

15.0 INTERACTIONS, AND CUMULATIVE AND COMBINED EFFECTS

15.1 Introduction

This chapter of the EIAR describes interactions/inter-relationships between environmental effects, and also cumulative effects of the proposed Carmanhall Road Strategic Housing Development (the 'Proposed Development') in combination with other relevant committed development in the area of the lands located at the former Avid Technology International site on Carmanhall Road, Sandyford Industrial Estate, Dublin 18, (the 'Site' / 'Application Site').

Environmental factors are inter-related to some degree, and these interactions can exist on many levels. This chapter summarises the primary interactions between the environmental topics and provides a matrix to coherently display them.

Cumulative effects are defined as the addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects. Singular activities may have a non-significant effect in isolation, however when combined with other effects these can be collectively significant and therefore must be included in the EIA process.

A review has been carried out to identify where other proposed and committed development in proximity to the Proposed Development may result in an accumulation of effects on particular receptors.

The overall objective of the assessment in this chapter is to identify, through a review of these issues, whether additional mitigation is required that would not otherwise have been identified in the individual study areas for these interacting or cumulative effects.

The EIAR Project Team contributed to the compilation of this chapter.

15.1.1 Proposed Development Description

The Proposed Development will comprise of:

(i) construction of a Build-To-Rent residential development within a new part six, part eight, part nine, part eleven storey rising to a landmark seventeen storey over basement level apartment building (40,814sq.m) comprising 428 no. apartments (41 no. studio, 285 no. one-bedroom, 94 no. two-bedroom & 8 no. three-bedroom units) of which 413 no. apartments have access to private amenity space, in the form of a balcony or lawn/terrace, and 15 no. apartments have access to a shared private roof terrace (142sq.m) at ninth floor level;

(ii) all apartments have access to 2,600sq.m of communal amenity space, spread over a courtyard at first floor level and roof terraces at sixth, eighth and ninth floor levels, a 142sq.m resident's childcare facility at ground floor level, 392sq.m of resident's amenities, including concierge/meeting rooms, office/co-working space at ground floor level and a meeting/games room at first floor level, and 696sq.m of resident's amenities/community infrastructure inclusive of cinema, gym, yoga studio, laundry and café/lounge at ground floor level. The café/lounge will primarily serve the residents of the development and will be open for community use on a weekly/sessional basis;

(iii) provision of 145 no. vehicular parking spaces (including 8 no. mobility parking spaces, 2 no. club-car spaces and 44 no. electric charging spaces), 5 no. motorcycle parking spaces, bin stores, plant rooms, switch room and 2 no. ESB sub-stations all at ground floor level; provision of bicycle parking (752 no. spaces), plant and storage at basement level; permission is also sought for the removal of the existing vehicular entrance and construction of a replacement vehicular entrance in the north-western corner of the site off Carmanhall Road;

(iv) provision of improvements to street frontages to adjoining public realm of Carmanhall Road & Blackthorn Road comprising an upgraded pedestrian footpath, new cycling infrastructure, an increased quantum of landscaping and street-planting, new street furniture inclusive of bins, benches and cycle parking facilities and the upgrading of the existing Carmanhall Road & Blackthorn Road junction through provision of a new uncontrolled pedestrian crossing; and,

(v) All ancillary works including provision of play equipment, boundary treatments, drainage works - including SuDS drainage, landscaping, lighting, rooftop telecommunications structure and all other associated site services, site infrastructure and site development works. The former Avid Technology International buildings were demolished on foot of Reg. Ref. D16A/0158 which also permitted a part-five rising to eight storey apartment building. The development approved under Reg. Ref. D16A/0158, and a subsequent part-seven rising to nine storey student accommodation development permitted under Reg. Ref. PL06D.303467, will be superseded by the Proposed Development.

15.2 Methodology

This assessment uses a common framework of assessment criteria and terminology which is based on the 'Guidelines on the information to be contained in environmental impact assessment reports', published in 'draft' by the Environmental Protection Agency (EPA) in August 2017. These guidelines were drafted by the EPA with a view to facilitating compliance with the EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU). The assessment also considers 'Advice Notes for Preparing Environmental Impact Statements', also published in 'draft' by the EPA in September 2015.

The descriptive terminology used follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor. The terminology and method have been summarised in Chapter 2, Section 2.3 of this EIAR.

For the assessment of interacting effects, a matrix has been provided in Table 15.1 identifying through expert judgment the specific topics within the EIAR where the effects potentially interact/inter-relate with each other.

For the assessment of cumulative effects, the selection of relevant development schemes has included substantive schemes that have planning permission or are under construction within 1 km of the Proposed Development. These selected schemes have been identified as it is considered that they are of sufficient size, scale and distance from the Proposed Development to be assessed for potential cumulative effects.

15.3 Interactions

Table 15.1 identifies the interacting topics which are then discussed further in the following sections.

Table 15.1: Carmanhall SHD Environmental Interactions, C – Construction Phase, O – Operational Phase

	Pop. & Human Health	Ecology & Biodiversity	Land, Soils & Geology	Water	Air Quality & Climate	Noise & Vibration	Cultural Heritage	Traffic & Transport	Wind	Landscape & Visual	Material Assets
Pop. & Human Health				CO	CO	CO		CO	CO	CO	CO
Ecology & Biodiversity				CO						O	
Land, Soils & Geology				CO	C	C		C			C
Water											CO
Air Quality & Climate							CO				
Noise & Vibration							CO				
Cultural Heritage										CO	
Traffic & Transport											
Wind											
Landscape & Visual											
Material Assets											

Population and Human Health

During both the construction and operational phases of the Proposed Development effects of population and human health have the potential to interact with water, air quality, noise, traffic and transport, wind, landscape and visual, and material assets.

These interactions have been considered in the relevant chapters of this EIAR: Chapter 5 Population and Human Health, Chapter 7 – Water, Chapter 8 – Air Quality and Climate, Chapter 9 – Noise and Vibration, Chapter 11 – Traffic and Transport, Chapter 12 – Wind, Chapter 13 – Landscape and Visual, and Chapter 14 – Material Assets.

Ecology and Biodiversity

During both the construction and operational phases of the Proposed Development there is potential for interacting effects between ecology and biodiversity and water. These interactions have been considered in the relevant chapters of this EIAR: Chapter 5 – Ecology and Biodiversity and Chapter 7 – Water.

During the operational phase of the Proposed Development there is the potential for interacting effects between ecology and biodiversity and landscape and visual aspects. This interaction has been considered in the operational measures identified in Chapter 5 – Ecology and Biodiversity.

Land, Soils and Geology

During both the construction and operational phases of the Proposed Development there is potential for interacting effects between soil and geology and water. These interactions have been considered in the EIAR in Chapter 6 – Land, Soils and Geology and Chapter 7 – Water.

During the construction phase of the Proposed Development effects from the disturbance and removal of soils have the potential to interact with air quality, noise, traffic and transport, and material assets. The interaction of effects from these construction works has been considered in the construction assessments of: Chapter 6 – Land, Soils and Geology, Chapter 8 – Air Quality and Climate, Chapter 9 – Noise and Vibration, Chapter 11 – Traffic and Transport, and Chapter 14 – Material Assets.

Water

During both the construction and operational phases of the Proposed Development there is potential for interacting effects between water and population and human health, ecology and biodiversity, soils and geology and materials assets. These interactions have been considered in the relevant chapters of this EIAR: Chapter 4 – Population and Human Health, Chapter 5 – Ecology and Biodiversity, Chapter 6 – Land, Soils and Geology, Chapter 7 – Water, and Chapter 14 – Material Assets.

Air Quality and Climate

During both the construction and operational phases of the Proposed Development there are potential interacting effects between air quality and climate, with population and human health, and cultural heritage. These interactions have been considered in Chapter 5 – Population and Human Health, Chapter 8 – Air Quality and Climate, and Chapter 10 – Cultural Heritage.

During the construction phase of the Proposed Development, effects from the disturbance and removal of soils have the potential to interact between air quality, and soils and geology. The interaction of effects from these construction works has been considered in Chapter 6 – Land, Soils and Geology, and Chapter 8 – Air Quality and Climate.

Noise and Vibration

During both the construction and operational phases of the Proposed Development effects of noise have the potential to interact with population and human health, and cultural heritage. These interactions have been

considered in Chapter 5 – Population and Human Health, Chapter 9 – Noise and Vibration, and Chapter 10 – Cultural Heritage.

During the construction phase of the Proposed Development effects from the removal of soils have the potential to interact between noise and soils and geology. The interaction of effects from these construction works has been considered in Chapter 6 – Land, Soils and Geology, and Chapter 9 – Noise and Vibration.

Cultural Heritage

During both the construction and operational phases of the Proposed Development there is potential for interacting effects between cultural heritage and air quality, noise and vibration and landscape and visual. These interactions have been considered in Chapter 8 – Air Quality and Climate, Chapter 9 – Noise and Vibration, Chapter 10 – Cultural Heritage, and Chapter 13 – Landscape and Visual.

Traffic and Transport

During both the construction and operational phases of the Proposed Development effects of traffic and transport have the potential to interact with population and human health. These interactions have been considered in Chapter 4 – Population and Human Health, and Chapter 11 – Traffic and Transport.

During the construction phase of the Proposed Development the removal of soils from the Site has the potential to cause interacting effects between soils and geology, and traffic and transport. The interaction of effects from these construction works has been considered in the Chapter 6 – Land, Soils and Geology, and Chapter 11 – Traffic and Transport.

Wind

During both the construction and operational phases of the Proposed Development effects of wind and micro-climate have the potential to interact with population, human health and pedestrians in the vicinity of the Site.

These interactions have been considered in Chapter 5 Population and Human Health and Chapter 12 – Wind.

Landscape and Visual

During both the construction and operational phases of the Proposed Development effects from landscape and visual impacts have the potential to interact with population and human health and cultural heritage. These interactions have been considered in Chapter 4 – Population and Human Health, Chapter 10 – Cultural Heritage, and Chapter 13 – Landscape and Visual.

During the operational phase of the Proposed Development landscape and visual aspects have the potential to interact with ecology and biodiversity. This interaction has been considered in the operational assessment in Chapter 5 – Ecology and Biodiversity.

Material Assets

During both the construction and operational phases of the Proposed Development activities at the Site have the potential to cause interacting effects between material assets, population and human health, and water. These interactions have been considered in Chapter 5 – Population and Human Health, Chapter 7 – Water and Chapter 14 – Material Assets.

During the construction phase of the Proposed Development excavation activities removing soils have the potential to interact with underlying material assets. The interaction of effects from these construction works has been considered in Chapter 6 – Land, Soils and Geology, and Chapter 14 – Material Assets.

'Do-Nothing' Scenario

If the Proposed Development does not proceed then the above interacting or inter-relating environmental effects will not occur.

The assessment of interactions described above has resulted in potentially significant effects occurring between the different environmental topics as a result of the Proposed Development being mitigated where necessary, with the level of any residual effects being imperceptible and not significant.

15.4 Cumulative and Combined Effects

This section of the EIAR describes the environmental effects of the proposed Carmanhall Road SHD in combination with other relevant committed development in the surrounding area of the Site. Cumulative effects are defined as the addition of many non-significant or significant effects, including the effects of other projects, to create larger, more significant effects. Singular activities may have a non-significant effect in isolation, however when combined with other effects these can be collectively significant.

This assessment has been made with reference to the draft the 'Guidelines on the information to be contained in environmental impact assessment reports', (EPA 2017) and the draft 'Advice Notes for Preparing Environmental Impact Statements', (EPA 2015).

Figure 15.1 and Table 15.2 identify the relevant schemes considered in this cumulative assessment. These schemes were selected based on their size, scale and proximity to the Proposed Development. For ease of reference, each development site has been given a unique identifier. Each development site was considered by the EIA team's respective discipline leads and Table 15.3 summarises the results of their expert opinion on the cumulative effects assessment.

Where a potential cumulative effect was identified, explanatory text has been provided in the sections below and the level of predicted cumulative effect inserted in Table 15.3 using the effects scale as described in Chapter 2, Section 2.3 of this EIAR which is based on the EPA 2017 Guidelines.

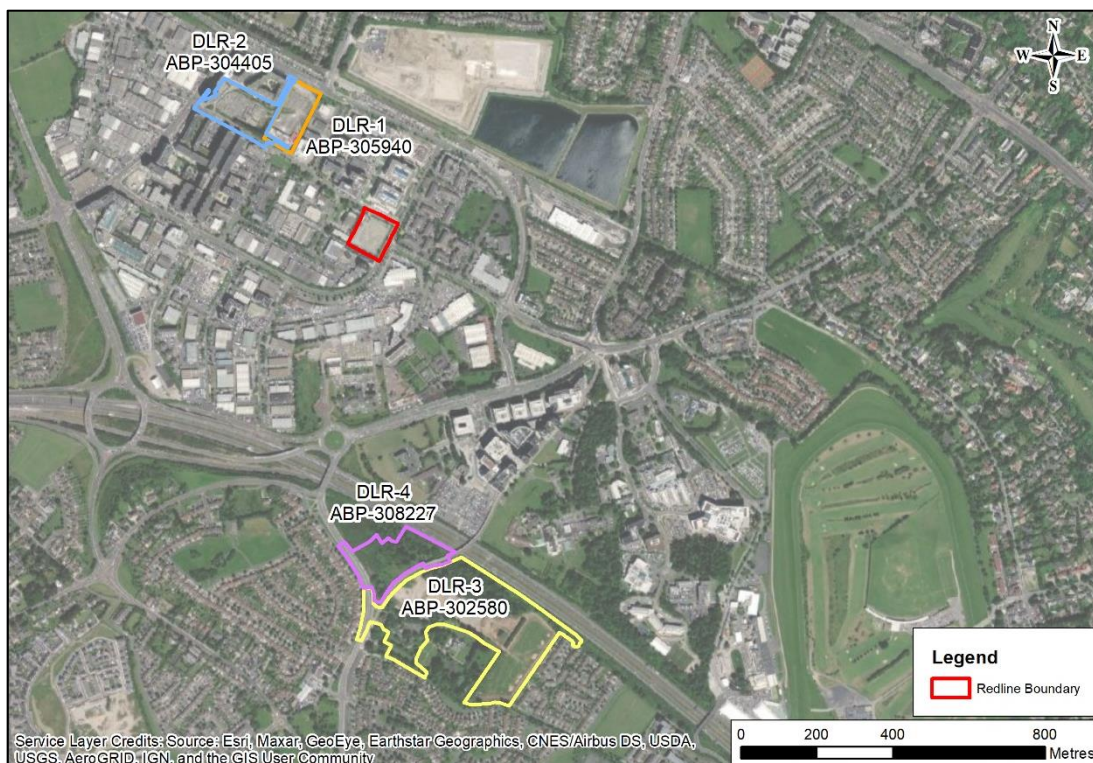


Figure 15.1: Proposed Developments included in the Cumulative Effects Assessment

Table 15.2: Proposed Developments included in the Cumulative Effects Assessment

Golder Ref. No. DLR-1 ca. 300 m to the north-west		Proposal Summary
Ref No.	ABP 305940-19	<p>The development, for a strategic housing development at a 1.54 ha site at the former Aldi Site, Carmanhall Road, Sandyford Business District, Dublin 18, will have a Gross Floor Area of 49,342 sq.m will principally consist of: the demolition of the existing structures on site and the provision of a Build-to-Rent residential development comprising 564 no. apartments (46 no. studio apartments, 205 no. one bed apartments, 295 no. two bed apartments and 18 no. three bed apartments) in 6 no. blocks as follows:</p> <ul style="list-style-type: none"> Block A (144 no. apartments) is part 10 to part 11 no. storeys over basement; Block B (68 no. apartments) is 8 no. storeys over basement; Block C (33 no. apartments) is 5 no. storeys over lower ground; Block D (103 no. apartments) is part 16 to part 17 no. storeys over lower ground; Block E (48 no. apartments) is 10 no. storeys over semi-basement; and Block F (168 no. apartments) is 14 no. storeys over semi basement. <p>The development provides resident amenity spaces (1,095 sq.m) in Blocks A, C and D including concierge, gymnasium, lounges, games room and a panoramic function room at Roof Level of Block D; a creche (354 sq.m); café (141 sq.m); a pedestrian thoroughfare from Carmanhall Road to Blackthorn Drive also connecting into the boulevard at Rockbrook to the west; principal vehicular access off Carmanhall Road with servicing and bicycle access also provided off Blackthorn Drive; 285 no. car parking spaces (254 no. at basement level and 31 no. at ground level); 21 no. motorcycle spaces; set-down areas; bicycle parking; bin storage; boundary treatments; hard and soft landscaping; lighting; plant; ESB substations and switchrooms; sedum roofs; and all other associated site works above and below ground.</p>
Applicant Name	Sandyford GP Limited (acting in its capacity as general partner for the Sandyford Central Partnership)	
Development Address	Former Aldi Site, Carmanhall Road, Sandyford Business District, Dublin 18	
Status	GRANT	
Grant Date	12/03/2020	

Golder Ref. No. DLR-2 ca. 300 m to the north-west		Proposal Summary
Ref No.	ABP 304405-19	<p>The development, for a strategic housing development with an application site area of ca. 2.02 ha (excluding basements), including the extent of Carmanhall Road required for proposed flood mitigation works, on lands forming part of a development generally known as Rockbrook, located at the junction of Blackthorn Drive and Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18, principally bounded by existing mixed use and residential development to the north (Grande Central and South Central); Carmanhall Road to the south; undeveloped lands to the east (known as the Tivway site) and an existing part-constructed office development to the west (The Sentinel).</p> <p>The development, which is known as RB Central with a total gross floor area of ca. 41,347 sq.m (excluding basements) will consist of 428 no. apartments comprising two blocks arranged around two courtyards ranging in height from five to fourteen storeys (including ground floor mezzanine, all over three existing part-constructed basement levels) comprising 32 no. studio apartments; 122 no. 1 bedroom apartments; 251 no. 2 bedroom apartments and 23 no. 3 bedroom apartments. The development will also include a crèche (486 sq.m) with ancillary outdoor play areas; 4 no. ground floor local/neighbourhood retail units (862 sq.m); communal community residents' facilities (934 sq.m in total) including a multi-purpose space (184 sq.m), laundry and community co-working area (97 sq.m) at ground floor level, and residents' exercise area, break-out/meeting areas, book and media sharing areas, reading/seating areas, play area and TV/games area located at various levels throughout the proposed development (653 sq.m); entrance halls; private, communal and public open space provision including balconies, winter gardens and terraces to be provided on all elevations at all levels as required; roof gardens; courtyards; boulevards; urban plaza; amenity lawn and play areas; basement car parking (508 no. spaces in total); 3 no. surface crèche drop-off parking spaces; car club spaces; 593 no. cycle parking spaces (long and short stay spaces including secure stands); motorcycle parking; storage areas; internal roads and pathways; pedestrian access points; hard and soft landscaping, street furniture and boundary treatments; changes in level; services provision and related pipework including diversions; plant (including rooftop plant); electric vehicle charging points; ESB substations and switchrooms; waste management areas; green roofs; attenuation tank; flood mitigation measures to Carmanhall Road including footpath upgrade and flood wall; car park ventilation areas; set-down areas; signage; completion and re-configuration of the existing basement levels including related site clearance works and removal of services; public lighting and all site development and excavation works above and below ground. Vehicular access to the site will be from Blackthorn Drive and Carmanhall Road with dedicated bicycle access from Blackthorn Drive.</p>
Applicant Name	IRES Residential Properties Ltd	
Development Address	Rockbrook, Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18	
Status	GRANT	
Grant Date	19/08/2019	

Golder Ref. No. DLR-3 ca. 750 m to the south-east		Proposal Summary
Ref No.	ABP 302580-18	<p>The application site is located adjacent to Glencairn House, which is a protected structure under RPS Ref. No. 1643. The Record of Protected Structures identifies the following elements which comprise the protected structure: 'House, Gate Lodge, Outbuildings and Conservatory, Entrance Railings, Piers, Archway and Gates'. The application site includes the Gate Lodge and Entrance Railings, Piers, Archway and Gates, associated with Glencairn House. The proposed development seeks to demolish an existing house and outbuildings on site and provide for the construction of 341 no. residential units, a childcare facility with a GFA of 300 sq.m., associated internal roads, pedestrian and cycle paths, open space, and all associated site and infrastructural works. The application site has an overall area of ca. 9.59 hectares. The residential component of the development consists of 243 no. apartments and 98 no. houses, to be provided as follows:</p> <ul style="list-style-type: none"> • 45 no. 1-bed apartments; • 174 no. 2-bed apartments; • 24 no. 3-bed apartments; • 39 no. 3 storey, 4-bed (Type A1) houses; • 7 no. 3 storey, 4-bed (Type A2) houses; • 3 no. 3 storey, 5-bed (Type A3) houses; • 14 no. 2 storey, 3-bed (Type B1) houses; • 3 no. 2 storey with dormer, 4-bed (Type B2) houses; • 17 no. 2 storey, 3-bed (Type C1) houses; • 1 no. 2 storey, 3-bed (Type C2) houses; • 4 no. 2 storey, 3-bed (Type C3) house; • 2 no. 2 storey, 5-bed (Type D1) houses; and • 8 no. 2 storey, 5-bed (Type D2) houses. <p>The 243 no. apartments are proposed to be provided within 6 no. apartment buildings of 4 and 5 no. storeys in height, including undercroft basements, 1 no. 4 storey apartment building (with childcare facility at ground floor level) and adjacent surface car parking, and a 2 no. storey apartment building with adjacent surface parking. The houses consist of 2 and 3 storey terraced, semi-detached and detached dwellings. Bin and cycle storage areas are proposed within the apartment blocks and bin stores are proposed for the houses. A location for a recycling bring bank, 3 no. electricity sub-stations and a DRI unit for gas services are proposed for the site. The proposal seeks to relocate the entrance portal (including the entrance railings, piers, archways and gates), from the existing location at the entrance to the site, to a new location within the site in closer proximity to the permitted new entrance to Glencairn House (new entrance and boundary wall to Glencairn House permitted under Reg. Ref.: D17A/0913). A new entrance arrangement is to be provided at the existing entrance portal location. The proposal includes landscaping, car parking, and boundary treatments within the curtilage of the existing gate lodge (no works proposed to gate lodge building). The application site includes the ruins of Murphystown Castle (Recorded Monument Ref. No. DU023-025), which are located towards the western boundary of the site, and which are to be incorporated into an open space amenity area. A total of 519 no. car parking spaces are proposed, which includes 289 no. basement and 230 no. surface level spaces. A total of 24 no. motorcycle parking spaces are proposed. The development provides a total of 530 no. cycle parking spaces. The associated site and infrastructural works include tie-ins to existing infrastructure, foul and surface water drainage, attenuation tanks, open space including playground, cycle stores / spaces, hard and soft landscaping, boundary treatments, internal roads, cyclepaths and footpaths. The proposal includes for access to and improvements to the greenway to the south and to Murphystown Way to the west of the application site.</p>
Applicant Name	Castdale Ltd	
Development Address	Glencairn, Murphystown Way, Dublin 18	
Status	GRANT	
Grant Date	19/12/2018	

Golder Ref. No. DLR-4 ca. 800 m to the south-east		Proposal Summary
Ref No.	ABP 308227-20	<p>Planning permission for a Strategic Housing Development on lands at Murphystown Way, Dublin 18. The site is bound by the M50 motorway to the north, the Luas Green Line to the east and Murphystown Way to the south west. Glencairn House and its curtilage, which is a protected structure under RPS Ref. No. 1643, is located to the east of the application site. The proposed development consists of:</p> <ul style="list-style-type: none"> • The construction of 249 no. apartments in three no. buildings (Blocks 1-3) of part four, part five, part six, part seven and part eight storeys in height, with a landmark part twelve / part thirteen storey element in Block 1 (within the north east area of the site), over lower and upper basement levels; • Block 1 comprises 116 no. units, including 6 no. 1 bed, 90 no. 2 bed (including 1 no. duplex unit) and 20 no. 2 bed + study (including 1 no. duplex unit), in a part six, part seven, part eight and part twelve / part thirteen storey building, over upper basement level. Block 1 includes a residential amenity space with a gross floor area (GFA) of 450 sq.m at ground floor level in proximity to a proposed pedestrian access point from Murphystown Way; • Block 2 comprises 109 no. units, including 51 no. 1 bed and 58 no. 2 bed, in a part four, part five and part six storey building, over upper basement level; • Block 3 comprises 24 no. units, including 9 no. 1 bed and 15 no. 2 bed, in a part five and part six storey building, over lower and upper basement levels; • Balconies and private terraces are provided for all apartments on the elevations of each building; • The proposal includes a childcare facility with a GFA of 550 sq.m, over two levels, located below Block 3, with an ancillary outdoor play area to the north east; • A communal central courtyard is situated between the apartment blocks. An area of public open space is proposed on the northern part of the site, incorporating the provision of openings within a former demesne wall and provision of a pedestrian connection to the open space being provided in the Glencairn Strategic Housing Development (permitted under ABP Ref.: 302580-18), which is currently under construction and located to the east of the application site, and associated landscaping works; • A total of 195 no. car parking spaces, 6 no. motorcycle spaces, bin storage, plant rooms and 413 no. bicycle parking spaces are provided at upper basement level. 80 no. bicycle parking spaces are provided at surface level; • The proposal includes a section of the proposed Link Road from Murphystown Way to Sandyford (long-term road objective), which will provide vehicular access to the proposed development (and future development site to the north west)' • The proposal includes road upgrades, alterations and improvements to Murphystown Way, including construction of a new signalised junction with the proposed new Link Road, provision of a new pedestrian and fire tender access route and a roadside pull-in/drop-off bay, realignment of existing footpaths and provision of new cycleway connections. The proposals include removal of part of an existing concrete roadside wall and a section of an existing stone wall (which is part of the former boundary wall associated with Glencairn House, RPS Ref. No. 1643) and the provision of new boundary treatment of plinth wall and railings to Murphystown Way and the proposed Link Road; and • The associated site and infrastructural works include site clearance and excavation, including removal of an existing wall, provision of utilities and associated civil works, foul and surface water drainage including attenuation tank and outfall, internal footpaths and vehicular access to basement carpark, external hardstanding area, 2 no. ESB substations and associated switchrooms, public lighting, boundary treatments and landscaping and PV panels at roof level.
Applicant Name	Murphystown Land Developments DAC	
Development Address	Murphystown Way, Dublin 18	
Status	GRANT	
Grant Date	14/01/2021	

Table 15.3: Discipline Specific Cumulative Effects Assessment

Proposed Development	Pop. & Human Health	Ecology & Biodiversity	Soils & Geology	Water	Air Quality & Climate	Noise & Vibration	Cultural Heritage	Traffic & Transport	Wind	Landscape & Visual	Material Assets
DLR-1	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP
DLR-2	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP
DLR-3	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP
DLR-3	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP	-IMP

Key:

- +/- – Positive / Negative
- IMP – Imperceptible (including no predicted cumulative effect)
- SLI – Slight
- MOD – Moderate
- LAR – Large
- PRO – Profound

15.5 Population and Human Health

Cumulative effects on the human environment and potential effects on the 'quality of life' as a consequence of the Proposed Development are considered in relation to populations, economic patterns (activity and employment), amenity, human health and health and safety.

Potential temporary negative effects on the local human environment during the construction phase, (approximately 24 months in duration), may be temporary disturbance or nuisance by means of site construction activities. Further effects on local human health may arise in relation to noise, water and air quality.

Best practise construction management measures will be implemented by the appointed main contractor and managed through a Construction Management Plan and associated Construction Environmental Management Plan. Assuming the other permitted / under construction developments identified in Figure 15.1 will be of a similar nature and incorporate similar design and widely adopted good practice mitigation, it is considered that there will be **imperceptible** cumulative effects.

In combination with the other developments identified in Table 15.2 it is considered that there will be **imperceptible** positive cumulative effects during the operational phase with other identified proposed residential developments. Increases in population will have small positive effects on population dynamics, economic activity and employment. The inclusion of this residential development within a business park has advantages in terms of creating sustainable development and economic growth in the area when combined with other plans and projects.

With regards to the amenity of local clubs and businesses which benefit from tourism and recreation it is considered that the Proposed Development in combination with other similar projects will have an **imperceptible** positive effect.

Cumulative effects on capacity of social infrastructure have been assessed separately in the Planning Social Infrastructure Audit accompanying this application (Hughes Planning and Development Consultants, 2021). This Audit found that there is a suitable quantity and available capacity of existing childcare, primary educational and post-primary educational facilities in the surrounding area. This Audit has also identified the availability of healthcare facilities within the immediate area, and that religious, community, sports/recreational and retail facilities are all well represented.

15.6 Ecology and Biodiversity

The key construction and operational impacts associated with the Proposed Development are: the loss or damage to on Site trees, and potential aquatic eutrophication as a consequence of increased nutrient loading due to increases in population density and pressure on existing foul drainage processing.

Potential effects on ecology and biodiversity within the Site have been identified to be not significant during the construction and operational phases. Localised effects during the operational phase may present a positive effect on the areas through the increase of planting within communal areas of the Proposed Development.

Other permitted / under construction developments (identified in Figure 15.1), are of a similar nature and incorporate similar design principles and widely adopted good practice mitigation, and it is therefore considered that there will be **imperceptible** cumulative effect.

Cumulative effects have been considered with regards to potential additional nutrient loading and pressure on the Ringsend WTP. Cumulative effects relating to this potential loading and for eutrophication of freshwater and marine habitat are considered to be not significant given the commitment to upgrading the Ringsend WTP and the current 'good' (Environmental Protection Agency) ecological status of Dublin Bay which will provide some assimilative capacity.

15.7 Soils and Geology

General construction activities may lead to soil and geological issues such as ground stability and subsidence, the mobilisation of existing ground contamination, or the accidental releases of substances.

The cumulative effects to the local soil and geological environment have been considered for the permitted / under construction developments identified in this assessment (Table 15.2). Most effects that have been identified within the assessment for the construction and operational phases are mitigated by design or good practice. Appropriate design or good practice within these projects reduces the impact magnitude to low or negligible and the effects are considered to be not significant. Assuming the other permitted / under construction developments identified in Figure 15.1 will be of a similar nature and incorporate similar design and widely adopted good practice mitigation, it is considered that there will be **imperceptible** cumulative effects.

15.8 Water

General construction activities leading to increases in suspended solids and/or accidental releases of substances used could lead to cumulative changes in surface water quality if drainage from the sites connect into the same watercourse.

Most effects that have been identified within this assessment for the construction and operational phases are mitigated by design or good practice. Appropriate design or good practice within these projects reduces the impact magnitude to very low or negligible and the effects are considered to be not significant. Assuming the other permitted / under construction developments identified in Figure 15.1 will be of a similar nature and incorporate similar design and widely adopted good practice mitigation, it is considered that there will be **imperceptible** cumulative effects.

15.9 Air Quality and Climate Factors

There is the potential for cumulative impacts to occur when there are other proposed developments within the AQ and climate study area. Two committed developments (DLR-1 and DLR-2) are located within the study areas for both the construction and operational phase assessments. Committed developments DL3 and DLR4 are outside of the study area and therefore could only be potentially impacted by cumulative operational impacts.

During the construction phase, the predicted changes to air quality were defined to be not significant when the defined mitigation was employed. It is assumed that other committed developments in the study area will incorporate similar design and widely adopted good practice mitigation during their construction phase. Therefore, any cumulative construction phase impacts should be **imperceptible** and therefore not significant. No cumulative impacts are anticipated to occur for climate impacts during the construction phase, therefore this is deemed **imperceptible** and therefore not significant.

During the operational phase, the predicted changes to air quality were defined to be not significant. Cumulative impacts of the Proposed Development and surrounding area during the operational phase are calculated using central growth rates from the Traffic Infrastructure Ireland (TII) Travel Demand Projections (Unit 5.3) to take into account the level of committed developments in the immediate vicinity of the Site. Therefore, the cumulative impacts of the committed development are accounted for in the modelling assessment the results of which indicate that effects will be **imperceptible** and therefore not significant. No cumulative impacts are anticipated to occur for climate impacts during the operational phase, therefore this is deemed **imperceptible** and therefore not significant.

15.10 Noise and Vibration

Predicted construction-phase noise effects have been determined to be not significant, once the construction noise management practices identified in the Construction Environmental Management Plan (CEMP) are implemented by the Main Contractor. Given the existing noise environment surrounding the Site, the distance

to other proposed projects (Table 15.2), and assuming other developments will be of a similar nature and incorporate similar adopted construction noise mitigation practices, it is considered that there will be **imperceptible** cumulative effects.

During the operational phase cumulative noise effects are only anticipated in relation to changes in road traffic flows. The operational phase assessment assumes that cumulative increases in traffic flow are accounted for in the projected traffic flows provided by the traffic and transport impact assessment. The traffic flows associated with the identified potentially cumulative developments are anticipated to be negligible in noise terms and will result in **imperceptible** cumulative effects.

Construction activities at the Proposed Development are not anticipated to generate significant off-site vibration, and no receptors with high sensitivity were identified within close proximity to the Site, therefore evaluation of construction phase vibration was considered to be imperceptible and scoped out of the assessment. Similarly, cumulative vibration effects are also considered to be **imperceptible**.

The operational phase of the Proposed Development will not introduce vibration sources and therefore there will be **imperceptible** cumulative vibration effects during this phase.

15.11 Cultural Heritage

There are no significant residual effects to cultural heritage assets predicted as a result of the Proposed Development, and so the potential for cumulative effects to occur is limited. A slight adverse effect on potential undiscovered archaeological remains (in a worst-case scenario), resulting from ground disturbance during construction, is the only residual effect anticipated as a result of the Proposed Development. As this residual effect is specific to the footprint of the Proposed Development, no cumulative effects are expected as a result of the other developments identified in this assessment (Table 15.2). Cumulative effects are therefore expected to be **imperceptible** during both construction and operation.

15.12 Traffic and Transport

The construction phase and any import or export of material to the Site (as part of excavation or infilling works) will have implications for traffic in the surrounding road network.

Local traffic and transportation may be impacted by the additional vehicle movements generated by personnel movements and the import and export of materials at the Site during the construction phase of the Proposed Development. During the operational phase there may be impacts to the local road network from additional trips generated by residents and persons working at the Proposed Development.

During the construction phase, the Main Contractor will be required to prepare a comprehensive traffic management plan. The purpose of this plan is to outline measures to manage the expected construction traffic activity during the construction period. The plan will be prepared for the approval of Dún Laoghaire Rathdown County Council (DLRCC) in advance of any works. This plan will consider other future permitted / under construction developments. Once these identified mitigation measures are implemented and managed in accordance with the plan it is considered that the cumulative effects will be **imperceptible** during the short-term duration construction phase.

Cumulative impacts of the Proposed Development and surrounding area during the operational phase are calculated using central growth rates from the Traffic Infrastructure Ireland (TII) Travel Demand Projections (Unit 5.3) to take into account the level of committed developments in the immediate vicinity of the Site.

Impacts are determined by assessing the opening year of the development (2023) and the two horizon year assessments (2028 and 2038), as per the TII Traffic Assessment Guidelines. The assessment uses appropriate geographical traffic growth rates for the surrounding area in these future year scenarios. The cumulative traffic

impacts upon the junctions were identified to be nominal, resulting in effects that are **imperceptible** and therefore not significant.

15.13 Wind

Cumulative effects of the wind micro-climate from the Proposed Development during both the construction and operational phases have been assessed in Chapter 12 of this EIAR.

The possible effects on wind micro-climate at the Site during the construction phase were evaluated by B'Fluid based on professional judgement. Statistical Dublin historical wind data have been used to carry out this analysis based on the fact that the dominant wind direction is from South-West.

As the construction of the Proposed Development progresses, the wind setting at the Site would gradually conform to those of the completed development. Windier conditions are acceptable within a construction area (which is not accessible to the public), and the Proposed Development is identified not to be the reason for critical wind conditions on-Site (which are slightly calmer when the development is in situ). Given the distance to the identified committed developments the predicted effects during the construction phase are identified as **imperceptible** with no predicted cumulative effects.

To assess the operational phase of the development for this scenario B'Fluid simulated the Proposed Carmanhall Road Development. Wind simulations were carried out at various directions for which the Proposed Development may show critical areas in terms of pedestrian comfort and safety. Figure 15.2 shows a 3D example of wind speed results collected at 1.5 m height above ground floor level of the Proposed Development. Red colours generally indicate critical values while blue colours indicate tenable conditions. Assessments of further wind directions are provided in the Chapter 12 cumulative assessment.

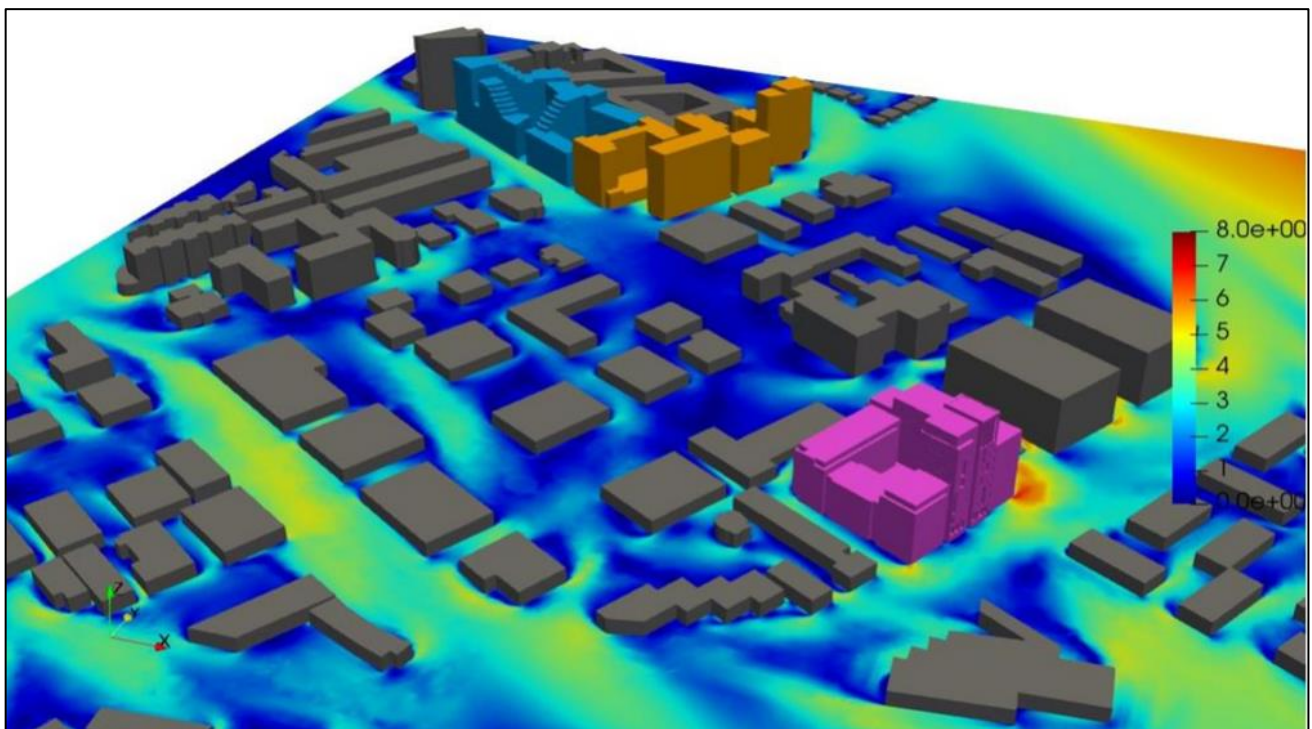


Figure 15.2: Wind Flow Results Collected At 1.5 m Height Above Ground Floor - Cumulative Case. DLR-1 (orange) and DLR2 (blue) identified.

From the operational phase wind modelling results, the Proposed Development will have an **imperceptible** cumulative effect.

15.14 Landscape and Visual

The nearest permitted / under construction developments of a relevant scale and nature are DLR-1 and DLR-2, which are located on slightly lower ground to the north-west approximately 300 m from the Proposed Development Site. DLR-3 and DLR-4 are located beyond 750 m away to the south-east on the opposite side of the M50 motorway.

Aside from a general sense of increase in the scale and intensity of development within and around the Sandyford industrial area there are no material cumulative effects in relation to landscape and visual effects in combination with the Proposed Development. Within the context of close views of any of these developments the Proposed Development is likely to be either not visible or an indistinct background feature of the broader urban fabric. The same applies to close views of the Proposed Development. Only within more distant, elevated and open vistas are all of these developments likely to be visible in combination. In such circumstances they will each contribute to a modification and intensification of built profile of the Sandyford Business District, but in a consistent and consolidated manner that will not notably reduce the visual amenity of distant viewers enjoying broad vistas from the likes of the Dublin Mountains.

For the reasons outlined above, significant cumulative effects are not likely to occur as a result of the Proposed Development. Instead, the cumulative effect in relation to the identified developments is deemed to be **imperceptible**.

15.15 Material Assets

Impacts on material assets identified have been mitigated by design or good management practice. It is considered that there will be no significant effects. Assuming the other permitted / under construction developments will be of a similar nature and incorporate similar design and widely adopted good practice mitigation, it is considered that there will be **imperceptible** cumulative effects.

Developing final designs in consultation with utility providers and obtaining authorisations will ensure effects are minimised and not significant to existing users in combination with other developments.