# CHAPTER 5

# POPULATION & HUMAN HEALTH

awnconsulting
A Trinity Consultants Company

# 5.0 POPULATION & HUMAN HEALTH

## 5.1 INTRODUCTION

5.1 This chapter evaluates the impacts of the Proposed Development (as defined in Chapter 3 of this EIA Report) on population and human health.

5.2 In accordance with the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022), and Draft Advice Notes for Preparing Environmental Impact Statements (EPA, 2015), this chapter has considered the "existence, activities and health of people" with respect to "topics which are manifested in the environment such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions". Issues examined in this chapter include:

- Demography;
- Population;
- Employment;
- Social Infrastructure;
- Landscape, Amenity and Tourism;
- Natural Resources;
- Land, Soil, geology and Hydrogeology;
- Hydrology;
- Air Quality;
- Noise & Vibration;
- Material Assets;
- Microclimate;
- Traffic; and
- Health and Safety.

5.3 Where these topics are dealt with in further detail elsewhere in this EIA Report, the relevant chapters have been cross referenced in this Chapter.

## 5.2 METHODOLOGY

5.4 In accordance with the Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022), this chapter has considered that:

> *"in an EIAR the assessment of impacts on population and human health should refer to the assessment of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g., under environmental factors of air, water soil etc".*

5.5 As per Article 3 of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU:

> *1) 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).*

*2) The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned."*

5.6 The 2017 publication by the European Commission (EC), Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, considered that:

> *"Human health is 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."*

5.7 This chapter will follow these EC guidelines and will examine the health effects relevant to the proposed development as they relate to a relevant, defined study area. The effects of the proposed development on the population and human health are analysed in compliance with the requirements of the EPA Guidelines.

### 5.2.1 Assessment of Significance & Sensitivity

5.8 The assessment of significance is a professional appraisal based on the sensitivity of the receptor and the magnitude of the effect.

5.9 Within any area, the sensitivity of individuals in a population will vary. As such, it would be neither representative of the population, nor a fair representation of the range of sensitivities in a population were an overall sensitivity classification assigned to the population in question. As such, the precautionary principle has been adopted for this assessment, which assumes that the population within the study area is of a uniformly high sensitivity.

### 5.2.2 Magnitude of Impact

5.10 The magnitude of predicted impacts has been quantified in this assessment using the terms outlined in Table 5.1 below.

***Table 5.1*** *Description of magnitude of predicted impacts*

| Magnitude | Description of Magnitude |
|---|---|
| High | Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a major change to existing baseline conditions (adverse or beneficial) |
| Medium | Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a moderate change to existing baseline conditions (adverse or beneficial) |
| Low | Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would result in a minor change to existing baseline conditions (adverse or beneficial) |
| Negligible | Change in an environmental and/or socio-economic factor(s) as a result of the Proposed Development which would not result in change to existing baseline conditions at a population level, but may still result in an individual impact (adverse or beneficial) |
| No change | No change would occur as a result of the Proposed Development which would alter the exiting baseline conditions (adverse or beneficial) |

### 5.2.3 Significance of Effects

5.11 The assessment of significant effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of effects (Section 5.2.2) and the sensitivity of the receptor. Table 5.2 below provides a matrix on the measure of the significance of effects as determined by the relationship between the magnitude of impact and the sensitivity of receptors.

***Table 5.2*** *Significance of effects and the sensitivity of the receptor*

| | | *Magnitude of Impact* | | | |
|---|---|---|---|---|---|
| | | Negligible | Low | Medium | High |
| Sensitivity of Receptor | Negligible | Negligible | Negligible or minor | Negligible or minor | Minor |
| | Low | Negligible or minor | Negligible or minor | Minor | Minor or moderate |
| | Medium | Negligible or minor | Minor | Moderate | Moderate or major |
| | High | Minor | Minor or moderate | Moderate or major | Major |

### 5.2.4 Study Area

5.12 The Proposed Development site is located in County Dublin, and in the electoral district of Whitehall C. The area selected for the assessment of the impact on human health has been defined as the electoral divisions (EDs) of Whitehall C (ED 2092), Whitehall A (ED 2090), Whitehall B (ED 2091), Whitehall D (ED 2093), Airport (ED 4001), Ballymun B (ED 2016), Ballymun C (ED 2017), Ballymun D (ED 2018), Ballymun E (ED 2019), Dubber (ED 4020), Ballygall C (ED 2013), Beaumont A (ED 2021),

Beaumont B (ED 2022), Beaumont F (ED 2026), Kilmore A (ED 2069), Kilmore B (ED 2070), Priorswood A (ED 2080) and Turnapain (ED 4042).

5.13 The site is located within the Dublin Region, as defined by the nomenclature of territorial units for statistics developed by Eurostat. The Dublin Region comprises of the County of Dublin.

## 5.3 RECEIVING ENVIRONMENT

### 5.3.1 Population and Demographics

#### 5.3.1.1 Population

5.14 The most recent census of the population was carried out by the CSO on the 24th of April 2016, and the previous census on the 10th of April 2011 (the 2022 census information is not yet available at the time of writing). The census compiles data for the whole state as well as smaller individual areas including counties, cities, towns, and electoral divisions. Taking into consideration the location of the Proposed Development, the census information on population, age profile, employment, and social class, has been analysed in relation to the development site.

5.15 Table 5.3 denotes the population change for the state, and electoral districts for the census years 2011 and 2016. The latest census data shows that the population of Whitehall C ED, the area surrounding the development site, decreased in size by 1.9% between the years 2011 and 2016 compared with an increase of 3.8% nationally. The average rate of population growth across the study area was an increase in 5.4%. The general increase in growth rate of surrounding areas, when compared to the state figures, suggests the increasing economic role of the areas surrounding the Proposed Development site.

***Table 5.3*** *Population change 2011 – 2016 (Source: www.cso.ie)*

| Area | 2011 | 2016 | % Change 2011-2016 |
|---|---|---|---|
| **State** | **4,588,252** | **4,761,865** | **3.8%** |
| **Whitehall C** | **2,195** | **2,153** | **-1.9%** |
| Whitehall A | 3,545 | 3,286 | -7.3% |
| Whitehall B | 3,892 | 4,128 | 6.1% |
| Whitehall D | 2,885 | 3,456 | 19.8% |
| Airport | 4,032 | 5,018 | 24.5% |
| Ballymun B | 4,012 | 4,379 | 9.1% |
| Ballymun C | 3,419 | 3,521 | 3.0% |
| Ballymun D | 2,961 | 2,458 | -17.0% |
| Ballymun E | 1,582 | 1,562 | -1.3% |
| Dubber | 6,359 | 7,372 | 15.9% |
| Ballygall C | 3,419 | 3,521 | 3.0% |
| Beaumont A | 2,467 | 2,463 | -0.2% |
| Beaumont B | 4,805 | 4,962 | 3.3% |
| Beaumont F | 3,437 | 3,590 | 4.5% |
| Kilmore A | 3,505 | 3,660 | 4.4% |
| Kilmore B | 2,600 | 2,681 | 3.1% |
| Priorswood A | 1,562 | 1,618 | 3.6% |
| Turnapain | 1,683 | 1,700 | 1.0% |

| Area | 2011 | 2016 | % Change 2011-2016 |
|---|---|---|---|
| **Study Area (mean)** | **3,242.2** | **3,418.2** | **5.4%** |

#### 5.3.1.2 Age Profile

5.16 The age profile of the population in the area is an important parameter as it provides a good insight into the potential labour force, the demand for schools, amenities, other facilities, and the future housing demand. Table 5.4 shows the age profiles at a national level and electoral districts for the census year 2016.

***Table 5.4*** *Age profile 2016 (Source: www.cso.ie)*

| Age | 0-12 | 13-18 | 19-24 | 25-44 | 45-64 | 65+ | Total Persons |
|---|---|---|---|---|---|---|---|
| **State** | **18.48%** | **7.80%** | **6.96%** | **29.53%** | **23.84%** | **13.39%** | **4,761,865** |
| **Whitehall C** | **10.59%** | **8.82%** | **9.48%** | **27.17%** | **25.5%** | **18.44%** | **2,153** |
| Whitehall A | 11.75% | 6.73% | 20.91% | 20.75% | 19.20% | 20.66% | 3,286 |
| Whitehall B | 12.35% | 5.04% | 15.26% | 28.92% | 18.99% | 19.43% | 4,128 |
| Whitehall D | 12.09% | 4.08% | 8.94% | 34.49% | 18.52% | 21.88% | 3,456 |
| Airport | 13.95% | 2.57% | 9.80% | 50.42% | 14.45% | 8.81% | 5,018 |
| Ballymun B | 17.97% | 10.53% | 10.85% | 30.85% | 18.52% | 11.28% | 4,379 |
| Ballymun C | 15.23% | 9.33% | 13.17% | 29.74% | 21.01% | 11.52% | 3,521 |
| Ballymun D | 19.65% | 10.09% | 6.54% | 32.75% | 19.77% | 9.19% | 2,458 |
| Ballymun E | 13.00% | 5.76% | 7.75% | 20.93% | 27.34% | 25.22% | 1,562 |
| Dubber | 24.73% | 5.82% | 5.58% | 47.82% | 12.87% | 3.19% | 7,372 |
| Ballygall C | 13.01% | 5.99% | 7.58% | 22.44% | 23.80% | 27.18% | 3,521 |
| Beaumont A | 11.94% | 5.24% | 7.84% | 24.24% | 22.45% | 28.30% | 2,463 |
| Beaumont B | 13.76% | 5.36% | 6.17% | 29.77% | 19.73% | 25.21% | 4,962 |
| Beaumont F | 13.93% | 6.66% | 9.94% | 27.94% | 23.15% | 18.38% | 3,590 |
| Kilmore A | 19.64% | 10.08% | 9.21% | 28.22% | 25.36% | 7.49% | 3,660 |
| Kilmore B | 15.85% | 8.21% | 7.98% | 24.24% | 25.51% | 18.20% | 2,681 |
| Priorswood A | 16.81% | 8.34% | 8.96% | 28.68% | 26.58% | 10.63% | 1,618 |
| Turnapain | 14.59% | 7.41% | 11.88% | 27.24% | 26.47% | 12.41% | 1,700 |
| **Study Area (mean)** | **15.05%** | **7.00%** | **9.88%** | **29.81%** | **21.62%** | **16.52%** | **3,418** |

5.17 This table shows that both nationally and in the study area, the dominant age grouping is 25-44 at 29.53% and 29.81% of the total population, respectively. This also reflects that the overall labour force population (in the 19-64 age group) in the study area is reflective of the national level. This is in keeping with census data from 2011 and 2006.

### 5.3.2 Socioeconomics

#### 5.3.2.1 Employment

5.18 Table 5.5 presents the employment statistics nationally and at the ED level in 2016 compared with 2011. The data shows that unemployment decreased significantly in the study area, as well as nationally, reflecting the economic recovery in recent years.

***Table 5.5*** *Employment statistics 2011 and 2016 (Source: www.cso.ie)*

| | At Work | Looking for first regular job | Unemployed having lost or given up previous job | Total in labour force | % Unemployment |
|---|---|---|---|---|---|
| 2011 Labour Force | | | | | |
| **State** | **1,807,360** | **34,166** | **390,677** | **2,232,203** | **19.03%** |
| **Whitehall C** | **910** | **11** | **144** | **1,065** | **14.55%** |
| Whitehall A | 1,033 | 23 | 103 | 1,159 | 10.87% |
| Whitehall B | 1,327 | 29 | 205 | 1,561 | 14.99% |
| Whitehall D | 1,291 | 19 | 178 | 1,488 | 13.24% |
| Airport | 2,466 | 25 | 317 | 2,808 | 12.18% |
| Ballymun B | 1,026 | 76 | 729 | 1,831 | 43.97% |
| Ballymun C | 1,639 | 78 | 830 | 2,547 | 35.65% |
| Ballymun D | 750 | 39 | 502 | 1,291 | 41.91% |
| Ballymun E | 572 | 1 | 53 | 626 | 8.63% |
| Dubber | 3,207 | 40 | 581 | 3,828 | 16.22% |
| Ballygall C | 1,190 | 18 | 147 | 1,355 | 12.18% |
| Beaumont A | 873 | 9 | 130 | 1,012 | 13.74% |
| Beaumont B | 1,941 | 29 | 338 | 2,308 | 15.90% |
| Beaumont F | 1,429 | 23 | 183 | 1,635 | 12.60% |
| Kilmore A | 1,381 | 27 | 334 | 1,742 | 20.72% |
| Kilmore B | 710 | 40 | 339 | 1,089 | 34.80% |
| Priorswood A | 638 | 22 | 165 | 825 | 22.67% |
| Turnapain | 701 | 17 | 125 | 843 | 16.84% |
| **Study Area (mean)** | | | | | **20.44%** |
| 2016 Labour Force | | | | | |
| **State** | **2,006,641** | **31,434** | **265,962** | **2,304,037** | **12.91%** |
| **Whitehall C** | **968** | **11** | **104** | **1,083** | **10.62%** |
| Whitehall A | 1,085 | 21 | 53 | 1,159 | 6.38% |
| Whitehall B | 1,688 | 27 | 160 | 1,875 | 9.97% |
| Whitehall D | 1,568 | 17 | 148 | 1,733 | 9.52% |
| Airport | 2,938 | 38 | 227 | 3,203 | 8.27% |
| Ballymun B | 1,397 | 86 | 564 | 2,047 | 31.75% |
| Ballymun C | 2,147 | 118 | 715 | 2,980 | 27.95% |
| Ballymun D | 770 | 28 | 336 | 1,134 | 32.10% |
| Ballymun E | 635 | 3 | 40 | 678 | 6.34% |
| Dubber | 3,755 | 40 | 484 | 4,279 | 12.25% |
| Ballygall C | 1,314 | 18 | 99 | 1,431 | 8.18% |
| Beaumont A | 1,011 | 5 | 72 | 1,088 | 7.08% |
| Beaumont B | 2,074 | 188 | 258 | 2,520 | 17.70% |
| Beaumont F | 1,779 | 21 | 129 | 1,929 | 7.78% |
| Kilmore A | 1,659 | 32 | 202 | 1,893 | 12.36% |
| Kilmore B | 899 | 28 | 264 | 1,191 | 24.52% |
| Priorswood A | 708 | 14 | 99 | 821 | 13.76% |
| Turnapain | 822 | 13 | 62 | 897 | 8.36% |
| **Study Area (Mean)** | | | | | **14.79%** |

5.19 The 2016 census data shows that the percentage of unemployed has decreased for the state and the area surrounding the development site since the 2011 census.

#### 5.3.2.2 Education

*5.20* Census data presenting the highest level of education completed for key educational levels by people living in Dublin City and the study area surrounding the development site is presented in Table 5.6. The table presents key milestone education and ignores people undertaking other studies or where information was not stated.

***Table 5.6*** *Highest level of education in 2011 and 2016 (Source: www.cso.ie)*

| Area | No formal education | Primary education | Secondary [1] | Higher Education[2] | Undergraduate Degree[3] | Postgraduate Degree[4] | Total Persons |
|---|---|---|---|---|---|---|---|
| Highest level of education in 2011 | | | | | | | |
| Dublin City | 4,635 | 56,817 | 109,746 | 50,898 | 67,398 | 46,007 | 335,501 |
| Whitehall C | 10 | 253 | 594 | 257 | 199 | 104 | 1,417 |
| Whitehall A | 7 | 264 | 665 | 272 | 415 | 273 | 1,896 |
| Whitehall B | 13 | 567 | 967 | 376 | 367 | 80 | 2,370 |
| Whitehall D | 49 | 339 | 683 | 290 | 479 | 247 | 2,087 |
| Airport | 10 | 70 | 630 | 545 | 690 | 497 | 2,442 |
| Ballymun B | 45 | 727 | 1036 | 252 | 64 | 30 | 2,154 |
| Ballymun C | 109 | 762 | 1482 | 479 | 168 | 94 | 3,094 |
| Ballymun D | 44 | 384 | 658 | 121 | 66 | 33 | 1,306 |
| Ballymun E | 12 | 136 | 473 | 184 | 204 | 81 | 1,090 |
| Dubber | 25 | 233 | 1197 | 998 | 770 | 341 | 3,564 |
| Ballygall C | 60 | 474 | 981 | 387 | 329 | 188 | 2,419 |
| Beaumont A | 20 | 376 | 715 | 336 | 226 | 107 | 1,780 |
| Beaumont B | 49 | 604 | 1192 | 582 | 560 | 231 | 3,218 |
| Beaumont F | 15 | 339 | 873 | 423 | 429 | 209 | 2,288 |
| Kilmore A | 20 | 319 | 943 | 310 | 241 | 117 | 1,950 |
| Kilmore B | 40 | 643 | 727 | 179 | 92 | 23 | 1,704 |
| Priorswood A | 17 | 183 | 500 | 180 | 67 | 29 | 976 |
| Turnapain | 11 | 113 | 452 | 176 | 153 | 86 | 991 |
| Highest level of education in 2016 | | | | | | | |
| Dublin City | 5,807 | 43,102 | 100,278 | 53,536 | 77,803 | 58,960 | 339,486 |
| Whitehall C | 23 | 196 | 502 | 253 | 265 | 137 | 1376 |
| Whitehall A | 8 | 192 | 573 | 272 | 426 | 365 | 1,836 |
| Whitehall B | 32 | 402 | 826 | 447 | 498 | 277 | 2,482 |
| Whitehall D | 29 | 287 | 620 | 329 | 497 | 327 | 2,089 |
| Airport | 16 | 97 | 543 | 570 | 736 | 505 | 2,467 |
| Ballymun B | 90 | 554 | 1,045 | 307 | 127 | 42 | 2,165 |
| Ballymun C | 118 | 644 | 1,563 | 530 | 298 | 131 | 3,284 |
| Ballymun D | 49 | 273 | 548 | 229 | 85 | 39 | 1,223 |
| Ballymun E | 7 | 101 | 401 | 209 | 246 | 131 | 1,095 |
| Dubber | 28 | 201 | 1,097 | 958 | 771 | 324 | 3,379 |
| Ballygall C | 49 | 380 | 827 | 419 | 396 | 283 | 2,354 |
| Beaumont A | 22 | 300 | 604 | 358 | 279 | 149 | 1,712 |
| Beaumont B | 57 | 478 | 1,079 | 588 | 622 | 268 | 3,092 |
| Beaumont F | 9 | 278 | 762 | 473 | 561 | 289 | 2,372 |
| Kilmore A | 32 | 261 | 894 | 445 | 327 | 121 | 2,080 |
| Kilmore B | 61 | 471 | 779 | 248 | 96 | 36 | 1,691 |
| Priorswood A | 31 | 124 | 488 | 223 | 95 | 22 | 983 |
| Turnapain | 17 | 91 | 446 | 213 | 215 | 90 | 1,072 |

[1] Lower secondary and Upper secondary
[2] Higher Certificate, Advanced certificate/completed apprenticeship or Technical/vocational training
[3] Ordinary bachelor's degree, Honours bachelor's degree/professional qualification
[4] Postgraduate degree or Ph.D

#### 5.3.2.3 Labour Force Survey

5.21 The Labour Force Survey (LFS) is a large-scale, nationwide survey of households in Ireland carried out every three months. It generates labour force estimates which include the official measure of employment and unemployment for the state. The CSO is obliged to follow standard definitions and methodology when calculating the official estimates from the LFS. However, in response to the COVID-19 pandemic, the CSO implemented adjusted measures in order to take into account the economic impact of the COVID-19 pandemic in Ireland. Results for both sets of estimates are provided in the following paragraph.

5.22 The LFS results nationally for Q1 2021 showed that there were 2,401,100 people employed in the state with 170,500 registered as unemployed. The COVID-19 Adjusted Measure of Employment, or the lower bound for the number of employed persons aged 15 years and over, rose from 1,785,923 to 1,845,383 between the end of March 2021 and the end of April 2021. This was accompanied by a rise from 52.0% in March 2021 to 56.1% in the associated COVID-19 Adjusted Employment Rate, for those aged 15-64. In Q1 2021, the majority of people were employed in the broad occupations of 'Industry', 'Human health and social work activities' and 'wholesale and retail trade, repair of motor vehicles and motor cycles' (www.cso.ie, 2021).

#### 5.3.2.4 Income

5.23 The below data in Table 5.7 is obtained from CSO PxStat (CIA02), this demonstrates the levels of total income and disposable income per person in the Dublin area are 15-22% higher over the study years than those for the State.

5.24 The below data in Table 5.7 is obtained from CSO PxStat (CIA02), this demonstrates the levels of total income and disposable income per person in the Dublin area are 15-20% higher over the study years than the State in 2017.

5.25 A similar pattern of income distribution is observed in data on disposable income per person.

***Table 5.7*** *Income per Person (Source: CSO PxStat CIA02)*

| Area | Income | 2016 | 2017 | 2018 |
|---|---|---|---|---|
| State | Total Income per Person (€) | 28,057 | 29,667 | 30,753 |
| | Disposable Income per Person (€) | 19,429 | 20,578 | 21,270 |
| Dublin | Total Income per Person (€) | 34,305 | 35,867 | 37,530 |
| | Disposable Income per Person (€) | 22,592 | 23,621 | 24,969 |

#### 5.3.2.5 Deprivation

5.26 Deprivation in small areas is mapped using the Pobal HP Deprivation Index. This Index draws on data from censuses and combines three dimensions of relative affluence and deprivation: Demographic Profile, Social Class Composition and Labour Market Situation. Figure 5.2 below shows a graphical representation of how the concepts of Demographic Growth, Social Class Composition and Labour Market Situation are measured by ten key socio-economic indicators from the Census of Population. In this EIA Report, the Relative Index Score is considered as the measure for deprivation, as these Relative Index Scores are rescaled such that the mean is 0 and the standard deviation is 10 at each census wave. This allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in Table 5.8 below.

5.27 Graphical representation of how the concepts of Demographic Growth, Social Class Composition and Labour Market Situation are measured by ten key socio-economic indicators from the Census of Population.

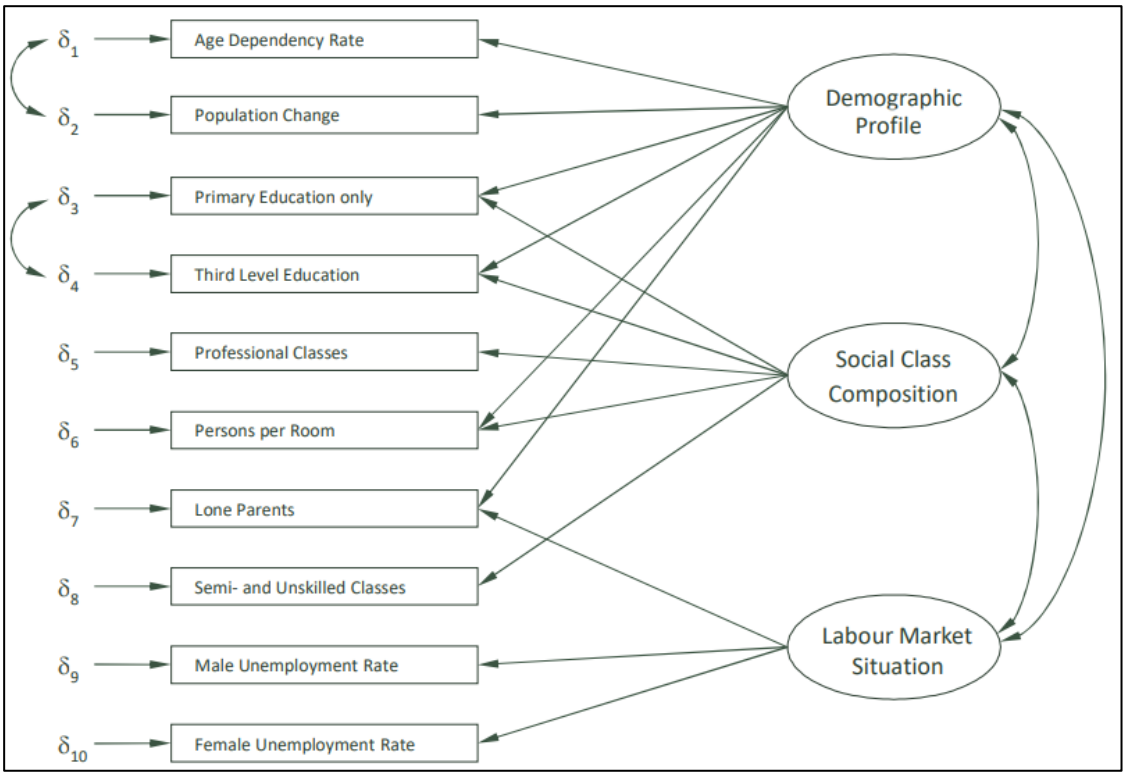


***Figure 5.1*** *Basic Model of the Pobal HP Deprivation Index*

***Table 5.8*** *Pobal HP Index Relevant Index Score labels (Source: Pobal HP Deprivation Index)*

| Relative Index Score | Standard Deviation | Label |
|---|---|---|
| > 30 | > 3 | Extremely affluent |
| 20 – 30 | 2 – 3 | Very affluent |
| 10 – 20 | 1 – 2 | Affluent |
| 0 – 10 | 0 – 1 | Marginally above average |
| 0 – -10 | 0 – -1 | Marginally below average |
| -10 – -20 | -1 – -2 | Disadvantaged |
| -20 – -30 | -2 – -3 | Very disadvantaged |
| < -30 | < -3 | Extremely disadvantaged |

5.28 The data in Table 5.9 shows the Pobal HP Index Relevant Index Score Figures at a local and County level (*Source: Pobal HP Deprivation Index).* These figures show that the population living within the Study Area are most commonly classified as 'Marginally above average' (9 EDs), however, in total, a similar number of EDs are classified as 'marginally below average' (4 EDs) and 'disadvantaged' (4 EDs). The county of Dublin is classified as 'Marginally above average' for the year 2016. Figure 5.3 below presents the Pobal HP Index map illustrating the Study Area.

5.29

***Table 5.9*** *Pobal HP Index Relevant Index (Source: Pobal HP Deprivation Index)*

| Area | Relative Index Score | Pobal HP Description 2016 |
|---|---|---|
| Dublin County | 3.74 | Marginally above average |
| Whitehall C | 0.60 | Marginally above average |
| Whitehall A | 6.01 | Marginally above average |
| Whitehall B | 2.46 | Marginally above average |
| Whitehall D | 5.74 | Marginally above average |
| Airport | 13.09 | Affluent |
| Ballymun B | -16.67 | Disadvantaged |
| Ballymun C | -11.38 | Disadvantaged |
| Ballymun D | -16.76 | Disadvantaged |
| Ballymun E | 4.71 | Marginally above average |
| Dubber | 5.11 | Marginally above average |
| Ballygall C | 0.43 | Marginally above average |
| Beaumont A | -0.66 | Marginally below average |
| Beaumont B | -0.50 | Marginally below average |
| Beaumont F | 4.86 | Marginally above average |
| Kilmore A | -1.01 | Marginally below average |
| Kilmore B | -16.29 | Disadvantaged |
| Priorswood A | -6.13 | Marginally below average |
| Turnapain | 2.32 | Marginally above average |

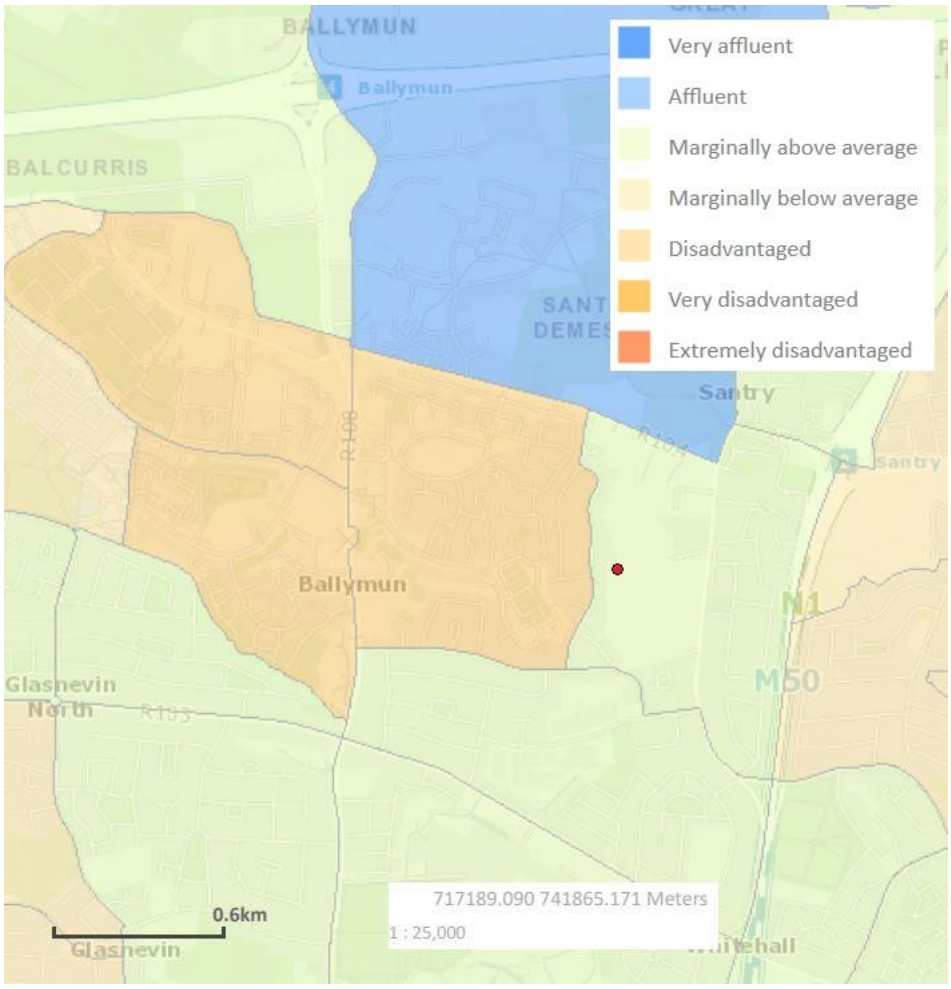


***Figure 5.2*** *Pobal HP Index Electoral Division, Site is indicated with a red dot (Source: Pobal HP Deprivation Index)*

### 5.3.3 Health

#### 5.3.3.1 Physical Health

5.30 Life expectancy in Ireland by sex is a key metric for assessing population health; data for the study area is shown in Table 5.10. Dublin data shows that life expectancy for both males and females has increased consistently, with female life expectancy consistently higher than male.

***Table 5.10*** *Period Life Expectancy (Source: CSO PxStat VSA30 & VSA31)*

| Period Life Expectancy in Dublin by sex | | | | | |
|---|---|---|---|---|---|
| Area | Sex | 2002 | 2006 | 2011 | 2016 |
| Dublin | Male | 75.2 | 76.7 | 78.3 | 80.1 |
| | Female | 80.2 | 81.2 | 82.7 | 83.4 |

5.31 Table 5.11 *shows* Circulatory Diseases Admission Rate per 100,000 Population at a National and County level *(Source: Public Health Well Community Profiles).* The rate of hospital admissions in Dublin City tends to generally fall in line with that of the State for all study years.

***Table 5.11*** *Circulatory Diseases (Source: Public Health Well Community Profiles)*

| Circulatory Diseases Admission Rate per 100,000 Population | | | | | |
|---|---|---|---|---|---|
| Area | 2010 | 2011 | 2013 | 2014 | 2015 |
| State | 4,308.6 | 4,026.8 | 4,495.6 | 4,644.6 | 3,794.9 |
| Dublin City | 3,805.56 | 3,498.7 | 3,950.4 | 4,716.7 | 3,425.8 |

5.32 Respiratory Diseases Admission Rate per 100,000 Population at a National and County level are shown in Table 5.12. The rate of hospital admissions in Dublin City tends to generally fall in line with that of the State for all study years.

***Table 5.12*** *Respiratory Diseases (Source: Public Health Well Community Profiles)*

| Respiratory Diseases Admission Rate per 100,000 Population | | | | | |
|---|---|---|---|---|---|
| Area | 2010 | 2011 | 2013 | 2014 | 2015 |
| State | 2,402.6 | 2,361.0 | 2,633.6 | 2,691.0 | 2,712.5 |
| Dublin City | 2,483.7 | 2,349.7 | 2,585.7 | 2,693.7 | 2,597.9 |

5.33 With respect to mental health the rates of death by suicide and intentional self-harm rate per 100,000 population is shown in Table 5.13 below. The rate in Dublin is overall lower over the study years compared with those in the State. The rate of death by suicide and intentional self-harm are generally decreasing year-on-year, this is generally in line with the pattern seen in the State.

***Table 5.13*** *Death by Suicide and Intentional Self Harm (Source: CSO PxStat DHA12)*

| Death by Suicide and Intentional Self Harm Rate per 100,000 Population | | | | |
|---|---|---|---|---|
| Area | 2014 | 2015 | 2016 | 2017 |
| State | 10.46 | 9.07 | 9.22 | 8.18 |
| Dublin City and County | 6.22 | 3.88 | 3.97 | 3.48 |

5.34 The number of admissions to hospital for anxiety or depression per 1,000 people (Table 5.14) in Dublin City have followed the same pattern of the State, which shows a decline from 2013 to 2014. However, there was a steep incline in 2015 which occurred in Dublin City but did not occur for the overall State (Table 5.14).

***Table 5.14*** *Number of admissions to hospital for anxiety or depression (Source: Public Health Well Community Profiles)*

| Number of admissions to hospital for anxiety or depression per 1,000 people | | | |
|---|---|---|---|
| Area | 2013 | 2014 | 2015 |
| State | 2 | 1.8 | 1.8 |
| Dublin City | 2 | 1.4 | 24.9 |

### 5.3.4 Social Infrastructure

5.35 Social infrastructure covers a range of services and facilities that meet local and strategic needs and contribute towards a good quality of life. In this context it includes local business, residential areas, education, health facilities, emergency services, places of worship, and green infrastructure. Further detail regarding the Santry Community and local needs is provided in the "Community Audit of Santry" (JSA, 2022) report submitted as a separate document as part of this planning application, which states that the study area is well served by community facilities.

#### 5.3.4.1 Businesses

5.36 The site is currently comprised of industrial sheds and a large tarmacadam yard. It is bounded to the west by a residential estate and to the north by various small commercial units. Lidl is located immediately to the east, while the south side is bounded by a multiplex cinema and associated car park.

#### 5.3.4.2 Residential Dwellings

5.37 The nearest residential sensitive location is the large built-up residential area to the west of the site. 14 no. residential properties within the housing estate form the western boundary of the site.

5.38 There are also significant concentrations of residential areas that occur to the east and south of the site, c. 200m.

#### 5.3.4.3 Education

5.39 A schools report entitled "School Demand Assessment: In support of OMNI Plaza SHD at OMNI Park, Swords Road, Santry,Dublin 9" has been produced by KMPG Aug 2022 and is submitted as a separate document with this planning application.

5.40 The proposed development is located within the Department of education and Skills Whitehall-Santry School Planning Area. There are a number of primary and secondary schools within 3km of the proposed development site:

- Gaelscoil Bhaile Munna – 1.5 km north west
- Gaelscoil Cholmcille – 1.8 km east
- Virgin Mary Boys National School – 2 km west
- Saint Paul's Special School – 2.3 km east
- Holy Child Boys National School – 2.4 km south
- Holy Child Girls National School – 2.4 km south
- Our Lady of Mercy College Secondary School – 2.4 km south east
- Saint Joseph's Junior National School – 2.5 km north west
- Holy Spirit Boys National School – 2.9 km west
- Trinity Comprehensive Ballymun Secondary School – 3 km west

The KMPG schools report states that within the Whiethall-Santry School Planning Area there is sufficient capacity within the existing school network.

#### 5.3.4.4 Health

5.41 Beaumont Hospital ''Satellite Out-Patient Department Service'' is within the OMNI shopping centre. The nearest hospital to the site is Beaumont Hospital located c. 3.5km to the east of the site.

#### 5.3.4.5 Emergency Services

5.42 The Santry Garda Station and Finglas Fire Station are located c. 1.1km south and c. 5.6km west of the site respectively.

#### 5.3.4.6 Places of worship

5.43 There are several places of worship within a 1.5km vicinity of the development, including:

- Dublin Christ Life Church
- Oratory in OMNI shopping centre
- Saint Pappan's Church of Ireland
- Chapel of the Blessed Margaret Ball
- Catholic Church of the Virgin Mary
- Pappu Kumar Temple
- Beaumont Hospital Mosque

### 5.3.5 Landscape Amenity and Tourism

5.44 In terms of landscape amenity of the Proposed Development site, there are no listed or scenic views, no landscape or amenity designations or protected trees pertaining to the site. There are a number of protected structures listed on the Sites and Monuments Record (SMR) in the Santry area, in particular there are ecclesiastical structures and a graveyard associated with Saint Pappan's Church of Ireland, which lies to the north-east of the site.

5.45 The primary area of landscape amenity in the immediate vicinity of the Proposed Development site is Santry Park (1.3km to the north), which is a recreational park with various sports pitches. The closest primary amenity area, the National Botanic Gardens is located c. 4.7 km to the south west.

5.46 The Proposed Development site is not considered to be significant or sensitive from a natural landscape aspect due to it being in a built-up location. The lands are appropriately zoned in the Dublin City Development Plan 2016 – 2022 as *Z4 – 'To provide for and approve mixed-services facilities'* The immediate surrounding area is contained within an environment of an established commercial and residential setting.

5.47 Tourism is a minor industry in the immediate environs of the Proposed Development site; with Santry Park being the only attraction for tourists in the vicinity. There is also only a small number of hotels close to the development with the closest being Travelodge in Ballymun (c. 2.2km to the west of the site). Section 6.5.3 of the Dublin City Development Plan lists a number of policies to promote and facilitate tourism in the area.

### 5.3.6 Natural Resources

5.48 Natural resources and land use in the hinterland of the Proposed Development have also been considered as they may have implications for the development of the lands.

5.49 The site is historically the location of agricultural land and Santry Hall, as is indicated on the Historical Ordnance Survey (OS) maps. The land usage has changed considerably over the past 200 years, with all surrounding land now used for residential or commercial purposes.

5.50 Data from the Geological Survey of Ireland indicates that there are no areas of geological heritage within the vicinity of the proposed site. In terms of extractive industries, the closest active quarries are the Huntstown Quarry in Finglas (c. 9.0 km west of the site) and the Feltrim Quarry in Swords (c. 9.5 km north east of the site), both of which are operated by Roadstone Ltd. There are no anticipated impacts on these facilities from the Proposed Development. Further detail on extractive industries is presented in Chapter 6 (Land, Soils, Geology and Hydrogeology).

## 5.4 CHARACTERISTICS OF PROPOSED DEVELOPMENT

5.51 The site is located to the north west corner of the Omni Park Shopping Centre, Santry and at Santry Hall Industrial Estate. The proposed development comprises a mixed-use residential (457 apartments) and commercial development in four blocks, with childcare facility, community building and two retail/café/restaurant units.

5.52 The proposed development is described in further detail in Chapter 2 (Description of the Proposed Development).

## 5.5 POTENTIAL IMPACTS

5.53 The impact of construction, commissioning, operation and decommissioning of the Proposed Development is considered below.

### 5.5.1 Construction Stage

5.5.1.1 Impacts on Business and Residences

5.54 The main potential impacts on local businesses and residences associated with the Proposed Development will be in relation to air quality, noise, visual impact and traffic. The potential impacts and mitigation measures to address them are dealt with within the corresponding chapters of this EIA Report as follows:

- Chapter 9 – Air Quality and Climate
- Chapter 10 – Noise and Vibration
- Chapter 12 – Landscape and Visual Impact
- Chapter 14 – Traffic and Transportation

5.55 It is predicted that there will be a slight positive impact on local business activity during the construction phase with the increased presence of up to 300 no. construction workers using local facilities. It is also believed there will be a long-term positive impact during the operational phase due to the residential aspect of the scheme and the increase in people requiring the use of facilities in Santry.

5.56 There may be a short term slight negative impact on the local residential population during the construction phase and the operational phase, as well as the potential additional housing demand in the wider commuter area as a result of increased employment provided by the Proposed Development. It is also anticipated that the Proposed Development will have indirect positive effects on employment in terms of construction material manufacture, maintenance contracts, equipment supply, landscaping etc.

5.57 The potential increase in the temporary population of the area during construction as a result of the employment of workers from outside the wider Dublin area that may choose to reside in the immediate and wider local area is likely to amount to only a small percentage of the workforce employed during the construction phase but will result in some additional trade for local accommodation and services. It is expected that the majority of the work force will travel from existing places of residence to the construction site rather than reside in the immediate environs of the site. However, some local employment from within the wider local area is expected.

5.58 Construction will have an indirect positive effect on support industries such as builder suppliers, construction material manufacture, maintenance contracts, equipment supply, landscaping and other local services. There will also be a need to bring in specialist workers on a regular basis that may increase the above estimated working population at times. Specialists are only likely to stay for shorter periods depending on the nature of the work. The construction phase, therefore, is considered to have the potential to have a ***moderate, short term*** *and* ***positive*** impact on the economy and employment of the local and wider area.

5.59 The completed development will also have a positive impact in the provision of additional capacity for residential units in the Santry area, the demand for which remains high due to the current nationwide housing crisis.

#### 5.5.1.2 Impact on Human Health from Air Quality

5.60 As outlined in Chapter 9 of this EIA Report (Air Quality and Climate), National and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or “Air Quality Standards” are based on the protection of the environment as well as the protection of human health. Additional factors such as natural background levels, environmental conditions and socio-economic factors are also considered in the limit values which are set (see Chapter 9, Table 9.1). The ambient air quality standards established are designed to minimise harmful effects to health.

5.61 Dust emissions from the construction phase of the proposed development have the potential to impact human health through the release of $PM_{10}$ and $PM_{2.5}$ emissions. As per Table 9.5 in Chapter 9 the surrounding area is considered of medium sensitivity to dust related human health impacts. There is an overall worst-case medium risk of dust related human health impacts as a result of the construction of the proposed development (Table 9.10 in Chapter 9). Therefore, in the absence of mitigation there is the potential for ***slight, negative*** and ***short-term*** impacts to human health as a result of the proposed development.

#### 5.5.1.3 Impact on Human Health from Noise and Vibration

5.62 Noise and vibration impacts associated with the Proposed Development have been fully considered within Chapter 10 of this EIA Report. Commentary on the impact

assessment and related noise levels are summarised below with respect to potential environmental health impacts.

5.63 As detailed in Chapter 10 (Noise and Vibration), in the absence of mitigation measures, there is potential for a significant impact from construction noise at noise-sensitive properties to the west of the site. In terms of potential construction vibration impacts, provided that the contractor follows the Dublin City Council guidance, *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition*, it is not expected that the vibration thresholds set out in BS 5228 will be exceeded and therefore it is not expected that significant impacts will occur.

5.64 It is expected in the absence of specific mitigation measures that there will be a ***negative***, ***significant*** and ***short-term*** impact at the closest receptors.

#### 5.5.1.4 Impact on Local Amenities and Tourism

5.65 There are no listed or scenic views, no landscape or amenity designations or protected trees pertaining to the site, and no protected structures or National Monuments within the boundary of the Proposed Development site. There are a number of protected structures listed on the Sites and Monuments Record (SMR) in the Santry area, in particular there are ecclesiastical structures and a graveyard associated with Saint Pappan's Church of Ireland, which lies to the north-east of the site. These will be protected and not impacted by the proposed construction and demolition works.

5.66 During construction and demolition works there will be no impacts to the nearby Santry Park.

5.67 The Proposed Development will create a wastewater discharge which will go to Ringsend WWTP, and will not have an impact on local amenities or the local population (Chapter 15, Material Assets).

#### 5.5.1.5 Impact on Material Assets

5.68 The Proposed Development will require electrical power supply from the national grid and the requirements for this supply have been detailed in Chapter 15 (Material Assets) of this EIA Report.

#### 5.5.1.6 Impacts from Additional Traffic

5.69 An assessment of the additional traffic movements associated with the Proposed Development during the operational phases is presented in Chapter 14 (Traffic and Transportation). Traffic movements during the construction phase have been scoped out as it has been deemed that it will have no likely significant effect.

#### 5.5.1.7 Impacts from Unplanned Events/ Impacts on Health and Safety

5.70 The Proposed Development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 (S.I. 10 of 2005) as amended and the Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. 299 of 2007) as amended and associated regulations. The plan has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar existing facilities operated by the operator.

5.71 The Proposed Development has the potential for an impact on the health and safety of workers employed on the site, particularly during the construction phase. The activities of contractors during the construction phase will be carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) as amended to minimise the likelihood of any impacts on worker's health and safety. The health and safety planning for the construction phase of the Proposed Development will consider any appropriate measures to safeguard workers' health and safety with regards to COVID-19.

5.72 The site has been assessed in relation to the following external natural disasters; landslides, seismic activity, volcanic activity and sea level rise/flooding as outlined below.

5.73 There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity. The Proposed Development site is not located within the consultation distance of any COMAH establishment that is notified to the HSA.

5.74 The potential risk of flooding on the site was also assessed. A site-specific flood risk assessment (FRA) was carried out by the project engineers, Eireng Consulting Engineers and it was concluded that there is a low risk of coastal, fluvial, ground water and public sewer flooding. However, the site is considered to be at risk of pluvial flooding. The FRA will be included with the documents submitted as part of the planning application.

5.75 There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction and operational phases. However, the implementation of the mitigation measures set out in Chapter 6 (Land, Soils, Geology and Hydrogeology) and Chapter 7 (Hydrology) of the EIA Report will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

### 5.5.2 Operational Stage

5.5.2.1 Impacts on Business and Residences

5.76 The Proposed Development will result in a moderately significant and positive impact to local residents in the area. The Proposed Development will primarily consist of residential units, along with three commercial units which will provide employment opportunities which will be of direct benefit, allowing members of community to work, and live within the Santry area.

5.77 The Proposed Development will result in increased employment during the operational phase and will significantly reduce the pressure on local housing supply. The provision of residential units will benefit the adjacent businesses.

5.78 Chapter 11 (Microclimate) of this EIAR discusses the potential for alterations to wind-flow patterns within the proposed development which could give rise to strong winds through open spaces and around building corners, impacting upon residents and visitors to the business units within the proposed development, and immediately downwind in the Omni Shopping Centre and residential areas.

5.79 As is noted in Chapter 11, the proposed building heights are from 13.8 to 41metres above ground. The distance to the nearby residential and commercial units is some 30 metres, which results in a Height to Width (H to W) ratio of c. 0.46 which is greater than the industry recognised minimum ratio requirements and as such will not result in any impact upon the nearby Omni Shopping Centre and residential areas downwind of the proposed development. With respect to wind issues within the proposed development itself, the H to W ratios derived in Chapter 11 are expected to produce a skimming regime, with little in the way of wind flow down to street level and therefore the proposed development is not expected to lead to elevated windspeeds at street level.

5.80 As stated in Sunlight & Daylight report submitted as a part of the planning application, it can be concluded that the neighbouring residential properties will not be affected in terms of Vertical Sky Component[5], APSH[6], WPSH[7] or sun lighting[8]. Internally within the proposed development, only a few of the windows that are located in the proposed development and are facing directly to the other proposed buildings will experience a perceptible level of ADF daylight/sunlight effect. However the level of effect on daylight and sunlight to the surrounding existing properties can be considered favourable and acceptable.

#### 5.5.2.2 Impact on Human Health from Air Quality

5.81 Traffic related air emissions have the potential to impact human health if they do not comply with the ambient Air Quality Standards detailed in Table 9.1. Concentrations of $PM_{10}$ were modelled for the baseline year of 2019 in Section 9.5.3.1 of this EIAR. The modelling showed that concentrations were in compliance with the annual limit value of 40 µg/m$^3$ at the receptor assessed, therefore, further modelling for the opening and design years was not required. Concentrations reached at most 0.4 µg/m$^3$. When a background concentration of 15 µg/m$^3$ is included the overall impact is 39% of the annual limit value at the worst case receptor.

5.82 The potential impact of the proposed development on ambient air quality in the operational stage is considered **long-term, localised, negative** and **imperceptible** and therefore, no mitigation is required.

#### 5.5.2.3 Impact on Human Health from Noise & Vibration

5.83 As detailed in Chapter 10 Noise and Vibration, the main potential sources of outward noise from the development during the operational phase will be traffic flows to and from the development via public roads, childcare facilities (crèche), mechanical and electrical plant used to service the buildings and deliveries and waste collection. The worst case scenario noise emissions associated with these activities at the Proposed Development site should be compliant with the adopted noise limit values which are based with due consideration of the effect on human health.

[5] Ratio of that part of illuminance at a point on a given vertical plane, that is received directly from an overcast sky model to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.
[6] Annual Probable Sunlight Hours – a measure of sunlight that a window may expect over a year period
[7] Winter Probable Sunlight Hours – a measure of sunlight that a window may expect over the period 21 Sep – 12 Mar.
[8] ADF. Average Daylight Factor. The ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed overcast sky model.

5.84 The building services plant is a potential noise source within the development. As detailed in Section 10.5.2.1, the location and type of building services plant has not yet been established therefore it is not possible calculate potential noise levels.

5.85 Another potential noise source comes from children playing in the outdoor area of the crèche. Due to the location of the outdoor play area, it is considered there will be no impact on locations outside of the proposed development. In the absence of mitigation measures, it can be determined that in facades within the proposed development (detailed in Figure 1.4 and 1.5 in Chapter 10) the impact on human health in relation to noise generated from children playing outdoors can be ***negative, local, long-term*** and ***significant***.

5.86 Any change in noise levels associated with other potential sources of noise in the vicinity of the Proposed Development is expected to be not significant. In essence, the noise levels that are encountered at the nearest noise sensitive locations are predicated to be within relevant noise criteria that have been adopted here for the operation of the Proposed Development and associated infrastructure. These criteria have been selected with due consideration to human health, therefore, will not result in a significant impact on human health.

5.87 The Proposed Development will not generate any perceptible levels of vibration during operation and therefore there will be no impact from vibrations on human health.

#### 5.5.2.4 Impact on Local Amenities and Tourism

5.88 The occupiers of the residential portion of the development will have a positive impact on the footfall of existing amenities in the area.

5.89 Once operational the Proposed Development will have slightly significant and positive impact upon the availability and quality of local amenities.

5.90 The Proposed Development will provide increased childcare availability and space for commercial tenants, which will have slightly significant and positive impact on local amenities. Access to other amenities in the area will remain unaffected.

#### 5.5.2.5 Impact on Material Assets

5.91 The Proposed Development will require power supply, fresh water and foul sewerage It is intended that the national grid will supply power to site. The utility providers have provided confirmation that there is sufficient capacity in the area network for the required power demand and as such there will be no impact on power supply to local residential or business users, who may be reliant upon these areas for healthcare.

5.92 Fingal County Council and Irish Water have been consulted and there is capacity within the public water system and the foul sewerage system[9] for the proposed development, and as such will not impact upon any individuals relying on these services for healthcare reasons.

[9] Please refer to Appendix 15.1 where it is stated by Irish Water that there will be sufficient capacity within the sewerage network subject to the completion of planned upgrade works.

#### 5.5.2.6 Impacts from Additional Traffic

5.93 As detailed in Chapter 14 Traffic and Transportation of this EIAR, the proposed development will have an unnoticeable impact upon the established local traffic conditions and can be accommodated on the road network.

#### 5.5.2.7 Impacts from Unplanned Events/ Impacts on Health and Safety

5.94 The Proposed Development has been designated by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar existing developments.

### 5.5.3 Do-Nothing Impact

5.95 If the Proposed Development were not to proceed, the subject land would remain undeveloped until such a time that development did take place in line with the zoning of the site. In the do-nothing scenario, where the lands remain undeveloped, there is no potential for the positive impacts associated with increased housing supply, increased childcare availability and commercial space.

5.96 In the long-term, it is likely that the lands would be developed in time for another similar development in line with the zoning of the site.

## 5.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)

5.97 The impacts on the local population in terms of residents and businesses are considered to be mainly positive in the sense of creating direct employment opportunities and indirect additional business, both during the construction and operational phases. Once operational there will be significant positive contributions to the residential capacity of the Santry area.

5.98 Mitigation measures proposed to minimise the potential impacts on human health in terms of air quality and climate, noise and vibration, and traffic and transportation are discussed in the relevant sections of Chapters 9, 10 and 14 of this EIAR, respectively.

5.99 Similarly, mitigation measures set out in Chapter 6 (Land, Soils, Geology and Hydrogeology), Chapter 7 (Hydrology) and Chapter 11 (Microclimate) of the EIA Report will ensure the risk of impacts to human health is low and that the residual effect on the environment is imperceptible.

### 5.6.1 Construction Stage

5.100 Prior to the commencement of construction, the appointed contractor will be required to obtain formal agreement from the Local Authority on pollution prevention measures as well the overall approach and emergency procedures for all construction stages. All demolition works are to be in accordance with the following guidelines:

- BS 6187:2000 '*Code of practice for demolition*'
- Health and Safety Executive Guidance Notes GS 29 / 1, 2, 3 & 4.
- S.I. 504 Safety, Health & Welfare at Work (Construction) regulations 2013
- Air Pollution Act 1987
- Environmental Protection Agency Act 1992
- BS 5228:2009 Part 1 '*Noise Control on Construction & Open Sites*'.

5.101 Prior to the works commencing, detailed photograph surveys (condition schedules) of adjoining walls, roads, footpaths, grass verges etc. are to be prepared. Copies of the relevant parts are to be made available to adjoining owners and Fingal County Council. This record will form the basis of assessing repairs to adjoining areas in the future should a dispute arise as to their cause.

5.102 Roadways are to be kept clean of dirt and other debris. A road sweeping truck is to be provided if necessary, to ensure that this is so.

5.103 The Contractor will be responsible for the security of the site. The Contractor will be required to:

- Operate a site induction process for all site staff.
- Ensure all site staff shall have current 'safe pass' cards.
- Install adequate site hoarding to the site boundary.
- Maintain site security staff at all times.
- Separate pedestrian access from construction at the main site entrances provide a safe walkway for pedestrians along the site entrances.
- Ensure restricted access is maintained to the works.

5.104 The construction works will be hoarded off or fenced off from the public at all times. A 2.4m minimum high plywood painted timber hoarding will be provided along the long-term boundaries at the entrance, and at other areas around the site where the perimeter fence/wall is not deemed sufficient for safety and security reasons. Heras type fencing will be used on short term site boundaries where appropriate to suit the works.

5.105 Controlled access points to the site, in the form of gates or doors/turnstiles, will be kept locked any time that these areas are not monitored (e.g., outside working hours). During working hours, a gates person will control traffic movements and deliveries at any active site access to ensure safe access and egress to and from site onto the public roads.

5.106 A Traffic Management Plan will be prepared by the contractor and agreed with Fingal County Council's Transportation Department and An Garda Siochana, to mitigate any impact of construction on the surrounding road network.

5.107 As detailed in Chapter 6 Soil & Land, Geology and Hydrogeology of this EIAR, there is no evidence of a significant soil hazard on site. No groundwater is expected to ingress to the excavation area. However, it is expected during the excavation works that localised dewatering of the subsoils will be required to address localised perched groundwater.

5.108 Chapter 7 Hydrology of this EIAR states that, there is no risk of flooding affecting the site from fluvial or coastal sources, however, the site is considered to be a risk of pluvial flooding. Design measures including localised ramping at ground floor entrance doorways to provide a threshold, overland flow routes directed away from the buildings and a surface water drainage network including attenuation storage designed to best practice guidelines are considered to be sufficient measures to provide protection to the development from the potential pluvial flooding risk.

5.109 In order to mitigate the potential dust-related health impacts during the construction phase, a dust minimisation plan will be formulated. This plan will draw upon best

practice mitigation measures from Ireland, the UK and the USA to ensure the highest level of mitigation possible. Further detail is provided in Chapter 9 of this EIAR.

5.110 Provided that the mitigation measures detailed in Chapter 10 are put in place, such as limiting the amount of high-noise activities at the closest boundary to the properties, and best practice noise and vibration control measures will be employed by the contractor during the construction phase, the likelihood of a significant impact will be reduced sufficiently.

### 5.6.2 Operational Stage

5.111 In light of the fact that any of the impacts associated with the operation of the Proposed Development on Human health and Population are either not significant or positive, no further mitigation measures are required. Notwithstanding the lack of need for mitigation measures, Section 10.6.2 of Chapter 10 of this EIAR outlines a number of noise mitigation measures which will further reduce the likely noise impacts arising from the building services plant and the childcare facility.

## 5.7 CUMULATIVE IMPACT

5.112 There are a number of additional developments that have either been recently constructed, have been permitted but not yet constructed, or are likely to enter the planning system which are of relevance to this proposed development in terms of cumulative impact. These developments have been described in Section 2.10.

### 5.7.1 Demolition/Construction

5.113 In so far as they relate to this chapter the precautionary principle has been applied such that Santry Avenue, Santry Place (Blocks D and E) and Omni Living (all of which are either at planning stage or granted but not yet constructed) have been assumed to be developments that have the potential to produce cumulative construction-related impacts with the proposed development.

5.114 These potential human health cumulative impacts would be; negative impacts to road infrastructure from increased HGVs, positive impacts to local business and builders suppliers, negative impacts on short-term residential capacity, and negative impacts arising from dust and noise. Each of these potential cumulative impacts has been assessed within the specialist chapters in the EIAR.

5.115 The likely residual impact of the proposed development in conjunction with these cumulative developments upon health from air quality and noise and vibration impacts have been assessed in Chapters 9 and 10 respectively and are stated to be not significant. Similarly, the likely residual impact of the proposed development in conjunction with these local committed developments upon material assets and traffic have been assessed in Chapters 15 and 14 respectively and are also stated to be not significant.

### 5.7.2 Operation

5.116 Applying the precautionary principle by assuming that a residential development will at some point be constructed on the Heiton Buckley lands (Santry Avenue) the following local developments are deemed to be relevant in terms of potential for operational cumulative impacts to human health; Santry Avenue, Santry Place (Blocks A, B, C, D and E), Swiss Cottages and Omni Living.

5.117 These potential cumulative impacts would be; positive impacts to local business, negative impacts due to localised microclimate issues, negative impacts due to daylight/sunlight and negative impacts arising from increased traffic and material resources.

5.118 Each of the specialist chapters within the EIAR have assessed the likely residual impact for these cumulative developments with the proposed development. In Chapter 11 the likelihood for any impact to the proposed development, or impact from the cumulative developments on the proposed development were assessed in the calculations and were shown to not interact with each other. The sunlight and daylight assessment produced by 3D Design bureau and submitted with this planning application as a separate document has modelled the proposed development within the existing site context and also any future changes to that baseline and have accounted for any interactions. The likely residual impact of the proposed development in conjunction with these cumulative developments upon material assets and traffic have been assessed in Chapters 15 and 14 respectively and are also stated to be not significant.

5.119 With respect to the cumulative impact of the Proposed Development and the local committed developments upon businesses and residential capacity the residual impact is predicted to be positive and significant.

5.120 It is predicted that there will be no likely significant effect of the residual impact of the cumulative impact of the Proposed Development in conjunction with local committed developments on unplanned events and human health and safety.

## 5.8 RESIDUAL IMPACT

### 5.8.1 Construction Stage

*Residual Impacts on Business and Residences*

5.121 Taking into account the mitigation measures outlined in Section 5.6.1 it is predicted that there will be no likely significant effect with regard to the construction phase on business and residences.

*Residual Impacts on Human Health from Air Quality*

5.122 The greatest residual impact on air quality during the demolition and construction phase of the Proposed Development is from construction dust emissions and the potential for nuisance dust. Taking into account the mitigation measures in Section 9.6.1 (and Appendix 9.2 'Dust Management Plan' of this EIAR), there will be no residual impact to human health arising from air quality impact

*Residual Impacts on Human Health from Noise & Vibration*

5.123 Taking into account the mitigation measures and design recommendations outlined in Section 10.6.1 of Chapter 10 of this EIAR, there will be no residual impact to human health arising from noise and vibration impact.

*Residual Impacts on Local Amenities and Tourism*

5.124 It is predicted that there will be no likely significant effect of the residual impacts of the construction of the Proposed Development on material assets.

*Residual Impacts from Additional Traffic*

5.125 Traffic movements during the construction phase have been assessed in the Transportation Assessment Report submitted as part of this planning application and discussed in Chapter 14 of this EIAR, as it has been deemed that it will have no likely significant effect.

*Unplanned Events/Impacts on Health and Safety*

5.126 Taking into account the mitigation measures outlined in Section 5.6.1 it is predicted that there will be no likely significant effect arising from the predicted residual impacts with regard to the construction phase for unplanned events and human health and safety.

### 5.8.2 Operational Stage

*Residual Impacts on Businesses and Residences*

5.127 Taking into account the mitigation measures outlined in Section 5.6.2 the predicted residual impacts with regard to the operational phase on business and residences is concluded to be ***positive*** and ***significant.***

*Residual Impacts on Human Health from Air Quality*

5.128 It is predicted that there will be no likely significant effect of the residual impact of air quality on Human Health.

*Residual Impacts on Human Health from Noise & Vibration*

5.129 Taking into account the mitigation measures and design recommendations outlined in section 10.6.2 of Chapter 10 of this EIAR, there will be no residual impact to human health arising from noise and vibration impact.

*Residual Impacts on Local Amenities and Tourism*

5.130 It is predicted that there will be no likely significant effect of the residual impact of the operational phase of the Proposed Development on local amenities and tourism.

*Residual Impacts on Material Assets*

5.131 It is predicted that there will be no likely significant effect of the residual impact of the operational phase of the Proposed Development on material assets.

*Residual Impacts from Additional Traffic*

5.132 Taking into account the conclusions of the Transportation Assessment Report, there will be no residual impact to human health arising from noise and vibration impact.

*Unplanned Events/Impacts on Health and Safety*

5.133 It is predicted that there will be no likely significant effect of the residual impact of the operational phase of the Proposed Development on unplanned events and human health and safety.

### 5.8.3 Worst Case Effect

5.134 The precautionary principle has been applied throughout this assessment.

## 5.9 MONITORING

### 5.9.1 Construction Stage

5.135 A monitoring regime will be put in place to protect neighbours & neighbouring properties with a full and detailed vibration, noise, dust, and groundwater monitoring regime put in place for the duration of the works.

5.136 The Contractor will be obligated to work in compliance with the CEMP (Construction Environmental Management Plan) which is submitted as part of this planning application. The Contractor will appoint a competent person to be referred to as the Surveying, Instrumentation and Monitoring Subcontractor (MSC) and together with them will prepare and maintain and the vibration, noise, dust and groundwater monitoring plan.

5.137 The MSC will be responsible for preparing or organizing the preparation of condition surveys of surrounding buildings, walls, hardstanding area etc. prior to the carrying out of any works on site. The condition surveys shall be carried out to a level of detail, suitable to the nature and extent of conditions encountered in order to obtain an understanding of the general structural condition of the property/structure and/or external environments.

5.138 Additional monitoring requirements are set out in Chapters 6, 7, 9, 10, 11, 14 and 15 of this EIAR.

### 5.9.2 Operational Stage

5.139 No additional monitoring other than that which is set out in Chapters 6, 7, 9, 10, 11, 14 and 15 of this EIAR required.

## 5.10 REINSTATEMENT

5.140 This is not applicable to the Population and Human Health chapter.

## 5.11 DIFFICULTIES ENCOUNTERED

5.141 No difficulties were encountered during the drafting of this chapter.