providing semi-private open space enclosure.

Buildings A, B and C are 3 – 4 storeys in height with a unique expression of canted roofs and angular plan format to give interest and a broken-down scale. These building are given a black material finish to further mute their impact in 'The Park' landscape. Access is via the main gates and avenue for Buildings A, B and C while buildings E and D are accessed from the main access road to the east. A new pedestrian and cycle link is proved to the north-west corner of the site to allow residents access the Passage West Greenway to the east and providing linkage and a potential circular route with the existing Heritage Park Greenway along the western and southern boundary of the masterplan area which is scheduled to be upgraded in the future.

Figure 3.5 Phase 2 'The Farm' Alternative B

Key Data of Alternative B	
Total site area (red line)	45,327 SQM (4.53 ha)
Development area	45,327 SQM (4.53 ha)
Residential density	184 units (40/ha)
Height range	2-5 storey
Housing mix	2 % studio ,46% 1 bed , 50% 2bed ,2% 3bed
Public open space	46% 20,983 sqm (20.9Ha)
Resident Amenity space	5474 sqm (1096 sqm minimum)
Other uses	Creche
Carparking spaces	35% 64 spaces
Access to development	Via the main avenue and main access road to the East
Tree removals	15% - 51 specimens
Trees replanted	100+

Table 3.5 The Farm – Alternative B

3.5.6 Phase 2 'The Farm' – Alternative C

Alternative C is the end result of the various alterations and the design that is being submitted with the Phase 2 'The Farm' planning application. Following the Tripartite Meeting feedback from An Bord Pleanála and Cork City Council the following responses were incorporated into this alteration:

- The City Council retained concerns about the building locations in 'The Park' element of the Alternative B design and considered that Buildings B and C should be re-located to the boundary edge and that Building A should be omitted entirely. The design team responded with this request by omitting Building A and wrapping a combined Building C and B into one building (renamed Building C) at the edge of 'The Park' element. The height of this new designed building, at 3 storeys, aimed to further reduce any impacts resulting from the closer proximity to protected structure to the east and south.
- In addition, potential heritage impacts were addressed in Alternative C by reconfiguring the access arrangement, thereby omitting the requirement to access the development from Bessborough Avenue and avoid the requirement to upgrade/modify the entrance gates.
- The creche and associated drop-off were relocated into the north of Building B with surface parking provided within Building B through an arched access point. All vehicular access now enters from the main access road to the east. Consequently, the redline has been adjusted to incorporate the pedestrian/cycle bridge to the east in order to ensure its delivery in the event that the proposed development of Phase 1 'the Meadows' was delayed or did not proceed.
- With regard to 'The Park' area, a more managed approach is proposed, consisting of the removal of c.1980 – 1990s landscape interventions and the re-introduction of historical routes. In particular, the reinstatement of the eastern boundary route is proposed. In order to facilitate its linkage with the existing pedestrian crossing at the junction to the north of the site a modest opening in the existing estate wall is proposed.

Figure 3.6 Phase 2 'The Farm' Alternative C

Key Data of Alternative C	
Total site area (red line)	51,300 sqm (5.13ha)
Development area	42,842 sqm (4.28 ha)
Residential density	140 (32.7 /ha)
Height range	2- 5 Storey
Housing mix	50% 1 bed, 49% 2 bed, 1% 3 bed
Public open space	63% - 27,136sqm
Resident Amenity space	2,563sqm (exceeds minimum of 830sqm minimum required)
Other uses	creche
Carparking spaces	38% 54 residential spaces plus 4 creche drop-off spaces
Access to development	Via main access road to the East
Tree removals	51 to facilitate development, plus 3 to facilitate bridge
Trees replanted	116

Table 3.6 The Farm – Alternative C

3.6 Comparison of Environmental Impacts – Construction Phase

This section provides a summary of the comparison of environmental impacts during the construction phase between the various alternatives for the Phase 1 'The Meadows' and the Phase 2 'The Farm' lands outlined above.

3.6.1 Landscape & Visual

In relation to Phase 1 'The Meadows' it is not considered that the landscape and visual considerations differ significantly between the various alternatives, which all require similar levels of bulk excavation and removal of existing vegetation.

It is considered, however, that landscape and visual considerations differ significantly between the various alternatives considered for Phase 2 'The Farm'. Notably there was a reduction in density, relocation and omission of buildings between Alternative A to Alternative C in 'The Park' element of the proposed development resulting in a significant reduction in the scale of the proposed construction works. Given the site is largely in landscape preservation zone. Alternative C is considered the most sensitive to the receiving environment, requiring reduced levels of bulk excavation, to accommodate the proposed units/ roads and underground utilities.

In both phases tower cranes will be visible across all alternatives from beyond the site in what is a sensitive landscape area, however, this impact will be temporary in nature.

3.6.2 Traffic & Transportation

Due to the higher number of residential units in Alternative A in both phases compared to Alternative C, it is likely that there will be decreased construction traffic from previous alternatives, with a modest reduction in Phase 1 and a significant reduction envisaged in Phase 2. In both phases the evolution of the scheme to provide for a pedestrian bridge over the Passage West Greenway in Alternative C, may potentially result in some short-term negative impacts to pedestrian and cyclist users of the greenway over Alternative A. However, the construction mitigation measures identified in the CEMPs (ref Appendix 2.1 and Appendix 2.2) developed in detail in advance of Alternative C, will ensure that any impacts will be localised and not significant in nature, and temporary in duration.

3.6.3 Services, Infrastructure & Utilities

In relation to Phase 1 'The Meadows' it is not considered that services, infrastructure and utilities considerations differ significantly between the various alternatives described. The decrease in the number of residential units between Alternative A and Alternative C will result in a modest reduction in demand for connections to services and utilities. However, in the context of the wider development, this is not considered to be significant. Each alternative assessed would require similar levels of excavation to accommodate the proposed buildings and underground utilities.

It is considered however, the services, infrastructure and utilities considerations differ significantly between the various alternatives considered for Phase 2 'The Farm'. The decrease in the number of residential units between Alternative A and Alternative C will result in a significantly lower demand for connections to services and utilities. In the context of the wider development, this is considered to be significant. Each alternative assessed from Alternative A to Alternative C would require reduced levels excavation on the park area to accommodate the proposed buildings and underground utilities.

3.6.4 Land, Soils & Geology

Similarly, it is not considered that land, soils and geology considerations differ significantly between the various alternatives described in relation to Phase 1 'The Meadows', with each alternative requiring approximately the same level of excavation in similar if not the same footprint locations. However, in Phase 2 'The Farm' each design iteration has a diminishing scale of excavation, in 'The Park' area in particular, resulting in the conclusion that land, soils and geology considerations differ significantly between the various alternatives described in this phase.

3.6.5 Water & Hydrology

Again, it is not considered that water (hydrology & hydrogeology) considerations differ significantly between the various alternatives described in relation to Phase 1 'The Meadows'. The principles of the surface/foul water strategies have remained relatively consistent across all alternatives proposed. Alternative B and Alternative C have larger paved areas in compared to Alternative A, however, these are designed to be permeable offsetting any consideration of significant change.

However, in relation to Phase 2 'The Farm' it is considered that water (hydrology & hydrogeology) considerations differ significantly between the various alternatives described. With diminishing impacts from Alternative A to Alternative C. The principles of the surface/foul water strategies adjust in the park area across all alternatives proposed.

3.6.6 Biodiversity

In relation to Phase 1 'The Meadows', it is not considered that biodiversity considerations differ significantly between the various alternatives described. Detailed construction mitigation measures were developed as the project evolved and are detailed in the accompanying CEMP.

However, it is considered that these considerations differ significantly between the various alternatives in relation to Phase 2 'The Farm' with significantly larger areas of 'The Park' remaining as open space and undeveloped in Alternative C. However, this is counter-balanced by slightly higher levels of tree loss in Alternative C over Alternative A. Collectively it is considered Alternative C is the least impactful for biodiversity given the level of parkland area retained. In relation to both phases detailed construction mitigation measures have been developed as the projects evolved and are identified in the accompanying CEMPs.

3.6.7 Noise & Vibration

Noise and vibration levels during construction are considered to be consistent across all alternatives in relation to Phase 1 'The Meadows', due to the relative consistency of scale and heights between alternatives. However, due to the reduction in scale between the alternatives for Phase 2 'The Farm' it is anticipated there would be a difference in noise and vibration levels during construction between the various alternatives. In relation to both phases, as detailed in the OCEMP, noise and vibration limits will be rigorously monitored throughout construction and will not exceed the standards outlined in the CEMP.

3.6.8 Cultural Heritage

For Phase 1 'The Meadows' it is not considered that cultural heritage considerations differ significantly between the various alternatives described in terms of construction impacts.

Due to the reduction in scale and the lowering of height across the alternatives in Phase 2 'The Farm' it is considered the construction phase of Alternative C will have a reduced impact in comparison to Alternatives A and B in respect of the heritage items in close proximity.

3.6.9 Air Quality & Climate

The decrease in the proposed number of residential units throughout the various alternatives in relation to both Phase 1 'The Meadows' and Phase 2 'The Farm' may result in a decrease in levels of dust emissions during construction, in the context of Phase 1 'The Meadows' this is likely to be modest, and more significant in relation to Phase 2 'The Farm'. However, in both phases, with mitigation measures enforced, it is considered that any negative impacts relevant to air quality and climate are not significant across all alternatives, with alternative C being the least impactful in relation to Phase 2 'The Farm'.

3.6.10 Population & Human Beings

In relation to both Phase 1 'The Meadows' and Phase 2 'The Farm' the decrease in the number of residential units through the evolution of the various project alternatives, will result in reduction in impacts relating to population and human health. These may include a shorter construction period, lower construction traffic numbers and nuisances such as noise, vibrations and dust. This is anticipated to be more significant in relation to Phase 2 'The Farm'.

Table 3.7 and Table 3.8 as shown provides an objective comparison analysis of the evolution of the proposed development in context of the categories outlines above.

Criteria	Alternative A	Alternative B	Alternative C
Landscape & Visual	=	=	=
Traffic & Transportation	=	=	X
Services, Infrastructure & Utilities	=	=	✓
Land, Soils & Geology	=	=	=
Water & Hydrology	=	=	=
Biodiversity	=	=	=
Noise & Vibration	=	=	=
Cultural Heritage	=	=	=
Air Quality & Climate	=	=	✓
Population & Human Beings	=	=	✓

Table 3.7 – Comparison of Impacts – Phase 1 'The Meadows'

✓ Where it has been considered that there has been an improvement from the previous alternative
= Where the impact is considered similar for all options
X Where a particular option is considered to have a more negative impact on a particular aspect of the environment than other alternatives.

Criteria	Alternative A	Alternative B	Alternative C
Landscape & Visual	X	✓	✓
Traffic & Transportation	=	✓	✓
Services, Infrastructure & Utilities	=	✓	✓
Land, Soils & Geology	=	✓	✓
Water & Hydrology	=	✓	✓
Biodiversity	X	✓	✓
Noise & Vibration	=	✓	✓
Cultural Heritage	=	✓	✓
Air Quality & Climate	=	✓	✓
Population & Human Beings	=	✓	✓

Table 3.8 – Comparison of Impacts – Phase 2 'The Farm'

3.7 Comparison of Environmental Impacts – Operational Phase

This section provides a summary of the comparison of environmental impacts during the operational phase between the various alternatives for the Phase 1 'The Meadows' and the Phase 2 – The Farm' lands outlined above.

3.7.1 Landscape & Visual

It is considered that the evolution of both Phase 1 'The Meadows' and the Phase 2 'The Farm' from Alternative A to Alternative C, results in an enhanced landscape and visual amenity context. In relation to Phase 1 'The Meadows' differing approaches to heights range across each alternative with Alternative C being lowest to the west in closest proximity to heritage items. The resulting sensitive development has been designed, cognisant of the High Landscape Value designation of the site and in accordance with the City Council's recommendations.

In the context of Phase 2 'The Farm' it is considered that landscape and visual considerations differ significantly between the various alternatives described notably in 'The Park' element of the proposed development. The reduction in density and relocation and omission of buildings occurred throughout the evolution of the project from Alternative A through to Alternative C having a significantly positive impact from a landscape and visual impact approach at the operational phase. Given the site is in an area of High Landscape Value and partially within a Landscape Preservation Zone, the Alternative C layout is considered to be the most sensitive in scale and to be visually most sympathetic to the nearby heritage structures. The provision of a central amenity parkland and more appropriate public open spaces within the proposed scheme, results in a higher quality residential amenity and reflects the sites existing context.

3.7.2 Traffic & Transportation

Due to the higher number of residential units in Alternative A over Alternative C in both Phase 1 'The Meadows' and the Phase 2 – The Farm', it is likely that there will a decreased level of operational traffic from previous alternatives, in relation to Phase 1 'The Meadows' this is anticipated to be very modest, but significant in relation to Phase 2 – The Farm'. In relation to the former the internal traffic movements in Alternative C have been revised to include improved creche drop-off and turning and service vehicle movements.

In both phases the evolution of the scheme to provide for a pedestrian bridge over the Passage West Greenway in Alternative C will enhance the connectivity of the wider Bessborough lands with the greenway, the Mahon District Centre and with local employment hubs for both existing and future residents of the area.

3.7.3 Services, Infrastructure & Utilities

The decrease in the number of residential units between Alternatives A-C will result in a significantly lower operational demand for connections, services and utilities in relation to Phase 2 'The Farm'. In the context of the wider development, therefore, the services, infrastructure and utilities considerations differ significantly between the various alternatives. While in relation to Phase 2 'The Farm' the decrease in the number of residential units between Alternative A and Alternative C will result in a modest reduction in operational demand for connections to services and utilities which is not considered to represent a significant difference in the services, infrastructure and utilities considerations between the various alternatives described.

3.7.4 Land, Soils & Geology

In both Phase 1 'The Meadows' and the Phase 2 'The Farm' it is not considered that land and soil considerations differ significantly between the various alternatives described over the operational phase.

3.7.5 Water & Hydrology

In relation to Phase 1 'The Meadows' it is not considered that water (hydrology & hydrogeology) considerations differ significantly between the various alternatives described. The principles of the surface/foul water strategies have remained relatively consistent across all alternatives proposed and operationally do differ significantly.

However, it is considered that water (hydrology & hydrogeology) considerations in relation to Phase 2 ' The Farm' differ significantly between the various alternatives described, with impacts diminishing from Alternative A to Alternative C. The principles of the surface/foul water strategies have been adjusted in 'The Park' element across all the proposed alternatives. Alternative C presents Building C with a green roof which further improves attenuation over earlier alternatives during operational phases.

3.7.6 Biodiversity

It is not considered that biodiversity considerations differ significantly between the various alternatives described in relation to Phase 1 'The Meadows'. All alternatives have a significant quantum of new planting proposed which will positively contribute to enhancing biodiversity.

However, in relation to Phase 2 'The Farm' it is considered that biodiversity considerations differ significantly between the various alternatives described, with significantly larger areas of 'The Park' element remaining open and undeveloped in Alternative C in comparison to earlier alternatives. Construction stage tree loss, while slightly greater in Alternative C in comparison to alternative A, is compensated for and offset by proposed greater levels of replanting and rewilding to existing hard landscaped areas.

3.7.7 Noise & Vibration

In both Phase 1 'The Meadows' and the Phase 2 'The Farm' it is not considered that noise and vibration considerations differ significantly between the various alternatives described during operational phase. The decrease in the number of residential units between Alternative A and Alternative C in both phases may result in a slight reduction in noise generated from residents' small vehicle traffic during the operational phase.

3.7.8 Cultural Heritage

In relation to Phase 1 'The Meadows', given the reduction in scale and breakup of massing it is considered that the relationship between the proposed layout in Alternative C and the nearby cultural features is an enhancement over Alternative A and Alternative B.

Similarly, in relation to Phase 2 'The Farm' through the reduction in scale and lowering of height in proximity to heritage elements, it is considered the Alternative C is an improvement over Alternatives A and Alternatives B in respect of its relationship to nearby heritage structures. Furthermore, Alternative B and Alternative C propose the re-establishment of historic landscape routes in 'The Park' area which was not a feature in Alternative A, thus improving the operational cultural and heritage value to the scheme.

3.7.9 Air Quality & Climate

In both Phase 1 'The Meadows' and the Phase 2 'The Farm' it is not considered that air quality and climate considerations differ significantly between the various alternatives described. The decrease in the number of residential units between Alternative A and Alternative C may result in a slight reduction in carbon emissions from the reduced number of units and in a slight reduction in the emissions generated from the residents' small vehicle traffic during the operational phase.

3.7.10 Population & Human Beings

The modest decrease in the number of residential units and reconfiguration of buildings throughout the various project alternatives in relation to Phase 1 'The Meadows', will result in some slight reduction in impacts relating to some elements of population and human health. These may include improved natural light to amenity spaces, larger public realm elements and improved architectural expression, variety and placemaking. However, in relation to Phase 2 'The Farm' the significant decrease in the number of residential units throughout the various project alternatives, will result in a reduction in these impacts.

The inclusion of the pedestrian bridge makes access to the Greenway amenity and cycle commutes more accessible for existing and future residents. This combined with improved connectivity, greater amenity and open-space offered over successive alternatives makes Alternative C superior in terms of wellbeing for the local population.

Conversely, the reduction in the number of homes being created in both phases between Alterative A and Alternative C will result in a slight reduction in the positive impact that the proposed development will have on the housing shortage in the Mahon Area and the wider Cork City area. It will also result in a slight reduction in the contribution that the proposed development will make towards achieving the requisite critical mass to support future public transport plans for the area in the form of the LRT.

Table 3.9 and Table 3.10 as shown provides an objective comparison analysis of the evolution of the proposed development in context of the categories outlines above.

Criteria	Alternative A	Alternative B	Alternative C
Landscape & Visual	=	✓	=
Traffic & Transportation	=	=	✓
Services, Infrastructure & Utilities	=	=	=
Land, Soils & Geology	=	=	=
Water & Hydrology	=	=	=
Biodiversity	X	✓	=
Noise & Vibration	=	=	✓
Cultural Heritage	=	✓	✓
Air Quality & Climate	=	=	✓
Population & Human Beings	=	✓	=

Table 3.9 Comparison of Impacts – Phase 1 'The Meadows'

✓ Where it has been considered that there has been an improvement from the previous alternative

= Where the impact is considered similar for all options

X Where a particular option is considered to have a more negative impact on a particular aspect of the environment than other alternatives.

Criteria	Alternative A	Alternative B	Alternative C
Landscape & Visual	X	✓	✓
Traffic & Transportation	=	=	✓
Services, Infrastructure & Utilities	=	=	✓
Land, Soils & Geology	=	=	=
Water & Hydrology	=	=	✓
Biodiversity	X	✓	✓
Noise & Vibration	=	=	✓
Cultural Heritage	=	✓	✓
Air Quality & Climate	=	=	✓
Population & Human Beings	=	=	=

Table 3.10 – Comparison of Impacts – Phase 2 'The Farm'

3.8 Main Reasons for the Option Chosen

3.8.1 Phase 1 'The Meadows'

When all construction and operational aspects are assessed, it is objectively considered that Alternative C, consisting of 280 no. residential units, creche, café, extensive public realm improvements and new pedestrian bridge is the most appropriate and efficient alternative layout assessed. The design of Alternative C has been strongly influenced by the opinions of Cork City Council, in particular the City Architect and subsequently An Bord Pleanála arising out of the Section 247 and Tripartite discussions (refer Appendix 3.2), and represents a more efficient and technically resolved development than that previously proposed in Alternatives A and B.

- Alternative C provides for a more efficient density of residential development on zoned land, reflective of the site's location adjacent to the Passage West Greenway, and within walking and cycling distance of various services and amenities provided for in Mahon District Centre and Cork City Centre.
- The landscape, visual and amenity strategy has evolved throughout the scheme design, to provide for a more broken-up massing and material breakup, which was not initially envisaged in Alternative A. Alternative C has a more sophisticated approach to height placement over Alternative A, with further reduction in height than Alternative B. The Alternative C layout also provides for an enhanced relationship between the built environment and the sensitive landscape setting, from that proposed in Alternative A and B.
- Alternative C provides improved access to the wider site via the main East / West larger feature public realm piece with Greenway connectivity via the bridge proposal which differs from alternative A. The chosen layout will succeed in facilitating internal pedestrian movements within the site and integrate into the existing settlement, satisfying desire lines to local destinations, including Mahon point, the eastern Greenway and employment zones in Mahon.
- Alternative C provides clearer delineation between public realm and residents' amenities than was the case in Alternative B and Alternative C, offering residents an improved amenity experience.
- It is considered that the proposed layout has incrementally improved across all alternative layouts iterations, to the benefit of the future residents. Alternative C, across its construction and operational phases, will result in several positive environmental and socio-economic impacts to the locality.

3.8.2 Phase 2 'The Farm'

When all construction and operational aspects are assessed, it is objectively considered that 'Alternative C', consisting of 140 no. residential units, a crèche, a new publicly accessible parkland and new pedestrian bridge is the most appropriate and efficient alternative layout assessed. Alternative C reflects the observations of Cork City Council, in particular the City Architect and the Park Superintendent, and subsequently An Bord Pleanála made during Section 247 and Tripartite discussions, and represents a more efficient and technically resolved development than that previously proposed in Alternatives A and B.

- Alternative C provides for a lower density of residential development within the zoning objectives of the site reflective of the site's location within a sensitive heritage and landscape setting. However, the proposed development balances cognisance of the sensitivities of the site, with recognition of the sustainability and accessibility of the location, which links to the Passage West Greenway and is within walking & cycling distance of various services and amenities provided for in Mahon and the Cork City Centre.
- The landscape, visual and amenity strategy has evolved throughout the scheme design, to provide for a reduced level of development in 'The Park' element which was not initially envisaged in Alternative A & B. The Alternative C layout is considered less intrusive with an improved orientation strategy

in comparison to Alternative A and Alternative B. The Alternative C layout also provides for an improved relationship between the existing built environment and the sensitive landscape setting, in comparison to that proposed in Alternatives A and B.

- Alternative C provides improved access to the wider site via the bridge proposal which differs from Alternative A. The selected layout will succeed in facilitating internal pedestrian movements within the site and improve permeability between the Bessborough estate and the Mahon, satisfying desire lines to local destinations, including Mahon Point and Retail Park, the Passage West Greenway and a number of employment hubs in the Mahon area.
- Alternatives C's revised access is proposed from the east and not via the main entrance to Bessborough House which offers a reduced heritage impact in comparison to Alternatives A and B. Historic routes and connectivity are re-established and form a key element of the sustainable access strategy underpinning Alternative C, unlike the earlier alternatives.
- It is considered that the proposed layout has incrementally improved across all the alternative layouts considered and will positively contribute to the future residential and economic growth of the settlement. Once operational the proposed development will result in several positive environmental and socio-economic impacts to the locality.

4 LANDSCAPE & VISUAL IMPACT ASSESSMENT

Introduction

The Landscape/Townscape and Visual Impact Assessment chapter report describes the landscape/ townscape and visual context of the proposed development and assesses the likely impacts of the scheme on the receiving environment, in terms of both landscape/townscape character and visual amenity. Landscape/Townscape Impact Assessment relates to changes in the physical environment brought about by a proposed development, which may alter its composition and character. Visual Impact Assessment relates to changes in views experienced by people resident in different places and/or engaged in particular activities, which influences their sensitivity to such changes.

Methodology

Production of this Landscape/Townscape and Visual Impact Assessment involved desk studies and fieldwork to establish the nature of the receiving environment and determine relevant planning policies in, particularly, the Cork City Development Plan 2015-21, the Cork County Development Plan 2014-2021 and draft County Development Plan 2022-2028. The assessment of the significance of both landscape/ townscape and visual impacts of the proposed development is determined by weighing the sensitivity of the townscape / visual receptor against the magnitude (scale and nature) of the impact. The 'quality' of the effect is also assessed in terms of whether the potential landscape/townscape and visual changes are deemed positive, neutral or negative relative to the existing baseline scenario.

This methodology is prescribed in the Institute of Environmental Management and Assessment (IEMA) and landscape Institute (UK) 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA-2013), which is used as the basis for all such assessment in the UK and Ireland.

Description of Existing Baseline Environment

The site formed part of the Bessborough Estate, centred upon Bessborough House; a large Georgian country house dating back to 1760. The original estate encompassed over 200 acres (80 hectares) of land, the majority of which has since been sold and developed. For most of the last century, the site served as a Mother and Baby home.

The Phase 1 'The Meadows' area is in the northeast of the Bessborough estate and is a greenfield area that is characterised by unmanaged, regenerating scrub (e.g., rough grass, briars, self-seeding young trees). A tall treeline aligns the area's eastern boundary, bordering the Passage West Greenway. This modified landscape is also marked by low-level dilapidation and dumping.

The Phase 2 'The Farm' area is located north of Bessborough House. The overwhelming majority of this area is made up of a mature parkland landscape, consisting of over 330 native and non-native trees, interlaced with lawn and pathways and dotted with occasional small, single-storey buildings. In the centre-east of this area are numerous old and/or dilapidated buildings that are the remnants of the original Bessborough farmyard (within which is a protected structure), as well as more recent shed additions. While it contains some scenic and naturalistic value, it is inaccessible to the public.

The third and final area of the site is the Phase 3 'The North Field' area, located west/northwest, south and southeast of Bessborough House. This area is mostly made up of large, fenced-off sloping fields, with a mature thicket of woodland aligning the western and southern periphery, which contains a rough, walking trail along it, as well as a manmade pond. The southeast area is unmanaged and mostly consists of self-

seeding vegetation and low-level degradation and/or dumping. However, as the details of any proposed development are not yet finalised in the Phase 3 'The North Field' area, it does not inform the following assessment of potential impacts associated with this application.

Potential Landscape Impacts of the Proposed Development

Landscape sensitivity

The sensitivity of the receiving landscape/townscape setting for Phase 1 'The Meadows' area is considered to be 'Medium-low,' while for Phase 2 'The Farm' area it is considered to be 'Medium.'

Construction Phase

This will involve the movement of heavy vehicles to and from the site as well as tower cranes within it. There will also be a gradual emergence of partially completed buildings and pedestrian bridge over the Passage West Greenway. For Phase 1 'The Meadows' area, Phase 2 'The Farm' area, as well as combined construction stage effects for both phases, the overall significance of landscape impact effect is deemed to be Moderate and having a Negative quality of effect.

Operational Phase

The most notable landscape/townscape operational phase impacts will result from the permanent presence of 4 no. blocks (from 6 to 10 storeys) and 5 no. residential blocks (4-5 storeys), for Phase 1 'The Meadows' and Phase 2 'The Farm,' respectively. Following this, will be those resulting from a new pedestrian/cycle bridge over the adjoining Passage West Greenway. While the proposed blocks will represent a distinct escalation of height and built intensity in the site, they will also represent a compatibility with the townscape fabric and character within the broader vicinity of this area (i.e., less than 500m), and wider study area.

In addition, the high-end architectural quality, detail and finish of the proposed blocks is likely to prove a long-term asset to the landscape/townscape character of the study area, while the rich extent of existing, mature trees in both areas will help knit the proposed development into the receiving environment. In the case of Phase 2 'The Farm', several of the proposed buildings will be at a similar height to the mature tree canopy in its immediate vicinity, as well as the cluster of buildings around Bessborough House to the south of this area.

The Phase 1 'The Meadows' area is deemed to have a Moderate-slight overall operational stage significance of landscape/townscape impact, with a Neutral-negative quality of effect. The Phase 2 'The Farm' area is deemed a 'Moderate-slight' overall operational stage significance of landscape/townscape impact, with a Neutral quality of effect. Meanwhile, a 'Moderate-slight' overall operational stage significance of landscape/townscape impact is deemed for the combined Phase 1 and Phase 2 assessment, with a Neutral/Neutral-negative quality of effect.

Potential Visual Impacts of the Proposed Development

Visual Receptor Sensitivity

The main variation in the nature of views and those availing of those views, in this instance, relates to an overt sense of place. Accordingly, the resulting visual receptor sensitivity ranged from 'Medium-low' to 'Medium.'

Phase 1 'The Meadows'

In all, 17 viewpoints have been assessed for this proposed development. It is deemed that five viewpoints are likely to experience an 'imperceptible' impact upon the visual amenity of the scene, all with a 'neutral' quality of effect. A further six viewpoints are deemed likely to experience a 'Slight' impact upon the visual amenity of the scene, all with a 'negative' quality of effect. The highest likely visual impact likely to arise from this development is deemed to be 'Moderate-slight,' with a 'negative' quality of effect in all cases. This is likely to be experienced in the remaining six viewpoints. However, when assessed in a bare-leaf, winter scenario, the highest likely visual impact significance likely to arise from this development occurs in four viewpoints, which are deemed to be 'Moderate,' with a 'negative' quality of effect.

Phase 2 'The Farm'

In all, 19 viewpoints have been assessed for this proposed development. It is deemed that a majority of these (i.e. 11 viewpoints) are likely to experience an 'imperceptible' impact upon the visual amenity of the scene, all with a 'neutral' quality of effect. A further five are likely to experience a 'Slight' impact upon the visual amenity of the scene, with a 'negative' quality of effect. A further two viewpoints are deemed to be either 'Slight/positive' or 'Slight-imperceptible/negative.' The highest likely visual impact likely to arise from this development is deemed to be 'Moderate-slight/negative,' which occurs in one viewpoint. Furthermore, when assessed in a bare-leaf, winter scenario, the resulting visual impact significance and quality of effects remains unchanged/unaffected.

Potential Cumulative Impacts

The potential for cumulative impacts arising as a result of the proposed development in combination with existing urban development in the study area will not be significant. In addition, the potential for cumulative impacts arising as a result of the proposed development in combination with permitted developments in the locality will not be significant

Overall Significance of Impact

Overall, it is considered that the proposed development is an appropriate contribution to the built fabric of the study area that will not result in any significant townscape or visual impacts.

5 MATERIAL ASSETS – Traffic & Transport

This chapter assesses the characteristics of the application site and surrounding area, examines the likely transport implications, ensures sustainable accessibility is maximised and that appropriate infrastructure is provided to accommodate the proposed development.

The key junctions in the area surrounding the proposed development are as follows:

- Junction 1: Traffic Signal Controlled cross-roads junction serving R852 Skehard Rd., Church Rd. & Scally's Supervalu
- Junction 2: Traffic Signal Controlled T-Junction at which Bessboro Rd. joins R852 Skehard Rd.
- Junction 3: Traffic Signal Controlled cross-roads junction serving R852, Blackrock Ave., & Skehard Rd
- Junction 4: Mini roundabout on the junction of Bessboro Rd. and the site access road

The traffic assessment has demonstrated the following:

- The proposed residential development is in accordance with the principles of the Cork Metropolitan Area Transport Strategy and in line with the Mahon Local Area Plan (now lapsed) and forms an important continuation in the delivery of planned growth in the area. The traffic modelling carried out included for 'Granted Schemes' in the area currently under construction as well as applying TII Project Appraisal traffic growth rates on recorded traffic flows in 2020. The traffic counts were undertaken simultaneously at each of the 4 junctions in February 2020 prior to covid restrictions being put in place.
- A review of the existing roads network and collision data in the vicinity of the site indicates that there are no significant problems in relation to the current safety of the Roads Network.

The following Key Performance Indicators (KPI's) were examined for the network:

- Journey Time Comparison: Average journey times on specific routes in respective traffic models in seconds. A comparison of the four designated routes for the various time periods shows a steady increase in journey time both with/without development traffic. This is reflective of the application of TII Project Appraisal growth rates on background traffic flows without mitigation measures being implemented. The development of the Bessborough site will lead to an increase in traffic on the Bessborough Road primarily against the predominant direction of flow in the AM peak. It has its greatest impact in the PM peak with an approximate 3-fold increase in journey time on the Mahon Link to Skehard West route from 214 secs (2020) to 658 secs (2039). It should be noted that with no development on the site this figure jumps to 500 secs reflective of a route that will need mitigation measures to maintain its capacity in the future. Mitigation measures such as a change in signal timing at specific junctions and the elongation of right turn lanes is shown to improve this situation.
- Average Network Speed: Average speed for vehicles on the modelled network in metres per second (m/s). The average network speed can be seen to decrease over the years with the introduction of additional traffic from the development and the application of TII's growth factors. In the AM the network presently operates at 9.4 m/s and this decreases to 7.4 m/s in 2039 with the development in place. Without the development the network speed decreases to 7.6 m/s in 2039. There is a greater decrease in the PM due to the larger number of vehicles in the network in the evening peak. Presently the network operates at 9.2 m/s and this decreases to 4.6 m/s in 2039 with the full development in place.

- Latent Demand: Latent demand is defined as the number of vehicles still on the network at the end of a simulation period. A high latent demand can be indicative of a traffic network reaching or operating above the available capacity. The traffic modelling shows that at present there is no latent demand (2020-2024). Evident is that in the AM the latent demand begins to increase steadily from 2024 to a high of 560 vehicles remaining on the network in 2039 with the full development in place. The PM peak manages to have zero latent demand up to 2028 when phase 2 is completed. Following this there is a significant increase to 386 vehicles remaining on the network in 2039 with the full development in place. These future latent demand figures signify that without any form of mitigation the road network begins to operate over capacity.
- Average Queue Length: Average length of queuing in metres on defined routes. The average queue lengths follow the trend of journey times. Presently in the AM queues are reaching a maximum of 75.3m on the Mahon Link approach to junction 3. In the PM the queue is reaching 85.2m on the same approach. It is clear from the modelling that there is a steady increase in queue length both with/without development. Mitigation measures in future years are effective in reducing the length of queues at all 5 locations assessed.

The KPI's have identified that the modelled road network will need varying levels of mitigation in future years. These mitigation measures would include varying the cycle time at individual junctions to accommodate expected changes to the predominant direction of flow, elongation of certain right turn lanes to accommodate the increase in traffic volumes and continued investment in public transport and sustainable transport solutions to encourage alternatives to the private car. If successful an increase in sustainable transport use would negate the assumed growth rates being applied to future years, implying that 2026 results with/without development would more represent future year scenarios.

The proposed site layout is permeable to the roads network and is well connected to existing pedestrian linkages to public transport offerings, schools, retail and amenity destinations.

The proposed new access arrangements are safe and suitable and are in accordance with the Design Manual for Roads & Bridges (DMRB) and the Design Manual for Urban Roads & Streets (DMURS).

The site benefits from being in proximity to regular transport provision, within walking distance of the site, which enables journeys throughout Cork City. Car parking provision within the site is at the lower end of the scale, encouraging the use of sustainable transport modes.

The site is situated adjacent to the Blackrock railway greenway and includes provisions for a new at-grade bridge crossing to Mahon Road as well as ramped access to the greenway from the development. Access to the greenway provides residents with excellent connectivity using sustainable transport options to the surrounding area and Cork City. Existing links from the greenway allow efficient access to local destinations such as the Mater Private Hospital, Mahon Point Shopping Centre, Mahon Retain Park, Voxpro, and the Central Statistics Office.

Road improvement works completed in 2021 as a part of the Skehard Road Improvement Scheme will positively impact on modal shift targets. Improved pedestrian and cyclist facilities in addition to the extension of bus lane facilities will have the effect of reducing journey times and encouraging an increase in use.

A modal shift of 45% (implying an anticipated increase in public transport or active travel in the immediate area of 21%) for future year models is deemed to be reasonable. This modal shift increase of 21% was applied to proposed development traffic from the opening year (when the development is fully completed) 2024, up to the design year 2039. It was not applied to background traffic flows.

6 MATERIAL ASSETS – Services, Infrastructure & Utilities

This chapter of the EIAR addresses issues relating to the material assets of surface water drainage, foul water drainage, water supply and utilities in respect of Phase 1 'The Meadows' and Phase 2 'The Farm' and assesses the impact of the proposed development on these aspects of the existing environment.

To facilitate the operation of the proposed development, new utilities infrastructure will be put in place on site, connecting to existing infrastructure in the area. All works associated with the utilities will be carried out in accordance with the requirements of the respective service providers / authorities (i.e., Irish Water, ESB, GNI, eir, etc.). These works will be carried out in a manner which avoids or minimises interruptions to service that might affect local residents and businesses. As such, no significant impacts are predicted to occur in relation to utilities infrastructure as a result of the proposed development.

Surface Water

There is an existing 1350mm diameter Cork City Council trunk storm sewer to the west of the site which runs in a north-south direction. This storm sewer crosses under the South Ring Road (N40) before discharging to the Douglas Estuary. There is an existing 450mm diameter storm sewer located in the road which runs between the Phase 1 and Phase 2 sites. This storm sewer runs north to south in the road before turning in a westerly direction and increasing in size to 750mm diameter before it connects to the 1350mm diameter storm sewer.

The restricted flow from the development sites will conveyed in a new surface water pipe in a southerly direction to connect to the existing 750mm diameter surface water sewer upstream of its connection to the 1350mm diameter surface water pipe. There is adequate capacity in the existing surface water drainage network to cater for attenuated surface water runoff from the development particularly given the proximity of the connection point to the final discharge at the Douglas Estuary.

The implementation of construction mitigation measures and permanent SuDS measures will effectively mitigate potential risks and any impact on existing surface water assets during construction and operation phases will therefore be permanent and minimal.

Foul Water

There is an existing 375/450mm diameter public foul sewer to the west of the site. This sewer connects to the existing Bessborough pumping station. From the pumping station the flows are pumped to the Ballinure Header Chamber. From the Ballinure Header Chamber the sewer falls by gravity across the harbour to Carrigrennan WWTP.

There is a 150mm diameter foul sewer located in the road which runs between Phase 1 and Phase 2 sites which runs north to south in the road before turning in a westerly direction and ultimately connecting to the pumping station mentioned above.

Wastewater collection within the proposed developments will be via a network of 150mm and 225mm diameter gravity sewers, which will direct the flows to the southwest corner of the site and will connect in a new, separate pipe inlet directly to the Bessborough wastewater pumping station.

The proposed development would increase the quantity of wastewater discharged to Bessborough Pumping Station and Carrigrennan WWTP. Upgrade works at the pump station are scheduled to be completed by Irish Water by Q4 2022 and there is significant spare capacity at the WWTP to accept flows from the proposed development.

Following mitigation measures proposed the residual impacts on foul water infrastructure during construction will be short term and minimal. For the operation stage impacts will be long term but minimal for the existing municipal wastewater treatment plant and long term but minimal for the existing foul sewer network.

Potable Water

There are 600mm and 1200mm diameter trunk mains to the south of the site. There is a 150mm diameter main in the road which runs between Phase 1 and Phase 2. This main runs south to north before turning in a westerly direction and increasing to a 300mm diameter main. The existing buildings in the area are served from this 150mm diameter main.

For Phase 1 'The Meadows' the connection is to be made to the existing 150mm diameter ductile iron watermain to the west of the site. For Phase 2 'The Farm' the connection is to be made to the existing 300mm diameter ductile iron watermain in Bessborough Road to the north of the site.

With mitigation measures the impact on existing water infrastructure will be short term and minimal for the construction stage. The additional demand arising from the development is minor in the context of the capacity of the existing water supply network in the area and therefore the residual impacts on potable water infrastructure during the operation of the development will be long term but minimal.

Power

The areas adjacent to the proposed development area are served by extensive networks of Low Voltage and Medium Voltage underground power supplies.

The Maximum Import Capacity (MIC) for Phase 1 'The Meadows' is 916 kVA with two sub stations located on the site. The Maximum Import Capacity (MIC) for Phase 2 'The Farm' is 578 kVA with one sub station located on the site.

No significant impacts from either the construction or operational phases of the development are likely, as a consequence of the connection to the Power network.

Gas

There are a number of PE supplies serving the existing buildings adjacent to the development site. The network in the area is a medium pressure network (4-bar).

All current energy analysis for the development have been based on electric heat pumps. Although not totally excluded, it is unlikely a gas supply will be required, therefore there will be no impact on existing gas infrastructure in the area.

Telecommunications

There are telecommunications networks serving the existing buildings adjacent to the development and the area surrounding the proposed development is serviced by High-Speed Broadband.

Telecommunications supply, and the requirement for any alterations to the existing telecommunications network for the proposed development, will be agreed in advance of construction with the relevant telecommunications providers.

No significant impacts from either the construction or operational phases of the development are likely as a consequence of the connection to the Telecommunications network.

7 LAND, SOILS & GEOLOGY

This section of the EIAR describes the existing Land and Soils aspect on the proposed development site. An assessment is made of the significant potential impacts of the Phase 1 'The Meadows' and Phase 2 'The Farm' during construction, and operational phases of the development on the geological environment.

The existing environment in respect of land, soils, and geology was established through a desk study and an on-Site ground investigation. An assessment of the soils and bedrock geology underlying the study area was undertaken in the form of a desktop study using information from the Geological Survey of Ireland (GSI) and Environmental Protection Agency (EPA). Specific geological information was obtained from a preliminary ground investigation which was carried out at the proposed development site by Priority Geotechnical Ltd for JB Barry & Partners in January 2022.

The profile on the study area (Phase 1 'The Meadows' and Phase 2 'The Farm') is comprised of topsoil of brown to dark brown slightly sandy slightly gravelly SILT with grass and rootlets which ranges in thickness between 0.10 – 0.30m bgl at Phase 1 'The Meadows' site and between 0.20 - 0.35m bgl at Phase 2 'The Farm' site. The site investigation identified fragments of construction and demolition material such as cobbles and other materials. The Teagasc subsoils map indicates the site is covered by Made Ground and this was confirmed by the 2022 site investigations. The natural deposits are overlain with various thickness of made ground consisting of various fill materials such as plastic waste, pottery fragments, and glass. Bedrock is recorded as Massive unbedded lime-mudstone with geological formation comprising the Waulsortian Limestones.

It is therefore considered that the greatest impact of the construction will arise from the extensive stripping and wide scale excavation of soils and sub-soils to prepare and construct the development. It is expected that approximately 4800m^3 of topsoil will be stripped at the Phase 1 'The Meadows' but only 1,000m^3 is likely to be re-usable on site, with 3,800 m^3 having to be removed from site. Whereas approximately 2,950m^3 of topsoil will be stripped at the Phase 2 'The Farm' with approximately 1,500 m^3 re-usable on site, and the balancing 1,450 m^3 being removed from site.

Construction works will require the removal of soils and stones from the site. It is proposed that nominally 7,600 m^3 will be excavated at the Phase 1 'The Meadows' site and 6,700 m^3 at Phase 2 'The Farm' site. It is estimated that approximately 1,200 m^3 being reused and approximately 6,400 m^3 of material having no structural value will be removed from the Phase 1 'The Meadows' site. Whereas approximately 2,170 m^3 being reused and approximately 4,530 m^3 of material will be removed from the Phase 2 'The Farm' site. In addition, during the demolition phase in Phase 2 'The Farm' site approximately 350 m^3 of Made Ground, buildings and surface paving will be excavated as part of the site clearance works and removal of existing underground services.

Temporary storage of soil will be carefully managed to prevent any potential negative impact on the receiving environment. Movement of material will be minimised in order to reduce degradation of soil structure and the generation of dust. It is anticipated that the development site works, and excavation proposals will not be deep enough to impact the underlying bedrock geology during the construction phase.

During the construction phase of the development, there is a risk of accidental pollution incidences due to construction materials. Such as accidental spillage of oils and fuels from construction machinery or site vehicles, leakage of temporary oil and fuel stored at the site, and run-off from concrete and cement works. It is anticipated that the impacts on land and soil arising from the construction phase will be negligible in magnitude and imperceptible in significance without mitigation measures in place.

On completion of the construction phase, no further impacts on the soil environment are envisaged except for the possibility during operation phase of contamination of soil from accidental oil/chemical spills. In this regard, the worst-case scenario of the spillage and leakage of the oil, fuels or chemicals contaminating the soil and geological substrate. However, the likelihood of this risk is deemed to be very low if these items are stored in responsible manner.

Mitigation measures are undertaken in order to avoid or minimise the potential impacts on land, soils, and geology. Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development. Topsoil stockpiles will be protected for the duration of the works. Excavated soils will be temporarily stockpiled pending removal and appropriate recovery or disposal to permitted or licensed waste management facilities. Topsoil will be re-used where possible in gardens and park areas.

Soft materials and surplus soils that are excavated will be reused. Refuelling and servicing of construction machinery will take place in a designated hardstanding area. Care and attention will be taken during refuelling and maintenance operations. Any soil contaminated from an accidental spillage will be contained and treated appropriately and disposed of in accordance with the Waste Management Act 1996 (as amended). All construction materials with the potential to impact on soils will be stored in secure bunded areas within the site compound.

Following implementation of mitigation measures detailed in Chapter 7.6.1 of the Environmental Impact Assessment report, the predicted residual impact Phase 1 ‘The Meadows’ and Phase 2 ‘The Farm’ during both construction and operational phases are predicted to be reduced to a neutral effect on quality with imperceptible significance.

8 WATER (Hydrology & Hydrogeology)

This section of the EIAR describes the existing water, hydrology, and hydrogeology aspect on the proposed development site. An assessment is made of the significant potential impacts of the Phase 1 'The Meadows' and Phase 2 'The Farm' during construction, and operational phases of the development on the hydrology and hydrogeological environment.

The existing environment in respect of water, hydrology and hydrogeology was established through a desk study and an on-Site ground investigation. An assessment of the hydrology and hydrogeology underlying the study area was undertaken in the form of a desktop study using information from the Geological Survey of Ireland (GSI) and Environmental Protection Agency (EPA) websites. Specific geological information was obtained from a preliminary ground investigation which was carried out at the proposed development site by Priority Geotechnical Ltd for JB Barry & Partners in January 2022.

The nearest watercourse to the proposed development site is River Douglas estuary which is located approximately 180m to the southern boundary of Phase 1 'The Meadows' and 220m to the southern boundary of the Phase 2 'The Farm'. River Douglas estuary flows in an easterly direction and discharges to transitional water body Lough Mahon through the south of the site. Lough Mahon and Douglas River are currently identified as being 'at risk' of not meeting their Water Framework Directive objectives. EPA sampling of watercourses dating from 2013- 2018 WFD assessment indicates that it had a 'moderate' status. There are 5 no. wells mapped within 1km, 50km, and 100km mapped accuracy. There are no groundwater-sourced drinking water protection areas within the study area. The closest is located approximately 18km to the east of the development site.

The study area (Phase 1 'The Meadows' and Phase 2 'The Farm') is entirely located within Flood Zone C and, as such, there is negligible flood risk associated with the proposed Project, and there are no historical records of flooding at the site of the proposed development. Therefore, the study area is deemed 'Appropriate' in accordance with the Office of Public Work (OPW) Flood Risk Management Guidelines. The aquifer beneath the study area is a Regionally Important bedrock aquifer which is Karstified bedrock dominated by diffuse flow (Rkd) where groundwater flows mainly through solutionally enlarged fissures. The regionally important aquifers are capable of supplying regionally important abstractions (e.g., large public water supplies) with high storage and excellent yields. The Geological Survey of Ireland classifies the local aquifer vulnerability as 'High' throughout the site which means that groundwater is more susceptible to contamination from the surface.

The potential impacts on the existing water environment during the construction phase includes contamination of groundwater due to suspended solids which arises from excavation of soils, the increased runoff due to introduction of impermeable surfaces, accidental spillage or leakage of pollutant substances and run-off from concrete and cement works. The potential likely and significant impact on hydrogeology during the construction phase is considered to be short term, temporary and moderate without mitigation measures in place.

On completion of the construction phase, potential impacts on surface or groundwater during operation phase will be, reduction in the recharge area due to introduction of impermeable surfaces. In this regard, the worst-case scenario would be oil and fuel leaks from parked cars and site vehicles. If left undetected, could contaminate subsoil and/or groundwater which would impact on the water quality of the aquifer under the site and may result in groundwater flow discharging at surface waters being contaminated. Hydrocarbon interceptors will be provided in storm water drainage network and Petrol interceptors will be installed within the development to cater for these oil/fuel leaks as required.

Mitigation measures are undertaken in order to avoid or minimise the potential impacts on the surface water and groundwater. Hazardous construction material such as fuels, oils, and other chemicals used

during construction will be stored within temporary bunded storage in designated impermeable areas of the site. Concrete batching and concrete wash down or wash out of concrete trucks will take place off site or in a designated area with an impermeable surface.

Surface water runoff arising on site during the operational phase will be directed to the surface drainage system via an appropriate designed system such as petrol or hydrocarbon interceptor and silt traps that removes the contaminants prior to discharge to the soakaways. Surface water discharge rates will be controlled by Hydro brake flow control devices, with underground attenuation tanks, provided to store runoff from a 1 in 100-year return period event. The surface water strategy for the development will incorporate SuDS (Sustainable Urban Drainage System) features to reduce run-off.

Following the implementation of appropriate mitigation measures (see Section 8.8), the predicted residual impact on water, hydrology and hydrogeology at Phase 1 'The Meadows' and Phase 2 'The Farm' during both construction and operational phase are predicted to be reduced to a neutral quality, imperceptible significance.

9 BIODIVERSITY

Chapter 9 Biodiversity provides baseline information in relation to biodiversity and assesses the potential impacts and effects of the Phase 1 'The Meadows' and Phase 2 'The Farm' developments to impact on ecological features. To assess the ecological impacts of the Phase 1 'The Meadows' and Phase 2 'The Farm' developments, a range of assessments and surveys were undertaken within the study area. The study area for the EIAR included all lands within Masterplan boundary (i.e. Phase 1 'The Meadows', Phase 2 'The Farm' and Phase 3 'North Fields' sites). These surveys were conducted to identify the presence or likely presence of protected species and habitats within the study area. The value of these ecological receptors was determined and the possible impacts that the Phase 1 'The Meadows' and Phase 2 'The Farm' development sites may have upon them was assessed. The National Parks and Wildlife Service (NPWS) and Inland Fisheries Ireland (IFI) were consulted and their findings integrated into the assessment.

The Cork Harbour Special Protection Area (SPA) is located approximately 70m from the study area at its closest point. The impacts on this and other Natura 2000 sites are discussed in the Natura Impact Statement (NIS) which accompanies this application.

Habitat surveys determined that the terrestrial habitats within the planning boundary were of low to high local value. Mature trees/woodland along the western and eastern boundary of the study area have the highest value for flora and fauna. There are no wetland habitats or watercourses within the Phase 1 'The Meadows' or Phase 2 'The Farm' sites. There is a small artificial pond in the woodland along the western boundary of the study area within the Phase 3 'North Fields' site boundary. No habitats within the study area correspond to Annex I habitat. One plant species with a widespread but local distribution was recorded i.e., Bee Orchid. No rare or threatened plant species were recorded.

General mammal surveys as well as specialised bat surveys were carried out at the study area. No signs of Badger, Otter or other protected mammal species were recorded, although Hedgehog, Pygmy Shrew, Irish Stoat and Red Squirrel could potentially use this site. Small numbers of common bat species were recorded within the Phase 1 'The Meadows' and Phase 2 'The Farm' sites i.e. Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat. Brown Long-eared Bat was recorded foraging on the boundary of the Phase 3 'North Fields' site. Bats were recorded foraging and commuting mainly along mature treelines/woodland with the study area. A number of mature trees are earmarked for removal in the Phase 1 'The Meadows' and Phase 2 'The Farm' site boundaries, as well as buildings for demolition in the Phase 2 'The Farm' site. However, no mature trees or buildings, with the potential to be used as significant bat roosting sites, were recorded within the planning boundary. No amphibian or reptile species were recorded.

Breeding bird surveys were carried out throughout the study area. Overall, the study area is of a local value for a range of terrestrial bird species that are relatively common in the Irish countryside and the study area is not of significant value for birds. However, Meadow Pipit, as Red List bird of conservation concern, was recorded within the Phase 3 development site.

Winter bird surveys were carried out during the 2020/2021 season. No signs of wintering waterfowl or waders were recorded within the study aera.

Overall, the majority of ecological impacts will arise during the construction phase as a result of habitat clearance, tree removal and disturbance to bats, birds and common mammal species. There is also potential water pollution incidents and sediment mobilisation. In the absence of mitigation these impacts range from not significant to slight. Following completion, minor residual impacts will occur in relation to lighting and disturbance.

A range of mitigation measures have been proposed in the EIAR to offset potential negative impacts including noise mitigation, lighting mitigation, replacement planting and pollution prevention measures. Specific ecological measure including the provision of bat boxes, bird boxes and ongoing ecological supervision have been specified. All construction works and mitigation measures relating to ecology will be monitored by a suitably qualified ecologist.

10 CULTURAL HERITAGE

The Cultural Heritage chapter assesses the impact of the proposed development, as described in Chapter 2, on the known and potential cultural heritage resource which encompasses heritage assets relevant to both the tangible resource (archaeology and architecture heritage); and non-tangible resources (history, folklore, tradition, language, placenames etc.). The recorded and potential cultural heritage resource within a study area that encompasses the subject lands within the Bessborough property and an area extending for 500m in all directions from their boundary, was assessed in order to compile a cultural heritage baseline to inform the assessment. The chapter outlines and discusses the legacy of the former Mother and Baby Home at Bessborough.

Documentary research on the recorded and potential cultural heritage resource within the study area was carried out in order to identify any recorded archaeological, architectural, and other cultural heritage sites and features. This information provided an insight into the development of the study area over time and also assisted in an evaluation of the potential presence of unrecorded cultural heritage sites or features within the proposed development site. The principal sources reviewed for the assessment of the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). The Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were consulted to assess the designated architectural heritage resource. Summaries of the legal and planning frameworks designed to protect these elements of the cultural heritage resource are also provided within the chapter. Various relevant literary sources, datasets and cartographic sources were also reviewed as part of the assessment and a summary of relevant information is presented within the chapter, including extracts from cartographic images and inventory descriptions.

The Phase 1 and Phase 2 subject lands were inspected on a number of occasions during 2021 and 2022 by suitably qualified archaeologists and built heritage specialists. The lands were assessed in terms of modern land use, remnants of historic landscape features, vegetation cover and the potential for the presence of previously unrecorded archaeological and architectural heritage sites/features. The survey results are described within the chapter and extracts from the general photographic record compiled during the field surveys are presented in **Appendix 10.1**. A report detailing the results of a 2019 programme of archaeological test trenching within The Meadows subject lands is presented in **Appendix 10.2**. A Historic Building Record of the extant structures within The Farm subject lands, which includes a detailed photographic record is presented in **Appendix 10.3**. A method statement to locate and preserve unrecorded burials, under forensic archaeological control, at the proposed development site is included in Appendix 10.4; this method statement has been prepared by Aidan Harte of Munster Archaeology, who is a professional consultant Forensic Archaeologist familiar with the Bessborough Estate and Mother and Baby Home Commission of Investigation.

Description of Existing Baseline Environment

Desktop Study

There are no recorded archaeological sites located within the boundaries of the Phase 1 and Phase 2 subject lands. The Archaeological Survey of Ireland lists five recorded archaeological sites within 500m of the subject lands and these include Bessborough House (CO074-077----), a late 18th century country house which is also a Protected Structure (PS 490). A variety of 19th and 20th century buildings have been constructed within the immediate environs of the house in all directions apart from in the area to

the south of its front façade. The lands in the west end of the Bessborough property contains a post-medieval icehouse structure that is also listed as a recorded archaeological site (CO074-051----) while the external lands within the surrounding 500m study area contain three recorded archaeological sites which comprise a railway bridge (CO074-121----), a midden (CO074-063----) and a site excavated in advance of the construction of the Mahon commercial centre in lands to the east (CO074-130----). The NIAH lists the farmyard (ref. 20872006) to the north of the house and a recently reconstructed folly structure (ref. 20872007) to the southeast of the house which is contained within a landscaped feature that also encompasses recorded burial activity. The lands around the house have also been listed in the NIAH Survey of Historic Gardens (Site ID 3423). The former Cork, Blackrock and Passage Railway line extends along the east side of the subject lands and, while this 19th century feature is not a recorded archaeological site or a designated architectural heritage structure, it is nonetheless an undesignated feature of cultural heritage significance. There are no recorded railway features such as stations, platforms or bridges located within the section of the railway adjacent to the subject lands.

A programme of archaeological test trenching (Licence 19E0003) was carried out within the boundary of The Meadows subject site in 2019 and this site investigation revealed nothing of archaeological significance (report provided in **Appendix 10.2**). In addition, the Topographical Files of the National Museum of Ireland contain no records of the discovery of archaeological objects within the townland (Ballinure) containing the subject lands.

The desktop study also included a review of available historic mapping of the property and the chapter describes the evolution of the built environment within its boundary from the 19th century onward. A review of available online aerial, satellite and LiDAR imagery of the subject lands was also carried out and this revealed no observable traces of potential unrecorded archaeological sites within the undisturbed areas of the subject lands.

Field Survey

The location of the main area of building construction within the Phase 1 The Meadows subject site currently consists of rough, vacant scrub land with no potential unrecorded archaeological or designed landscape features visible. As noted above, nothing of archaeological significance was uncovered in this area during a 2019 programme of archaeological test trenching at this location. The Phase 2 Farm subject area consists of an amalgam of former parkland, relict sections of former agricultural lands and a cluster of farm buildings. The subject site includes one of two yards that were collectively known as “Bessborough Farm”. This farmyard complex was built c. 1880 and the buildings fulfilled a variety of functions, including stables, barns, and accommodation for farm workers. The former farm complex has been recorded by the NIAH (ref. 20872006) which ranks it as being of regional significance. The northern yard extends within the subject site and is triangular-in-plan and incorporates a two-storey building, a L-shaped barn, an open corrugated-iron barn structure and a number of modern structures. The southern yard, which is located outside of the subject site, is roughly square-in-plan and housed stables, workshops and a two-storey domestic building (possibly a farm manager’s house). Generally, the northern yard buildings within the subject site served more utilitarian functions and are, for the most part, much-altered. The yard appears to have gone out of active use in the 1980s. A general photographic record of the survey of the Phase 1 and Phase 2 subject lands is provided in **Appendix 10.1**. A detailed Historical Building Record, which includes a photographic record, of each of the buildings within Phase 2 Farm subject lands is provided in **Appendix 10.3**.

Impact Assessment

Do nothing Scenario

In the 'do nothing' scenario, the Phase 1 and 2 subject lands will remain undeveloped and there will be no additional impacts on the cultural heritage resource.

Phase 1 (The Meadows) Construction Phase Impacts

There are no recorded archaeological sites within the Phase 1 subject lands and nothing of archaeological significance was uncovered during a 2019 programme of test trenching at the location of the main construction area. No likely adverse direct or indirect impacts on the known archaeological resource are, therefore, predicted during the construction phase. There are no designated architectural heritage structures, or other structures of any date, located within the boundary of the subject lands. In addition, the review of historical cartographic sources carried out as part of the desktop study did not reveal any now removed structures or demesne features within the boundary of the subject lands. The construction phase of the proposed Meadows development will, therefore, not result in any predicted direct impacts on the known architectural heritage resource. A number of slight to moderate indirect impacts on the general settings of known cultural heritage assets within the property are predicted during the construction phase and these are detailed within the chapter.

There is no evidence to suggest that the proposed development area contains any burials associated with the former Mother and Baby Home. Indeed, archaeological testing of the subject site conducted in early 2019 found no features or remains of note in any of the test trenches excavated on the footprint of the proposed development. Notwithstanding this, it is proposed that a forensic specialist (assisted by an osteoarchaeologist) will be appointed to monitor all ground works within the development site..

Phase 2 (The Farm) Construction Phase Impacts

There are no recorded archaeological sites located within the boundary of the Phase 2 subject lands and the ground levels within sections of the area have been disturbed by 19th century construction works. The demolition of a number of farmyard buildings within the Phase 2 subject lands during the construction phase will result in a direct, negative, permanent, high magnitude impact on the architectural heritage resource. The buildings to be removed have been assessed as being of low quality and do not form part of the central core of the Bessborough Farm complex to the south which will be retained. The significance of this direct negative impact is, therefore, assessed as being moderate. A number of slight to moderate indirect impacts on the general settings of known cultural heritage assets within the property during the construction phase are predicted and these are detailed within the chapter.

There is no evidence to suggest that the proposed development area contains any burials associated with the former Mother and Baby Home. Notwithstanding this, it is proposed that a forensic specialist (assisted by an osteoarchaeologist) will be appointed to monitor all ground works within the development site.

Combined Phase 1 and Phase 2 Construction Phase Impacts

It is concluded that Phase 1 and Phase 2 will not combine to result in any predicted significant impacts on the cultural heritage resource during the construction phase.

Phase 1 (The Meadows) Operational Phase Impacts

There are no recorded archaeological subject lands and no adverse operational phase impacts on this element of the cultural heritage resource are predicted. The implementation of the archaeological mitigation measures outlined in **Section 10.4** of the chapter will provide for either the avoidance of such features or the recording of any currently unrecorded, sub-surface archaeological features with its boundary by systematic archaeological excavation. As a result, the operational phase of the proposed development will have no predicted impact on the archaeological resource. A number of slight to moderate indirect impacts on the general settings of known cultural heritage assets within the property during the operational phase are predicted and these are detailed within the chapter.

Phase 2 (The Farm) Operational Phase Impacts

There are no recorded archaeological subject lands and no adverse operational phase impacts on this element of the cultural heritage resource are predicted. The implementation of the archaeological mitigation measures outlined in **Section 10.4** of the chapter will provide for either the avoidance of such features or the recording of any currently unrecorded, sub-surface archaeological features with its boundary by systematic archaeological excavation. As a result, the operational phase of the proposed development will have no predicted impact on the archaeological resource. A number of slight to moderate indirect impacts on the general settings of known cultural heritage assets within the property during the operational phase are predicted and these are detailed within the chapter.

Combined Phase 1 and Phase 2 Operational Phase Impacts

It is concluded that Phase 1 and Phase 2 will not combine to result in any predicted significant impacts on the cultural heritage resource during the operational phase.

Mitigation Measures

Phase 1 – The Meadows

It is recommended that a programme of archaeological supervision/monitoring of all ground works be undertaken by a suitably-qualified archaeologist. In the unlikely event of archaeological discovery, the National Monuments Service and Cork City Council will be consulted to agree how the encountered archaeological remains are recorded and resolved.

To ensure that, in the unlikely event of previously-unrecorded burials being encountered during site development works, such works will be monitored in accordance with the methodology outlined in **Appendix 10.4** by Aidan Harte, Forensic Archaeologist.

Phase 2 – The Farm

It is recommended that a programme of archaeological supervision/monitoring of all ground works be undertaken by a suitably-qualified archaeologist. In the unlikely event of archaeological discovery, the National Monuments Service and Cork City Council will be consulted to agree how the encountered archaeological remains are recorded and resolved.

The buildings to be removed (see **Appendix 10.3**) have been fully recorded. Prior to their demolition, a full building record, consisting of written description, photographic record, and scaled drawings (plans

and elevations) shall be submitted to Cork City Council and the Irish Architectural Archive prior to commencement of development works.

To ensure that, in the unlikely event of previously-unrecorded burials being encountered during site development works, such works will be monitored in accordance with the methodology outlined in **Appendix 10.4** by Aidan Harte, Forensic Archaeologist.

11 NOISE AND VIBRATION

The noise & vibration impact chapter analysis the effects the proposed project will have or contribute to the existing back ground noise and vibration level in the vicinity of the site and determines whether these effects are within the guidelines given under the relevant standards. Noise and vibration impact is assessed for the construction period and the operational period. Existing back ground noise and vibration levels where taken in three locations the junction at the Skehard road, the junction at the Bessborough road and the junction at Sharman avenue to give a representative overview.

Construction phase

Construction noise and vibration represents short-term impacts during the construction phase of the development as a result of the use plant and machinery on and to the construction site. As the exact specific construction information is not available at this point of time representative sample calculations have been provided using data from anticipated vehicles and equipment generally expected on construction sites. Minor short-term vibration impacts may occur during the construction phase as a result of the use of heavy plant and machinery; however, these impacts will be unlikely to propagate beyond the construction site boundary with the nearest buildings some 50m to 60m away from the construction site. Predicted noise and vibration levels from plant, machinery and vehicles are all within the maximum allowable noise& vibration levels given in the relevant standards and are not deemed to cause nuisance. Local authority may also at times limit the site operation to day time use and Saturday only.

Operational phase

Operational noise is mainly attributed to additional noise from mainly passenger vehicles. The calculated predicted impact or increase in noise levels at the Skehard Road junction, Bessboro Road junction and Sharman Avenue junction are at worse case deemed a 'slight' impact based on the calculation methodology of the relevant standards and are in line with general noise impacts of new developments. Operational vibration is not deeded to be a contributing factor in the operational phase.

To summarise whereas the predicted increase in noise levels maybe deemed minor or barely perceptible this is calculated using current data. In real terms when the new government's climate action plan is implemented, the noise levels including the new proposed development will reduce over the current background noise levels due to the fact that petrol & diesel cars will be phased out and replaced by more quiet electrical cars over the next decade during which the development will be constructed.

12 AIR QUALITY

The assessment identified the existing air quality baseline levels in the area of the proposed development by an evaluation of EPA monitoring data. The EPA data of current and previous years establish air quality parameters are all well below national and EU ambient air quality standards. The existing baseline air quality at the site locality can be characterised as being good with no exceedances of the National Air Quality Standards Regulations limit values. The air quality impact was considered for each distinct stage, construction phase and operational phase.

The impact on air quality during the construction phase is predicted to be from construction dust emissions. The impact at neighbouring sensitive receptors was determined by a theoretic assessment of dust soiling. Standard mitigation measures outlined in Section 12.5 along with the dust management plan outlined in Appendix A would be implemented to control emissions during construction. With mitigation measures in place impacts of the proposed development on air quality for the construction phase is likely to be short-term and insignificant

The impact on air quality during the operational phase was determined by an assessment using the DMRB air quality model predicting pollutant concentrations over a period of time and is in line with what would be expected from a modern residential development. Results showed an expected small increase in annual NO2, PM10, benzene and CO but each parameter would still remain well below the limit values for EU regulations. This predicted increase above the existing environment results in a negligible impact and would not result in a perceptible change in the existing local air quality environment.

13 CLIMATE

The climate impact chapter analysis the effects the proposed project will have or contribute to the global environment in terms of carbon dioxide (CO_2) emissions as the main contributors to green houses gasses or climate change. CO_2 in this project is emitted in the construction phase and in the operational phase. The construction phase is a relative short phase and its impact on CO_2 is limited when compared with the operational phase. The operational phase is based on the life cycle of a building or dwelling covering a 60 year period. Construction emissions represent approximately 5% to 10% of the Operational emissions in a standard specification building or dwelling.

Construction phase

CO_2 in the construction phase is emitted by construction vehicles, machinery and equipment but also by CO_2 attributed to construction materials representing the amount of CO_2 it takes to manufacture and deliver a material to site known as a material's "embodied carbon dioxide". Therefore, selecting materials for the construction of buildings/dwellings which have a low embodied carbon factor like wood, local stone rather then steel, zinc, aluminium or other metallics which have high carbon factors would be beneficial to global CO_2 emissions. In the climate chapter for this project a number of CO_2 reduction measures have been applied on construction methodology, vehicles, machinery and together with selecting construction materials with low embodied carbon factors a reduction of +/- 20% in CO_2 emissions in the construction phase was achieved over current standard or average emissions. In figures this is a reduction of 7.2 tonCO_2 (ton=1000kg) for a single unit/apartment which represents for example for phase 1 and 2 combined with 420 units a reduction of 3,003 tonCO_2.

Operating phase

CO_2 in the operational phase is emitted mainly by passenger vehicles and energy required for the building's heating/hotwater needs. The operational phase taken over the buildings 60 year life cycle would be the dominating contributor to CO_2 emissions and any reductions applied here are very effective as a result of the length of the life cycle. In the climate change chapter for this project a number of CO2 reduction measures have been applied by using more electric vehicles, encourage the use of public transport and cycling achieving a reduction of +/- 12.5% but the bulk of the reductions at +/- 65% is achieved in the building energy element applying the current Part L standards giving a total combined reduction of +/- 77.5% which is a significant saving.

In figures this is a life cycle reduction of 214 tonCO_2 (ton=1000kg) for a single unit/apartment which represents for example for phase 1 and 2 combined with 420 units a reduction of 89,870 tonCO_2.

To summarise it is near impossible not to increase CO_2 emissions when we are providing more buildings / accommodation however by limiting the increase to a bear minimum as illustrated in the climate chapter will benefit the global warming or climate change issue.

14 POPULATION AND HUMAN HEALTH

14.1 Chapter Context

The European Commission's 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report' 2017 specifies the following in relation to the assessment of population and human health.

> *"Human health a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

This chapter of the EIAR document has been prepared with reference to the Draft Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in August 2017, as well as European Commission's 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report' 2017. A desktop study of the following published policy documents and data was undertaken to appraise the location and likely and significant potential impact upon population and human health receptors and to assess population trends in the subject site an in the wider hinterland:

- Central Statistics Office (CSO) Census 2011 & 2016 data.
- Cork City Development Plan 2015;
- Mahon Local Area Plan 2014 (now lapsed);
- Draft Cork City Development Plan 2021.

This assessment is a study of the potential indirect and direct socio-economic impacts of the construction phase and the operational phases of the development. Effects on receptors were assessed in terms of magnitude, quality, significance and duration.

14.2 Description of Existing Baseline Environment

In assessing the demographic trends in the vicinity of the masterplan area a focused assessment of the relevant Central Statistics Office (CSO) boundaries has been conducted. This initially considered the masterplan area in relation to Electoral Divisions (EDs), the smallest legally defined administrative areas in the State. The area falls within the boundary of the Mahon B ED, which is characterised by a mix of uses, incorporating a number of key strategic employment areas to the north, east and west, including the Mahon District Centre (Mahon Point Shopping Centre), Mahon Retail Park, a number of technology and business parks (City Gate, Loughmahon Technology, Mahon Industrial Estate, Blackrock Business Park, Heritage Business Park and Riverview Business Park). The ED also includes established residential areas to the south and north in Jacobs Island and Ballinure/Mahon which are supported by a range of amenities in the form of the Passage West Greenway, Mahon Golf Club, Ballinure and Saint Michael's Gaelic Football Clubs, Skehard Road Park and Lough Mahon Park. The ED is relatively discrete, bounded and delineated by an inlet of Cork Harbour and the N40 to the south and east and by Skehard Road and Ringmahon

Road to the north. However, the residential element of the area extends slightly northwards into the smaller, predominantly residential ED of Mahon A where the Mahon and Blackrock neighbourhoods meet. Therefore, five Census Small Areas (SAs), which are the lowest level of geography for the compilation of census statistics generally comprising between 80 and 120 dwellings, were included to the north. We note that the resulting study area corresponds to the Mahon Neighbourhood Area as defined in the Cork City Neighbourhood Profile prepared by AIRO to support the Cork City Draft Development Plan 2022 - 2028. The boundaries of these areas are illustrated in Figure 14.1 as shown

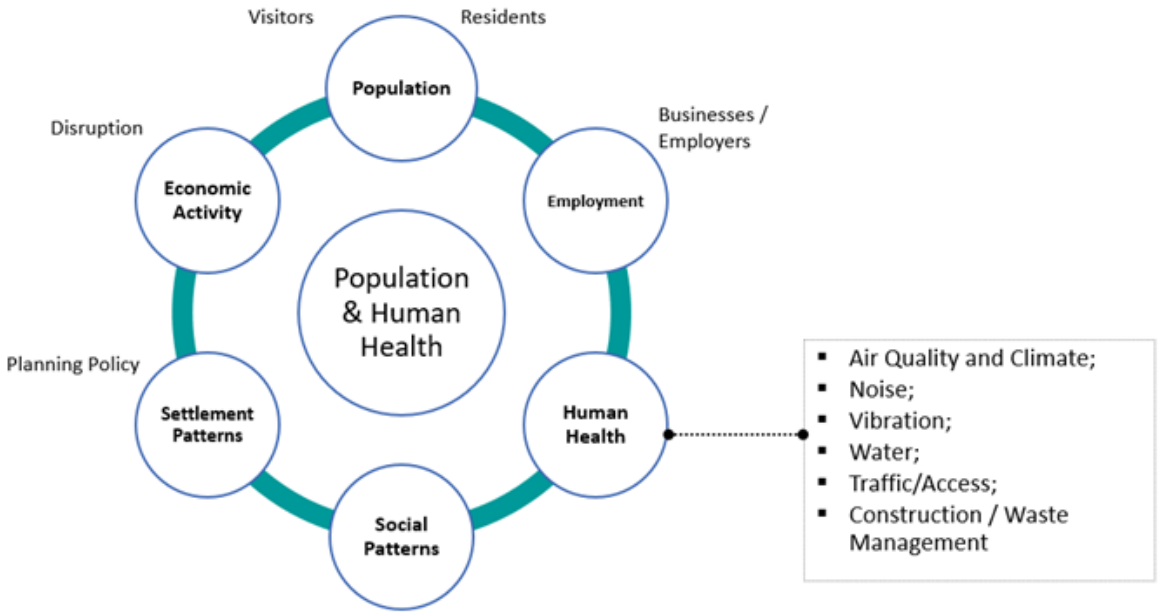

Figure 14.1 Immediate Study Area

14.3 Community and Social Infrastructure

The existing community and social infrastructure assets in the local area has been identified in accordance with the categories outlined in the table 14.1 below.

Table 14.1 Community and Social Infrastructure Categories

Category	Description
Amenity, Open Space and Sports	Parks, Playgrounds, Amenity Walks/Greenways, Pitches, Green Areas, Golf Courses, Sports Pitches, Sports Centres, Swimming Pools, Gyms
Childcare and Education	Childcare, Primary Schools, Post Primary Schools, Special Schools, Third Level Universities, Other Educational Institutions
Community facilities	Community Centres, Religious Facilities, Post Offices, Libraries.
Retail services	Supermarkets, Convenient Shops, Specialty Services, Restaurants/Take-aways, ATM, Petrol Station
Health	Hospitals, Health Centres, Clinics, Pharmacies, Addiction Services, GPs, Mental Health Services
Emergency	Fire Station, Garda Station
Public Transport	Bus and Train Routes

14.4 Impact Assessment

14.4.1 Do-Nothing Scenario

In the 'do nothing' scenario, the Phase 1 'The Meadows' lands and the Phase 2 'The Farm' lands will remain undeveloped. If the proposed development of 280 no. units and 140 no. units respectively does not proceed the population of Mahon and the wider city will continue to be adversely impacted due to housing shortages. It will result in the continuation of the recent trend of underperformance of the Study Area in terms of population growth. With a growth rate of 2.7% in the last intercensal period, this designated 'Strategic Growth' area experienced lower growth than the city as a whole, contrary to national and regional policies of co-locating employment, public transport and population growth.

Similarly, in the 'do nothing' scenario, the lands will remain inaccessible for public recreational use. The potential public health benefits arising from the proposed enhanced connectivity via the proposed pedestrian/cycle bridge over the adjoining Passage West Greenway or the proposed enhancement of public facilities and amenities in the form of public open space, a creche or café will not ensue. Notwithstanding the above, in this scenario there will be no additional impacts on population and human health factors.

Over time it is considered the do-nothing scenario will result in an inefficient use of serviced lands, which will have convenient access to public transport opportunities and local amenities and will negatively impact many aspects relating to population and human health.

14.4.2 Impacts on Existing Population and Human Health

14.4.2.1 Construction Phase

Construction works are likely to take place over a c. 24 no. month period for each of phase: Phase 1 'The Meadows' development and subsequently Phase 2 'The Farm' development. The construction methods employed, and the hours of construction proposed will be designed to minimise potential impacts to nearby residents. Construction of the proposed development will be implemented in accordance with the Construction and Environmental Management Plans (CEMP) prepared by J. B. Barry and Partners Limited, Consulting Engineers included in Appendices 2-1 and 2-2 of this EIAR. These documents describe a suite of mitigation measures to be strictly implemented and monitored during the construction phase of the development.

14.4.2.2 Operational Phase

Once constructed, the proposed development of Phase 1 'The Meadows' development and Phase 2 'The Farm' development will be permanent and non-reversible. The proposed development will result in several significant long-term positive impacts for the local population including.

- The proposed phases of development will cumulatively result in the delivery of 420 no. residential units and assist in addressing the housing shortage in the Mahon area and the wider city and counter-act the recent slow-down in growth in this identified 'Strategic Growth Area'.
- Section 2.24 of the CDP notes in relation to Mahon that 'there is a need for a balance between residential and employment uses. The proposed development would contribute towards addressing this imbalance. It will assist in clustering residential growth alongside the strategic employment hub of Mahon, with consequent positive impacts on the current unsustainable commuter in and out flows in the area.

- It will contribute towards the provision of improved local services and amenities in the form of extensive parkland and landscaped areas of public open space, a café, 2 no. creches and a Memorial 'Farm Girl' Bench.
- It will contribute towards the achievement of the critical mass required to support the provision of enhanced public transport services, in particular the proposed Light Rail Transit.
- It will deliver public health and safety benefits arising from the enhanced pedestrian and cyclist connectivity through the site via the proposed pedestrian/cycle bridge over the adjoining Passage West Greenway connecting with proposed pedestrian/cycle paths through the site. This will improve the permeability and accessibility of the site and establish direct local linkages between employment, residential, recreation and retail destinations.
- Not only will the proposed shared resident facilities, including 2 no. gyms, 2 no. lounges, a function room, library and 2 no. home-working areas benefit the future residents of the scheme, the proposed enhancement of public facilities and amenities in the form of public open space will also benefit the wellbeing of the wider community. In addition, the 2 no. proposed creches with an overall provision for 60 no. children will provide childcare outlets for the existing and future residents of Mahon.
- Across both proposed developments, the proposed parkland and areas of landscaped public open spaces, including a new plaza within the Phase 1 'The Meadows' development, will be accessible to all existing and future residents of the settlement. At present the subject lands are not accessible to the public.

14.4.3 Impacts on Local Economy and Retail

14.4.3.1 Construction Phase

The duration of the construction phases for the proposed development of Phase 1 'The Meadows' development and Phase 2 'The Farm' is likely to result in moderate temporary positive impacts for the local economy within the study area. Construction workers will likely avail of local retail outlets and restaurants in mornings and lunchtimes in particular. Supplies and materials for proposed construction works may also be supplied locally further resulting in positive impacts on the local economy. The construction phase will provide for construction related employment opportunities.

14.4.3.2 Operational Phase

The proposed development will result in significant permanent positive impacts on the local economy. The proposed combined development of 420 no. dwellings from Phase 1 'The Meadows' development and Phase 2 'The Farm' translates to an approximate uplift of approximately 1,184 no. persons. The projected increase in population of the wider Mahon area is appropriate in this designated 'Strategic Growth' area and will reverse the recent trend of slight underperformance of the Study Area in terms of population growth and is in line with national and regional policies of co-locating employment, public transport and population growth. The proposed development will contribute towards countering the massive inward commuter flow into Mahon, where currently 93.2% of the local jobs are held by people who commute into the area, 80% of whom use private transport. By creating more homes adjacent to this Strategic Employment Hub, a more sustainable balance will be achieved, with associated quality of life benefits for the residents and workers of the area. The proposed uplift in population will not only assist in achieving a critical population base in the Skehard Road area, where it will supporting the continued viability of existing retail outlets, but also create further opportunities to diversify the existing retail/commercial environment. It will in addition, support the continued successful development of the Mahon District Centre The proposed development will result in providing a diverse range of apartments

which will serve all aspects of the current housing market and address the current housing shortage in the Metropolitan Cork Area. The development will support the recent and proposed expenditure in upgrading the bus infrastructure and will contribute towards the achievement of the critical mass necessary to realise the medium-term future proposals for an LRT in close proximity to the site.

14.4.4 Impacts on Amenity, Open Space and Sports

14.4.4.1 Construction Phase

It is envisaged that the construction of the pedestrian bridge over the greenway, which has been included in the development of both Phase 1 'The Meadows' development and Phase 2 'The Farm', will require the temporary closure of the access ramp from Mahon for a short period, with a predicted temporary, limited in extent and significance impact on the users of the greenway. The development lands of both phases are not currently publicly accessible, minimising any visual impact on the local population from their development. The design team has sought to minimise the removal of trees throughout the two proposed phases of development. It is now confined to the removal of 64 no. trees overall of the in excess of 300 no. trees surveyed. The robust landscape and replacement planting strategy proposes the planting of 224 no. new, predominantly native, deciduous trees. Therefore, the overall construction impact on the landscape is deemed to be of a temporary moderate significance, when viewed in the context of the medium sensitivity of the receiving environment within an urban fabric. It is not anticipated that the construction phase of the proposed development will result in any impacts on other existing sports and recreational facilities in the area.

14.4.4.2 Operational Phase

There may be some short-term slight negative impacts relating to an additional demand for the use of local amenities, open spaces and sports facilities arising from the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments. However, the Mahon neighbourhood is already well equipped with such facilities to serve the existing population. Local sports clubs will likely benefit from increased volunteer numbers and participation rates resulting in increased membership and financial/social benefits.

The proposed pedestrian/cyclist bridge and path will serve as a valuable amenity for existing and future residents of Mahon. The path will satisfy a natural desire line from Mahon to the Bessborough Estate and create linkage with the existing Heritage Park Greenway. The subject lands, which are not currently accessible to the public, will become readily accessible, resulting in the existing and future residents of Ballinure and Mahon having convenient access to the grounds of the Bessborough Estate. The location adjacent to the high frequency bus network and pedestrian and cyclist greenway, with potential future adjacency to the LRT network, will result that the future residents of the scheme having ready access to amenity and sport facilities in adjacent neighbourhood of Blackrock and Cork City.

The inclusion of the Memorial 'Farm Girl' Bench will go some way towards recognising the sensitive cultural heritage that is associated with this historic location and acting as a focus for remembrance.

Once established, the proposed development will result in significant positive long-term public and amenity space provision in Mahon from the provision of a central parkland, a range of public open spaces and amenity areas which will not only cater for the future residents of the proposed development but also the existing residents of Mahon and Cork City.

The most notable operational phase landscape/townscape impact of the proposed development will result

from the permanent addition of 9 no blocks ranging from 3 to 10 storeys in height which it is considered will have a medium low negative impact. This is, however, considered to be compatible with the existing cluster of buildings to the south and with the townscape fabric and character of the wider Mahon area.

14.4.5 Impacts on Childcare and Education

14.4.5.1 Construction Phase

It is considered that the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments will not result in significant impacts on childcare or education outlets in the area during the construction phase. Some slight negative short-term impacts relating to noise, vibration, dust emissions and increased traffic levels may occur to the Bessborough's Crèche in the absence of appropriate mitigation measures during construction. It is concluded that the impacts of proposed construction phase will be neutral and will not negatively impact the operations of any childcare/education facility, subject to the specified mitigation measures as described in the Phase 1 and Phase 2 CEMPs (Appendices 2-1 and 2-2) being implemented.

14.4.5.2 Operational Phase

The proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments provide for 2 no (306.7sqm and a 236 sqm) childcare facilities with a combined capacity for 60 no. children. There are 7 no. existing childcare facilities within the study area, with an overall capacity of 462 no places and an estimated vacancy level of 163 vacancies based on the most recent Tusla reports. In line with section 4.7 of the 2020 Apartment Guidelines childcare provision has been made for 100% of the 3 bedroom units, with reduced provision included for 2 bedroom units. Overall, it is considered that the creches will result in a positive long-term impact, as the proposed creche will not only cater for the childcare needs of the proposed development but also the wider neighbourhood of Mahon.

It is estimated that the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments will give rise to a demand for 58 – 138 primary school places and 33 – 79 secondary school places. Given the Department of Education's projected fall in both primary and secondary school enrolments in the coming years and the factors described relating to the proposed housing mix, it is considered likely, that the demand for school places will be less than the scenario outlined above. There is both a primary and secondary school within 15 minutes walks of the subject site, with 7 no. primary schools and 3 no secondary schools within 10 minutes cycle of the subject site. It is considered that there will be sufficient capacity locally to cater for future demand arising from the proposed development and that the development will result in neutral impacts on local schools and educational facilities.

14.4.6 Impacts on Community Facilities, Health Facilities and Emergency Facilities

14.4.6.1 Construction Phase

Due to the distance between the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments and the majority of the nearest community facilities it is expected that any impacts during construction phase will be imperceptible. However, due to its proximity some slight negative short-term impacts relating to noise, vibration, dust emissions and increased traffic levels may occur at the Bessborough Day Care Centre in the absence of appropriate mitigation measures during construction. It is concluded that the impacts of proposed construction phase will be neutral and will not negatively impact the operations of any

community facilities, subject to the specified mitigation measures as described in the Phase 1 and Phase 2 CEMPs (Appendices 2-1 and 2-2) being implemented.

Due to the lack of immediate proximity to the nearest health outlet/service (other than the Bessborough Day Care Centre), it envisaged that the construction phase of the developments will result in no significant impacts.

There are no emergency services in the immediate vicinity. The construction phases will not result in any imperceptible impacts for local emergency services.

14.4.6.2 Operational Phase

Once operational the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments will likely result in an increased demand for local community services such as the local post office, community centre, churches and banks amongst other similar uses. In addition to the central parkland, various public open spaces and play areas within the proposed development, provision is made for a café, a creche and a range of communal residents' facilities providing for significant positive and permanent impacts.

Similarly, the operational population uplift will result in increased demand for local healthcare services, particularly in the Mahon Health Centre and other services in the Mahon area. Given the wide variety of medical facilities in the study area and the predicted demographics of the proposed scheme it is considered that the proposed development will result in imperceptible impacts on local health services.

As referenced previously, the closest Garda Station to Mahon is at Blackrock and the closest fire station is at Anglesea Street in Cork City. The closest hospitals include the Mater Private in Mahon, St Finbarr's Hospital and South Infirmary Hospital in Cork City. Due to the scale and nature of the prosed development in addition to the availability of emergency services in the area, it is considered that the proposed development will result in imperceptible impacts on emergency service provision.

14.4.7 Impacts on Public Transport

14.4.7.1 Construction Phase

Due to the proximity of the Phase 1 'The Meadows' and Phase 2 'The Farm' developments to good public transport, the proposed development is likely to result in an uplift in the use of public transport services during the construction phases with an associated moderate short-term positive impact. The increased use of public transport will promote sustainable commuting patterns and positively support public transport services in the area

14.4.7.2 Operational Phase

Once operational it is anticipated that Phase 1 'The Meadows' and Phase 2 'The Farm' developments will result in profound positive, permanent impacts in terms of public transport provision. The proposed development will support the continued viability of public transport services in the area, reduce car car-dependent inward commuter flows into Mahon by juxtaposing population and employment centres and promote sustainable modes of transport. In addition, increased population density at this location will support proposal for an LRT in proximity to the site, serving the City Centre. The public realm upgrades proposed will promote sustainable commuting patterns and reduce car dependency.

Residual Impacts

Residual impacts refer to those impacts that remain following the implementation of mitigation measures. It is considered that subject to the mitigation measures outlined in the Phase 1 and Phase 2 CEMPs, and EIAR being implemented, the proposed development will result in many positive and permanent residual impacts including.

- The creation of a new community in Ballinure, orientated around a high frequency public transport link which can promote sustainable commuting patterns to nearby urban and employment centres,
- The delivery of a new pedestrian/cyclist route connection linking the Bessborough Estate and Mahon,
- The delivery of a new public parkland, a café, 2 no. creches, 2 no. plazas, and public amenity areas will positively contribute to the Mahon neighbourhood's recreation, childcare and community facilities.

It is acknowledged that the loss of a number of mature trees will occur as a residual impact of the proposed development. As detailed in Chapter 3 of this EIAR (Alternatives Considered) the form of the layout has been designed to minimise impacts on all good quality trees as defined in the arborists report. While the development will result in a landscape/townscape impact of medium-low magnitude the proposed planting of new trees and shrubs throughout the site will enrich its existing verdant character which is likely to be strengthened, rather than weakened, by the proposed development and mitigate the loss of those existing significant trees.

In relation to the impact of the proposed project on Population and Human Health it is considered that the monitoring measures outlined in regard to the other environmental topics such as water, air quality and climate and noise etc. sufficiently address monitoring requirements.

14.5 Cumulative Impacts

14.5.1 Construction Phase

Assessing the cumulative impacts of the construction phase of Phase 1 'The Meadows' and Phase 2 'The Farm' developments, in conjunction with the potential further Phase 3 'The North Fields' development, is contingent on a number of other permitted developments in the area, which are currently under construction. The assessment also has regard to the development opportunity that remains in the nearby sites where planning application were refused in 2021

For the purposes of this assessment of impacts a 'worst case' scenario has been assessed based on the information contained in these planning applications and the other projects stated in Chapter 1. It is envisaged that subject to the implementation of mitigation measures proposed, that the proposed development will result in no significant impacts relating to air quality, noise, vibration or traffic.

14.5.2 Operational Phase

Once constructed, the proposed Phase 1 'The Meadows' and Phase 2 'The Farm' developments, in conjunction with the potential further Phase 3 'The North Fields' development, will be permanent and non-reversible. It is considered that cumulative impacts relating to human health factors including traffic, road safety, air quality, water quality, noise and vibration will be not significant.

The proposed development in the context of other developments in the area may result in negative impacts in terms on the existing landscape, dependant on the context of the visual analysis conducted. Overall, it is considered that the proposed development is an appropriate contribution to the built fabric of the study area that will not result in any significant townscape or visual impacts.

In the context of profound benefits in terms of the delivery of cyclist/pedestrian connectivity between the Bessborough Estate and Mahon, a new much needed residential community adjacent to this strategic employment hub, well served by public transport with access to a greenway and including a National Memorial and Records Centre building and Remembrance Park to the south, a second new publicly accessible parkland which connects to the 2 no existing greenways, a café, 3 no. creches and public open space, it is considered that the combined development will result in significant positive benefits in terms of wider human health considerations.

In respect of the sensitivities associated with the former intuitional use of the site as a mother and baby home, the masterplanning of the area has included positive and sensitive consideration of memorialisation consistent with Theme 6 of the Action Plan for Survivors and Former Residents of Mother and Baby and County Home Institutions. It incorporates a suggestion by local survivors that former 'farm girls' should be memorialised in Phase 2 'The Farm'. The provision of an expansive memorial park to the south of the site as part of Phase 3 is considered fitting and the provision of a possible National Memorial and Records Centre building also has the potential to respond directly and positively to the needs of survivors and former residents, and their families.

15 INTERACTION OF IMPACTS

Article 3(1) of the EIA Directive states.

The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in points (a) to (d)."

Annex IV of the amended Directive states that a description of impacts should include:

"...the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project"

Interaction	Landscape & Visual	Material Assets – Traffic & Transport	Material Assets – Services, Infrastructure & Utilities, Infrastructure & Utilities	Land, Soils & Geology	Water (Hydrology & Hydrogeology)	Biodiversity	Noise & -Vibration	Cultural Heritage	Air Quality & Climate	Population & Human Beings
Landscape & Visual		Op	Con & Op	Con & Op	Con & Op	Con & Op	-	Con & Op	-	Con & Op
Material Assets – Traffic & Transport	Op		Con	Con	Con & Op	Con	Con & Op		Con & Op	Con & Op
Material Assets – Services, Infrastructure & Utilities, Infrastructure & Utilities	Con & Op	Con		Con	Con & Op	Con & Op	Con & Op	Con	Con	Con & Op
Land, Soils & Geology	Con & Op	Con	Con		Con & Op	Con & Op	Con	Con	Con	Con
Water (Hydrology & Hydrogeology)	Op		Con & Op	Con		Con & Op	-	-	-	Con & Op
Biodiversity	Con & Op	Con	Con & Op	Con	Op		Con & Op	-	Con	-
Noise & Vibration		Con & Op	Con & Op	-	-	Con		-	Con	Con & Op
Cultural Heritage	Con & Op	-	-	Con	-	-	-		-	Con & Op
Air Quality and Climate	-	Con & Op		Con	-	Con	Con	-		Con & Op
Population and Human Beings	Con & Op	Con & Op	Con & Op	Con & Op	Con & Op	-	Con & Op	Con & Op	Con & Op	

Table 15.1: Potential Interaction of Effects Matrix for Phase 1 'The Meadows', Phase 2 'The Farm' and Combined Phase 1 and Phase 2

Con = Construction, Op= Operational. If there is considered to be no potential for an effect, the box is left blank

16 SUMMARY OF MITIGATION MEASURES

The 2017 Draft EPA Guidelines regarding information to be contained in EIAR's identifies the following strategies for the mitigation of effects.

Mitigation by Avoidance: Avoidance usually refers to strategic issues, such as site selection, site configuration or selection of process technology. This may be the fastest, cheapest and most effective form of effect mitigation. In some cases mitigation by avoidance may also be considered as part of the "consideration of alternatives".

Mitigation by Prevention: This usually refers to technical measures. Where a potential exists for unacceptable significant effects to occur (such as noise or emissions) then measures are put in place to limit the source of effects to a permissible and acceptable level.

Mitigation by Reduction: This is a very common strategy for dealing with effects which cannot be avoided. It tends to concentrate on the emissions and effects and seeks to limit the exposure of the receptor. This is regarded as a less sustainable, though still effective, approach, implemented through reducing the effect and/or reducing exposure to the effects.

Mitigation by Remedy/Offsetting: This is a strategy used for dealing with adverse effects which cannot be prevented or reduced. Remedy is compensating for or counteracting adverse effects. Examples include increased planting of specific trees/shrubs to replace unavoidable loss of vegetation, or provision of a new amenity area to compensate for the unavoidable loss of access to the grounds of an old house. Examples of offsetting include reinstating buildings, walls or features, or the introduction of tunnels to enable wildlife to access other comparable habitats.

For a comprehensive list of all proposed mitigation measures, refer to the individual chapters and corresponding appendices of this EIAR (Volumes II and III).

The accompanying Construction & Environmental Management Plan (CEMP) prepared by prepared by J. B. Barry and Partners Limited, Consulting Engineers (Appendices 2-1 and 2-2 of this EIAR), also provide details of all construction related mitigation and monitoring measures to be adopted during the construction phase of the project.