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Design of the watermain will be in accordance with the Uisce Éireann 'Code of Practice for Water Supply' and standard details.

The water demand from the proposed development is calculated as per the Uisce Éireann Code of Practice for Water Infrastructure (July 2020 (rev. 2)). The water demand is in accordance with Section 3.28. The average day/peak week demand is taken as 1.25 times the average daily domestic demand. The peak demand factor is taken as 5 times the average day/peak week demand.

The number of persons on site will include a mixture of staff permanently based on site and additional persons who will be involved in film production as required. The number of persons on site is broken down as follows:

Restaurant - Occupancy - 8

Demand = 30 l/head/day

Daily Demand = 8 x 30 x 1.25 = 300 l/day

Average Demand = 300 / (60x60x24) = 0.003l/s

Peak Demand = Avg. Demand x 5 = 0.003 x 5 = 0.017l/s

Office/Factory without Canteen - Occupancy - 18

Demand = 45 l/head/day

Daily Demand = 18 x 45 x 1.25 = 1.013 l/day

Average Demand = 1,013 / (60x60x24) = 0.012l/s

Peak Demand = Avg. Demand x 5 = 0.012 x 5 = 0.059l/s

Office/Factory with Canteen - Occupancy - 1309

Demand = 75 l/head/day

Daily Demand = 1309 x 75 x 1.25 = 122,719 l/day

Average Demand = 122,719 / (60x60x24) = 1.420l/s

Peak Demand = Avg. Demand x 5 = 1.420 x 5 = 7.102l/s

Non-residential Conference Guest - Occupancy - 300

Demand = 60 l/head/day

Daily Demand = 300 x 60 x 1.25 = 22,500 l/day

Average Demand = 22,500 / (60x60x24) = 0.260l/s

Peak Demand = Avg. Demand x 5 = 0.229 x 5 = 1.302l/s

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Total Daily Demand = 300 + 1,013 + 122,719 + 22,500 = 146,531l/day

Total Peak Demand = 0.017 + 0.059 + 7.102 + 1.302 = 8.480l/s

Total Average Demand = 0.003 + 0.012 + 1.420 + 0.260 = 1.696l/s

14.5.3 Surface Water

The proposed surface water drainage system is designed to comply with the 'Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Technical Document – Volume 2, New Developments, 2005' and the 'Greater Dublin Regional Code of Practice for Drainage Works, V6.0 2005'. CIRIA Design Manuals C753, C697 and C609 have also been used to design the surface water drainage system within the site.

It is proposed to construct a new surface water drainage system for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site.

Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site. This watercourse is culverted beneath the Grand Canal and flows north-west towards the River Liffey. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.6 l/s).

SuDS measures including green roofs, permeable paving, bio-retention tree pits and rainwater harvesting have also been incorporated. All surface water runoff will pass through at least one SuDS measure prior to discharging from the site. Therefore, minimising the potential for harmful pollutants discharging from the proposed development. Given the SuDS measures included in the design and the low volume of runoff from the developed site, impact on exiting water courses is expected to be minimal. Refer to Chapter 8 Hydrology for further details.

Refer to the engineering infrastructure report and drainage drawings for further details on the proposed drainage and water supply.

14.6 Potential Impact of the Proposed Development

14.6.1 Construction Phase

The contractor's operations will result in the generation of effluent and sanitary waste from facilities provided for the work force on site. The volume potentially generated will vary as the number of construction workers on site will vary as the construction operations on site fluctuate. There will be as many as 700 operatives on site during the construction. The effluent generated during the construction phase is discharged, under a temporary agreement to the foul sewer. As a guide, this would equate to 70m^3/day, with an average flow of 0.8l/sec and a peak flow of 2.4/sec, substantially lower than the predicted effluent volume generated on site upon completion.

The effluent generated during the construction phase will have a slight negative impact on the

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existing foul drainage network as the spare hydraulic capacity will be reduced in the public system. The proposed reduction will have the effect that the existing network will not be able to convey the same volume of effluent as if no development was to take place. The effect of increasing the effluent volumes in the existing sewer is that the spare capacity will reduce. Notwithstanding this, the predicted foul effluent to be generated during the construction phase is low and would have a minimal impact on the existing infrastructure. Once the construction works are complete, this temporary effluent discharge will cease and will be replaced by the proposed developments effluent discharge.

The contractors shall require a separate water supply connection for the works. It is expected that the Contractor will require a 150mm temporary connection to the existing potable water network. The impact on the water supply network is likely to be slight negative and short term for the duration of the construction works, as the Contractor will be drawing potable water from the mains and thereby reducing, albeit temporarily the capacity in the public mains.

Any temporary discharge or temporary water supply shall be subject to license.

The construction of the proposed in ground services will require the excavation, removal, and reinstatement of ground. The new development will require new connections to the public water supply and wastewater networks. This may result in temporary disruption of existing services in the vicinity of the development. This disruption if any, will be brief and not significant.

14.6.2 Operational Phase

Uisce Éireann (UÉ) have confirmed the feasibility of the proposed development in terms of water and wastewater capacity via a confirmation of feasibility letter.

The proposed wastewater network for the development has been designed to cater for the quantum of predicted effluent to be generated. The proposed 300mm foul sewer will have a capacity of 72.65l/s based on a 1:300 gradient. The proposed maximum foul loading from the development is estimated to be much less at 5.73l/s.

SDCC have provided endorsement for the proposed surface water drainage proposal.

14.6.3 Do Nothing Scenario

If the proposed works were not implemented, there would be no change in the site's current use and the existing site would remain as a greenfield site with no services.

14.7 Mitigation Measures

14.7.1 Design Phase

All new-build service infrastructure is to be designed in accordance with the relevant service provider and asset owner's code of practice, which require due cognisance of the receiving environment.

Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided where possible, and by association a reduction in resultant waste and machinery

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operation time. It will be suggested that products and materials are supplied locally, where practicable and available, to reduce carbon footprint of travel and production.

14.7.2 Construction Phase

The following mitigation measures are recommended for the construction phase:

- The contractor is to conduct the works in accordance with all relevant local authority requirements, and health and safety legislation.
- Relevant services providers are to be consulted in advance of works to ensure works are carried out to relevant standards and specifications including procedures to ensure safe working practices are implemented for works in the vicinity of services, such as live gas mains, works in the vicinity of overhead electricity lines and live electricity lines and works to distribution watermains.
- Neighbouring sites are to be advised of construction methodologies in advance of works, in situations which may affect them.
- All retained underground services are to be protected.
- All decommissioned infrastructure will have to be sent to an accepting landfill for disposal
- A construction methodology will be required by the contractor to be tailored to reduce, where possible, dust noise and air pollution; to minimise interference with the environment and the neighbouring areas.
- Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed waste disposal facility.
- All infrastructure is to be appropriately tested by an approved method during the construction phase, all in accordance with Uisce Éireann / SDCC Requirements.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- Prior to the commencement of excavations in public areas, all utilities and public services are to be identified and checked; to ensure that adequate protection measures are implemented to minimise the risk of service disruption.
- All excavations within the public area are to be back-filled in a controlled manner and surface re-instated to the satisfaction of the Local Authority.

With the implementation of these mitigation measures, the severity of the impact of the proposed development on the built services will be minimised, with tie-ins to existing services and installation of new services completed in a satisfactory manner for the relevant service providers.

14.7.3 Operational Phase

The material assets are to be constructed in accordance with all relevant local authority and UÉ standards.

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14.7.4 Do Nothing Scenario

If the proposed mitigation measures are not implemented, then the risks of impact of construction of the proposed development are not reduced.

14.8 Monitoring

The construction of works should be monitored to ensure compliance with relevant SDCC and UÉ requirements, and health and safety legislation.

The operational phase of public works should be monitored by those responsible for the respective asset.

The operational phase of private assets should be monitored by the management company for the development. By ensuring that these networks are adequately supervised the potential for water or effluent leaks are reduced to within acceptable limits.

14.9 Reinstatement

After construction, all assets are to be backfilled and reinstated in accordance with the design and relevant local authority/UÉ requirements.

14.10 Cumulative Impacts

Drainage and water supply material assets should be co-ordinated with communications, electrical and gas material assets to ensure that there are no physical conflicts and that all necessary clearances are provided.

An online planning search was undertaken by Tom Phillips & Associates for current and recently permitted development applications within a 2km radius of the proposed site within the past year. These projects are evaluated for cumulative effects in the table below.

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SDCC Reg. Ref	Applicant	Project Description	Status	Likely Cumulative Effects
SD23A/0039	Microsoft Operations Ireland Limited	Provision of an establishment to which to European Communities (Major Accident Hazards involving Dangerous Substances) Regulations 2006 as amended by Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 apply, constituting a change of use; The new establishment will include all the existing and permitted buildings (SD13A/0143 as amended by SD13A/0265, SD14A/0194 as amended by SD15A/0343, SD16A/0088 as amended by AD17A/0318 & SD20A/0283, SD21A/0203 & SD21A/0288, all within an existing campus; The proposal relates to the total quantum of fuel oil to be stored within existing and permitted tanks across the existing and permitted buildings; For the avoidance of doubt no works or physical development is proposed and the application relates to an existing development which comprises or is for the purpose of an activity requiring an integrated pollution prevention and control (IE) licence.	Permitted	No cumulative effects foreseen. The project will not result in significant effects when combined with the proposed development.
SD23A/0079	Grange Backup Power Ltd.	Alterations to a previously approved development (Reg. Ref. SD15A/0061 and Reg. Ref. SD16A/0398) which relates to a 10-year permission for the construction of a Peaker Power Plant in a single storey building with a mezzanine level, together with associated plant equipment including water & fuel tanks. The alterations to the previously approved development (Reg. Ref. SD15A/0061 & SD16A/0398) include the following: (i) alterations to the previously approved building within the eastern portion of the site as follows: (a) an increase in the overall footprint of the building to the north-west to include office space, and staff facilities at ground floor level; and to the north-east to include a boiler room at ground floor level; (b) revised roof footprint to the rear of the building, with the roof being lowered to the rear; (c) relocation of stair cores and updates to building elevations, including the introduction of additional glazing; (d) amendments to the external open service yard to the north of the building including the removal of the previously approved transformer rooms, addition of containerised plant and minor alterations to the location of shaft towers; (e) a minor increase in the height (by 600mm) of the screen to the service yard. Alterations to the western portion of the site include; (ii) minor amendments to the positioning of the internal roadway; (iii) amendments to the tank bund area and tank arrangement to the west of the site, and the addition of contained plant and a pump house building; (iv) minor amendment to the location of the approved tanker unloading area; (v) relocation of car parking spaces from the south of the site to the north of the main bund areas, with the exception of the approved accessible parking space; (vi) provision of a gas skid & support structure to the south-west of the site; (vii) provision of an enlarged plant compound to the west of the bund area and relocation of transformers to this compound; (viii) revisions to the positioning and an increase in size of the approved pipe bridge to align with services; (ix) provision of a new bicycle parking shelter comprising 8 no. parking spaces; (x) amendments to soft landscaping to accommodate the revised layout and; (xi) drainage, boundary treatments, site lighting, EV car charging ports; and all associated site development and ancillary works necessary to facilitate the development. The capacity of the plant will be 115MW as approved under Reg. Ref.	Permitted	No cumulative effects foreseen. The project will not result in significant effects when combined with the proposed development.

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		SD15A/ 0061. This application relates to development which comprises of an activity which requires an Industrial Emissions Licence in accordance with the First Schedule of the EPA Act 1992 as amended.		
SD23A/0123	Pfizer Ireland Pharma	Permission for development consisting of the completion of the development granted permission under Planning Application Reg. Ref. SD16A/0236 subject to the amendments and alterations to the previously approved biopharmaceutical manufacturing facility and warehouse extension and other additional, new development not forming part of SD16A/0236, located at the Pfizer site at Grange Castle Business Park, New Nangor Road; The modifications to the approved development will consist of alterations and modifications to previously approved site buildings and infrastructure required to support the proposed development they include, (a) A 6-level biopharmaceutical manufacturing building sized approximately 30,469sq.m (previously approximately 34,650sq.m) and approximately 35 metres high (previously approximately 28.2m high), with stairwells approximately 38m high, and roof-mounted plant and equipment, including solar panels; Modifications to the existing Development and Manufacturing Facility including elevational alterations and modifications to existing plant and equipment; (b) A single-storey warehouse building extension with high-bay, sized approximately 3,200 square metres (previously approximately 1,142sq.m) and approximately 17.5m high, with roof-mounted plant and equipment, including solar panels; (c) A single-storey pedestrian and materials link sized approximately 1,687sq.m (previously approximately 750sq.m) and approximately 6.95m high; (d) A new, additional 4-level extension to the existing DS1 biopharmaceutical manufacturing building, to accommodate material lifts and storage areas, sized approximately 1,925sq.m and approximately 38.2m high, to the south elevation of the existing building; (e) A new, additional single-storey chiller building sized approximately 395 square metres and approximately 6.25m high, with roof-mounted plant and equipment; (f) A new, additional single-storey plant and utilities building sized approximately 256sq.m and approximately 6.25m high, with roof-mounted plant and equipment; (g) Provision of relocated car park from its previously permited location at the northeast of the side to a new location to the southeast of the proposed biopharmaceutical facility; including approximately 273 additional car parking spaces, including accessible car parking spaces, electric vehicle charging, motorcycle parking, dedicated car-pooling spaces and cycle parking, all accessed from the internal Grange Castle Business Park roads. Mobility parking is located adjacent and directly north of the proposed facility; (h) A relocated, single-storey security building sized approximately 60 sq.m and 6m high; (i) The proposed site infrastructure includes additional cooling towers/heat exchangers, a tank farm, pipe-bridges, surface water harvest tanks, docks and yard areas, including associated items of plant and equipment, an electric vehicle charging and solar panel substation to service photovoltaic panels over new car parking spaces, photovoltaic solar panels located over new car parking spaces, electrical generators, underground pumping facilities and internal roads and paths, fencing and site lighting, and the use of the existing Pfizer site entrance (Gate No.3) for heavy goods vehicles; (j) The development includes modifications to and the extension of, the existing internal road network within the Pfizer Campus; (k) Proposed new landscaping includes new landscaped and planted areas, replacement and reinforcement of the existing	Permitted	No cumulative effects foreseen. The project will not result in significant effects when combined with the proposed development.

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		landscaping and modifications to existing berms and perimeter security fencing and gates; (l) Proposed new signage based at ground level and on the building facades on the proposed new production building; (m) The works include temporary contractor compounds, temporary car parking and the temporary use of existing site entrances during construction activities; (n) Proposed new surface water management infrastructure for the site, consisting of underground attenuation systems, rainwater harvest cisterns and distribution pipework; (o) All associated site works including sustainability features described in points (a) to (l); Planning permission for the construction of a temporary contractors car park on land to the west of the Pfizer facility with access off Grange Castle Business Park and the reinstatement of the lands to agriculture after the need for the car park expires; The application is seeking permission of 5 years for the completion of the development granted permission under PA Ref: SD16A/0236 subject to the above amendments and alterations to the previously approved Biopharmaceutical Manufacturing Facility and Warehouse and other additional, new, development not forming part of SD16A/0236; This application consists of a development for an activity for which a licence under Part IV of the Environmental Protection Agency Act 1992 (as amended by the Protection of the Environment Act, 2003) is required; An Environmental Impact Assessment Report (EIAR) accompanies this planning application.		
SDZ23A/0011	Newview Education Ltd	Change of use of unit 3 (56sqm) from Class 1 (retail) to Class 9 (Residential Training Centre) and associated signage and ancillary works. The development will take place within Adamstown Strategic Development Zone.	Permitted	No cumulative effects foreseen. The project is located within an existing built site and will not result in significant effects when combined with the proposed development.
SD23A/0012	Data & Power Hub Services Limited	Construction of a new Battery Energy System Storage (BESS) and Power Trunk building and all associated elements; Demolition of all existing structures on site associated with the current golf centre - including main clubhouse and a number of ancillary structures (total 1,009.84sq.m); Construction of a two storey power trunk building (maximum height 10.3m) over basement of 1,982.61sq.m containing MV switchgear; Construction of a BESS to reach a total capacity of 186.3 MWe; The facility will be within an open three storey structure (maximum height of 17.3m), totalling 18,560.9sq.m in area, containing 63 battery containers, & 63 no containers containing power invertors, step up transformers and electrical switchgear and roof level array of 1384 PV panels; 1 two storey administrative welfare buildings (298.26sq.m) associated with the BESS facility; It will be provided with a pre-cast wastewater treatment plant (up to 6 P.E.) discharging to	Permitted	No cumulative effects foreseen. The project will not result in significant effects when combined with the proposed development.

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		percolation area with polishing filter for foul effluent; 1 single storey Fire Pump and Water Service Plantroom of 174.1sq.m, with associated water tank -associated with the BESS facility; 1 underground rainwater harvesting tank (volume 125 cubic meters - associated with the BESS facility of 35sq.m; 9 car parking spaces (including 3 disabled and 2 electric vehicle charging parking spaces) and 8 cycle spaces; The removal of an existing 15m high telecommunication support structure; Internal road network and new servicing access road from an entrance on Peamount Lane - with amendments to the existing entrance, comprising widening the entrance, provision of new security checkpoint, setting back of the boundary to achieve sufficient visibility splays, and reinstatement of appropriate boundary treatment along the Peamount Lane frontage; Site landscaping, planting, berms and retaining walls along site boundaries and security fencing; and all associated site services, lighting, infrastructural works and attenuation (SUDS features, underground storage and an above ground pond).		
SD23A/0301	MLEU Dublin 4 Limited	Permission for development consisting of: The construction of five logistics / warehousing units (Units 1-5) with associated office accommodation, service yards, ancillary structures/areas, and substations. The overall floor area of the proposed logistics/warehousing units is c. 56,932 s.q.m. (Gross Internal Area (GIA)) with a total of c. 4,336 s.q.m. of office space. See following breakdown of each unit: Unit 1 will comprise GIA c. 10,432 s.q.m. including c.579 s.q.m. of associated office space) and measures c.17.9m from finished floor level (FFL) to roof ridge; Unit 2 will comprise GIA c. 18,065 s.q.m. (including c.1,005 s.q.m. of associated office space) and measure c.18.4m from FFL to roof ridge; Unit 3 will comprise GIA c. 6,325 s.q.m. (including c.579 s.q.m. of associated office space) and measure c.17.4m from FFL to roof ridge; Unit 4 will comprise GIA c.8,762 s.q.m. (including c.484 s.q.m of associated office space) and measures c.17.8m from FFL to roof ridge; Access to the site will be from the existing roundabout to the south of the site; Provision of no. 419 car parking spaces and 172 bicycle spaces to serve the proposed development; Associated works for the diversion of the existing foul sewer within the site; The provision of attenuation basins/wetlands across the site; Associated works for re-routing of the existing ESB overhead wires which traverse the site to underground cables within the site; The formation of plateaus on the site with surplus excavated material to allow for the future Phase 2 development and; All ancillary landscaping, boundary treatments, internal roads and roundabout, cycle/pedestrian paths, associated infrastructure, and site development works to support the development.	Permitted	No cumulative effects foreseen. The project will not result in significant effects when combined with the proposed development.

Table 14.1: Relevant projects within 2km of the proposed development.

The planning search also noted that there is no planning history for the proposed site and there are no developments with planning permission/submitted for planning permission withing the boundary of the subject site.

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14.11 Interactions

In preparation of this Chapter interactions with the Hydrology Chapter occurred.

14.12 Difficulties

There were no difficulties encountered in preparing this chapter.

14.13 Appendices

Appendix 14.1: Uisce Éireann Confirmation of Feasibility Letter

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15.0 ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

15.1 Introduction

The following chapter details an archaeological, architectural, and cultural heritage assessment undertaken in advance of a proposed development at Grangecastle Media Park, in the townlands of Brownstown, Coolscuddan and Milltown, County Dublin (ITM 700666,731691, Figure 15.1). The assessment aims to ascertain any likely and significant impacts that the proposed development may have on the existing cultural heritage resource.

The assessment was undertaken by Faith Bailey and Jonny Small (PhD, MSci) of IAC Archaeology. Faith (MA, BA (Hons), MIAI, MCIfA) has over 20 years of experience in archaeological and cultural heritage consultancy and has been responsible for the production of multiple EIAR and assessments for all aspects of development nationwide.

This study determines, as far as reasonably possible from existing records, the nature of the cultural heritage resource in and within the vicinity of the development area using appropriate methods of study. The study area is defined as an area measuring 500m from the proposed development area.

Desk-based assessment is a programme of study of the historic environment within a specified area or site on land, in the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic, and electronic information in order to identify the likely heritage assets, their interests and significance; the character of the study area, including appropriate consideration of the settings of heritage assets (CIfA 2020,4). In order to compile a complete baseline, a site inspection is carried out to complement the results of the desk-based assessment. This leads to the following:

- Determining the presence of known archaeological heritage sites that may be affected by the proposed development;
- Assessment of the likelihood of finding previously unrecorded archaeological remains during the construction programme;
- Suggested mitigation measures based upon the results of the above research.

15.1.1 Definitions

In order to assess, distil and present the findings of this study, the following definitions apply:

'Cultural Heritage' where used generically, can be an over-arching term applied to describe any combination of archaeological, architectural, and cultural heritage features, where the term:

'Archaeological heritage' is applied to objects, monuments, buildings, or landscapes of an (assumed) age typically older than AD 1700 (and recorded as archaeological sites within the Record of Monuments and Places).

'Architectural heritage' is applied to structures, buildings, their contents, and settings of an (assumed) age typically younger than AD 1700; and

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'Cultural heritage', where used specifically, is applied to other (often less tangible) aspects of the landscape such as historical events, folklore memories and cultural associations.

15.2 Methodology

Research has been undertaken in three phases. The first phase comprised a paper survey of all available archaeological, architectural, historical, and cartographic sources. The second phase involved a field inspection of the proposed development area. The third phase involves a programme of archaeological test-trenching.

15.2.1 Paper Survey

The following sources were examined and a list of areas of archaeological, architectural, and cultural heritage potential was compiled:

- Record of Monuments and Places for County Dublin;
- Sites and Monuments Record for County Dublin;
- National Monuments in State Care Database;
- Preservation Orders List;
- Topographical files of the National Museum of Ireland;
- Cartographic and written sources relating to the study area;
- South Dublin County Development Plan 2022-2028;
- Aerial photographs;
- Place name analysis;
- Excavations Bulletin (1970–2023); and
- National Inventory of Architectural Heritage.

Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.

Sites and Monuments Record (SMR) holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known e.g., only a site type and townland are recorded. These are known to the National Monuments Section as 'un-located sites' and cannot be afforded legal protection due to lack of locational information. As a result, these are omitted from the Record of Monuments and Places. All recorded archaeological sites are also listed on a website maintained by the Department of Housing, Local Government, and Heritage (DoHLGH) – www.archaeology.ie.

National Monuments in State Care Database is a list of all the National Monuments in State guardianship or ownership. Each is assigned a National Monument number whether in guardianship or ownership and has a brief description of the remains of each Monument.

The Minister for the DoHLGH may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

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Preservation Orders List contains information on Preservation Orders and/or Temporary Preservation Orders, which have been assigned to a site or sites. Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

The topographical files of the National Museum of Ireland are the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance.

Cartographic sources are important in tracing land use development within the development area as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape.

Documentary sources were consulted to gain background information on the archaeological, architectural, and cultural heritage landscape of the proposed development area.

Development Plans contain a catalogue of all the Protected Structures and archaeological sites within the county. The South Dublin County Development Plan (2022–2028) was consulted to obtain information on cultural heritage sites in and within the immediate vicinity of the proposed development area.

Place Names are an important part in understanding both the archaeology and history of an area. Place names can be used for generations and in some cases have been found to have their root deep in the historical past.

Aerial photographic coverage is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of sources were consulted including aerial photographs held by the Ordnance Survey, Bing Maps and Google Earth.

Excavations Bulletin is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010 and since 1987 has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online (www.excavations.ie) from 1970–2023.

The National Inventory of Architectural Heritage (NIAH) is a state initiative established under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 tasked with making a nationwide record of significant local, regional, national, and international structures, which in turn provides county councils with a guide as to what structures to list within the Record of Protected Structures. The NIAH have also carried out a nationwide desk-based survey of historic gardens, including demesnes that surround large houses.

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15.2.2 Field Inspection

Field inspection is necessary to determine the extent and nature of archaeological, architectural, and historical remains and can also lead to the identification of previously unrecorded or suspected sites and portable finds through topographical observation and local information.

The archaeological, architectural, and cultural heritage field inspection entailed:

- Walking the proposed development area and its immediate environs.
- Noting and recording the terrain type and land usage.
- Noting and recording the presence of features of archaeological, architectural, or cultural heritage significance.
- Verifying the extent and condition of any recorded sites.
- Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

15.2.3 Archaeological Testing

Archaeological Test Trenching can be defined as 'a limited programme... of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land or underwater. If such archaeological remains are present test trenching defines their character and extent and relative quality' (CIfA 2020a, 4). Following a geophysical survey of the overall Grangecastle development lands in 2018, a programme of archaeological testing was carried out within the site in April 2021 by David Bayley of IAC under licence 20E0486 (Bayley 2022). A summary of the archaeological testing is presented in this chapter and the full technical report is included in Appendix 15.1.

15.2.4 Consultation

Following the initial research, a number of statutory and voluntary bodies were consulted to gain further insight into the cultural background of the baseline environment, receiving environment and study area, as follows:

- Department of Housing, Local Government and Heritage – the Heritage Service, National Monuments and Historic Properties Section: Record of Monuments and Places; Sites and Monuments Record; Monuments in State Care Database; Preservation Orders and Register of Historic Monuments;
- National Museum of Ireland, Irish Antiquities Division: topographical files of Ireland;
- South Dublin County Council: Planning Section; and
- Historical and Ordnance Survey Maps.

15.2.5 Guidance and Legislation

The following legislation, standards and guidelines were consulted as part of the assessment:

- National Monuments Act, 1930 to 2014;

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- The Planning and Development Acts, 2000 (as amended);
- Heritage Act, 1995 (as amended);
- Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2015, EPA;
- Guidelines on the Information to be contained in Environmental Impact Assessment Report 2022, EPA;
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht, and Islands; and
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000.

15.2.6 Assessment Criteria

The quality and type of an impact can be classed as one of the following (as per the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022):

- Negative Impact: A change which reduces the quality of the environment, for example a change that will detract from or permanently remove an archaeological or cultural heritage site from the landscape;
- Neutral Impact: A change which does not affect the quality of the environment;
- Positive Impact: A change which improves the quality of the environment, for example a change that improves or enhances the setting of archaeological or cultural heritage site.

The below terms are used in relation to the archaeological, architectural, and cultural heritage and relate to whether a site will be physically impacted upon or not:

- Direct Impact: Where an archaeological/architectural/ cultural heritage feature or site is physically located within the footprint of the proposed development and entails the removal of part, or all, of the monument or feature; and
- Indirect Impact: Where a feature or site of archaeological, architectural, or cultural heritage merit or its setting is located in close proximity to the footprint of a development.

15.2.7 Significance of Effects

Definitions (as defined by the EPA 2022 Guidelines):

- Imperceptible: An effect capable of measurement but without noticeable consequences.
- Not significant: An effect which causes noticeable changes in the character of the environment but without noticeable consequences
- Slight Effects: An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- Moderate Effects: An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends.
- Significant Effects: An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.

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- Very Significant: An effect which, by its character, magnitude, duration, or intensity significantly alters the majority of a sensitive aspect of the environment.
- Profound Effects: An effect which obliterates sensitive characteristics.

15.3 Baseline Environment

15.3.1 Introduction

The proposed development is located within the townlands of Brownstown, Coolscuddan and Milltown, Parish of Kilmactalway, and Barony of Newcastle, County Dublin. The proposed development area comprises a greenfield site, consisting of two fields bounded to the north by the course of the Grand Canal. There are no recorded monuments within the proposed development area. The closest recorded monument outside the proposed development boundary consists of an enclosure (DU017-095), located c. 234m to the south.

There are no protected structures or buildings listed in the NIAH, located within the proposed development area. The closest protected structure comprises Gollierstown Bridge, also listed in the NIAH Survey (RPS 131, NIAH 11208014), located c. 400m to the east (Figure 15.1).

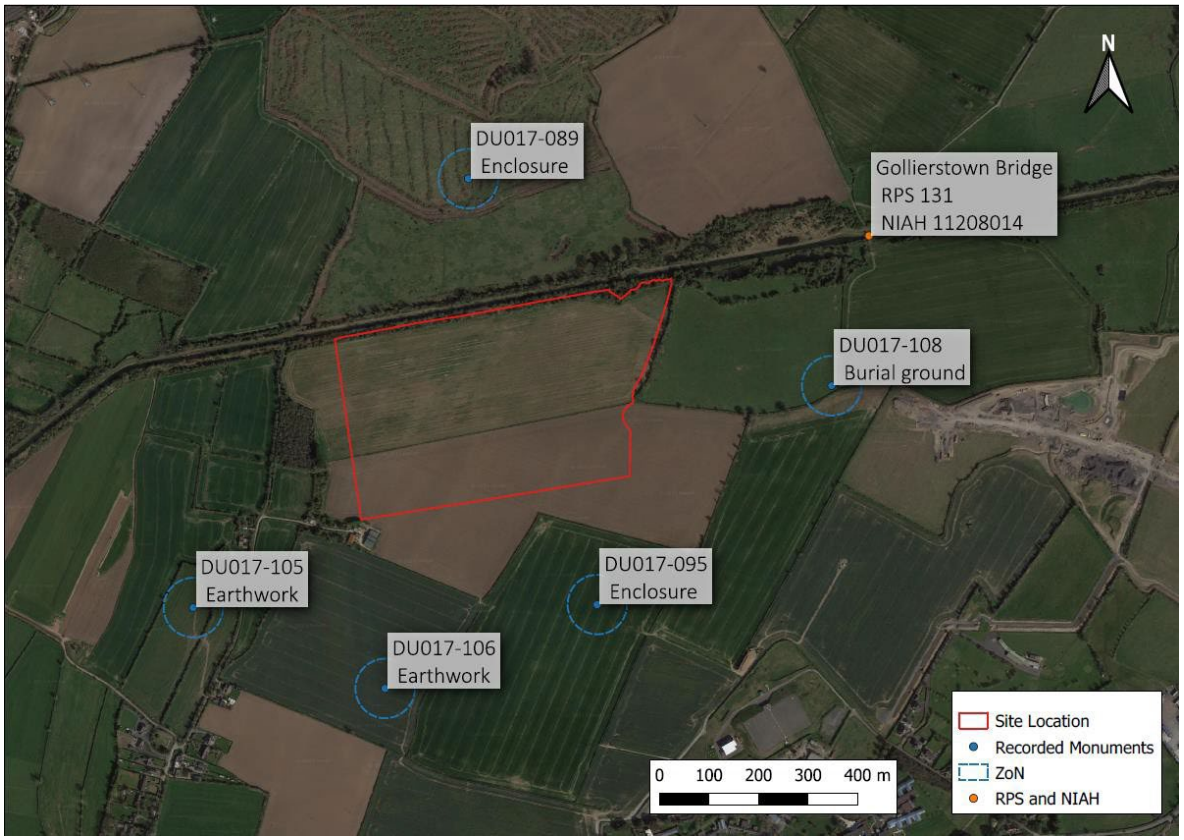

Figure 15.1: Site location showing surrounding recorded monuments and built heritage sites.

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Prehistoric Period

Mesolithic Period (c. 8000–4000 BC)

Recent discoveries may suggest the possibility of a human presence in the southwest of Ireland as early as the Upper Palaeolithic (Dowd and Carden 2016); however, the Mesolithic period is the earliest time for which there is clear evidence for prehistoric human colonisation of the island of Ireland. During this period people hunted, foraged and gathered food and appear to have led a primarily mobile lifestyle (Warren 2022). The presence of Mesolithic communities is most commonly evidenced by scatters of worked flint material, a by-product of the production of flint implements.

Although the coastal areas of County Dublin have produced flint tools dating to the Mesolithic and seasonal habitation sites have been interpreted through the discovery of shell middens along this coastline there are no recorded sites dating to the Mesolithic in the study area or wider vicinity of the proposed development.

Neolithic Period (c. 4000–2500 BC)

During this period communities became less mobile, and their economy became based on the rearing of stock and cereal cultivation. The transition to the Neolithic was marked by major social change. Communities had expanded and moved further inland to more permanent settlements. This afforded the development of agriculture which demanded an altering of the physical landscape. Forests were rapidly cleared, and field boundaries were constructed. Pottery was also being produced, possibly for the first time. The advent of the Neolithic period also provided the megalithic tomb. There are four types of tomb in Ireland, namely the Court Cairn, Portal, Passage, and Wedge; of which the latter style straddles the Neolithic to Bronze Age transition.

Although there is no evidence of Neolithic activity in the immediate vicinity of the proposed development area, the remains of a truncated and burnt Neolithic wooden house were discovered in the townland of Kishoge, c. 3km to the east (Bennett 2001:438, Licence No. 01E0061), indicating that the wider landscape was occupied during the Neolithic period. A small number of artefacts were retrieved, including several crude round scrapers, waste flint and a single poorly preserved fragment of prehistoric pottery.

Bronze Age (c. 2500–800 BC)

The Bronze Age was marked by the widespread use of metal for the first time in Ireland. As with the transition from Mesolithic to Neolithic, the transition into the early Bronze Age was accompanied by changes in society. The construction of megalithic tombs went into decline and the burial of the individual became typical. Cremated or inhumed bodies were often placed in a cist, which is a stone-lined grave, usually built of slabs set upright to form a box-like construction and capped by a large slab or several smaller lintels (Buckley & Sweetman, 1991). Barrows are earthen burial monuments, which consist of a circular area surrounded by a fosse, often with an external bank. The term ring ditch is sometimes applied to barrows with a flat centre. These sites often contain a cist burial.

Over 7,000 burnt mounds or *fulacht fia* sites have been recorded in the country and c. 1,500 examples excavated, making them the most common prehistoric monument in Ireland (Waddell 2022, 164). Although burnt mounds of shattered stone occur as a result of various activities that have been practised from the Mesolithic to the present day, the Bronze Age has

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long been believed to have seen the peak of this activity. Dating evidence from a growing number of burnt mounds, suggests activities resulting in burnt mounds were being carried over a span of 3,500 years in Ireland (Hawkes 2018). They are typically located in areas where there is a readily available water source, often in proximity to a river or stream or in places with a high-water table. In the field burnt mounds may be identified as charcoal-rich mounds or spreads of heat shattered stones, however, in many cases, the sites have been disturbed by later agricultural activity and are no longer visible on the field surface. Nevertheless, even disturbed spreads of burnt mound material often preserve the underlying associated features, such as troughs, pits, and gullies, intact.

The archaeological investigations within the proposed development area have revealed the presence of an area of burnt mound activity with multiple burnt mound spreads and associated troughs and pits, located centrally in the northern half of the site (AA1). A pit containing similar burnt material to the spreads was revealed in the northwestern area of the proposed development (AA2).

Archaeological test trenching by IAC at Gollierstown, located c. 925m to the east, revealed the presence of a probable burnt mound (McIlreavy 2023, Licence 23E0431), which is likely to represent the remains of a ploughed out *fulacht fia*.

Iron Age (c. 800 BC–AD 500)

There is increasing evidence for Iron Age settlement and activity in recent years as a result of development-led excavations as well as projects such as Late Iron Age and Roman Ireland (Cahill Wilson 2014). This period remains, however, distinguishable from the rather rich remains of the preceding Bronze Age and subsequent early medieval period by a relative paucity within the current archaeological record. The Iron Age in Ireland is problematic for archaeologists as few artefacts dating exclusively to this period have been found and without extensive excavation it cannot be determined whether several monument types, such as ring-barrows or standing stones, date to the late Bronze Age or Iron Age. It is likely that there was significant continuity in the Iron Age, with earlier monuments re-used in many cases. There are no known monuments in the vicinity of the proposed development area that would suggest an active presence of Iron Age communities in this area.

Early Medieval Period (c. AD 500–1100)

The early medieval period is depicted in the surviving sources as an almost entirely rural based society. Territorial divisions were based on the *túath*, or petty kingdom, with Byrne (1973) estimating that there may have been at least 150 kings in Ireland at any given time. This period, with a new religious culture and evolving technologies, saw significant woodland clearance and the expansion of grassland. A new type of plough and the horizontal mill were two innovations that improved agriculture and allowed for the population to increase. Consequently, from c. AD 500 onwards, the landscape became well settled, as evidenced by the profuse distribution of ringforts, a dispersed distribution of enclosed settlements, normally associated with various grades of well-to-do farming and aristocratic classes in early medieval Ireland (Stout and Stout 1997, 20).

The ringfort or rath is considered to be the most common indicator of settlement during the early medieval period (Stout 2017). One of the most recent studies of early medieval settlement enclosures has suggested that there is potential for at least 60,000 such sites to have existed on the island. Ringforts were often constructed to protect rural farmsteads and are usually defined as a broadly circular enclosure delineated by a bank and ditch. Ringforts

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can be divided into three broad categories – univallate sites, with one bank or ditch; multivallate sites with as many as four levels of enclosing features and platform or raised ringforts, where the interior of the ringfort has been built up. These enclosed sites were intimately connected to the division of land and the status of the occupant.

In 2019, geophysical survey and subsequent archaeological testing uncovered a large enclosure, c. 1.5km to the east of the proposed development area. This was subject to full archaeological excavation in 2019 (Bennett 2019:25; Licence No. 19E0038). The enclosure has been interpreted as being early medieval in date, possessed a number of phases and was accompanied by radial ditches forming paddocks.

It is possible that the roughly circular recorded enclosures and earthworks in the vicinity of the proposed development area (DU017-089, DU017-095, DU017-105, DU017-106) represent the remains of early medieval enclosures or denuded ringforts, although the majority of these have not been investigated to date.

Archaeological monitoring for a pipeline (Kehoe 2003; Licence No. 02E1281) was carried out c. 370m to the east of the proposed development area in 2003 and this resulted in the identification of a number human burials. These remains, although very poorly preserved, were discovered in-situ and as such represent a historic burial ground of likely early medieval date. The site was recently added to the RMP as DU017-108.

Medieval Period (c. AD 1100–1600)

The beginning of the medieval period was characterised by political unrest that originated from the death of Brian Borumha in 1014. Diarmait MacMurchada, deposed King of Leinster, sought the support of mercenaries from England, Wales and Flanders to assist him in his challenge for kingship. Norman involvement in Ireland began in AD 1169 when Richard de Clare and his followers landed in Wexford to support MacMurchada. Two years later de Clare (Strongbow) inherited the Kingdom of Leinster and in AD 1171, Dublin was besieged and taken by Diarmait MacMurchada and his Leinster forces supported by a force of Anglo-Norman knights led by Strongbow (Richard Fitz-Gilbert de Clare) and Raymond le Gros. By the end of the 12th century the Normans had succeeded in conquering much of the country (Stout and Stout 1997). The initial stage of the invasion of the country was marked by the construction of motte and bailey castles, which were later replaced with stone castles.

Castle Adams (DU017-029) is found within the wider area of the proposed development at Adamstown, c. 1.9km to the northeast. The three-storey tower house was formed by a projecting turret and stepped crenelations and was demolished in the 1960s. A further castle is found at Grange (DU017-034), c. 2.8km to the east. In 1997 monitoring and excavation (Bennett 2016:340, Licence No. 16E0520) were undertaken in the vicinity of the castle and identified a number of medieval field boundaries.

A medieval graveyard was identified at Stacumny (KD011-021001), c. 1.1km to the northwest of the proposed development. Excavations were undertaken in 1997 (Bennett 2011:353, Licence No. 97E0119) and uncovered 728 inhumations dating between c. 1120 and c. 1275, although the location of the associated church (KD011-021) was not found.

After the Anglo-Norman conquest the ecclesiastical site at Aderrig, c. 1.5km to the north of the proposed development area, was granted to St. Patrick's Cathedral in the 13th century (DU017-028001-002). The earliest documentary reference to the church occurs in 1235 and was still in use at the beginning of the 17th century (SMR file). The church is bounded by an

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enclosure (DU017-028001). An associated graveyard (DU017-028003) and field system is also present (DU017-028003-004).

Post-Medieval Period (AD 1600–1900)

The 17th century saw a dramatic rise in the establishment of large residential houses around the country. The large country house was only a small part of the overall estate of a large landowner and provided a base to manage land that could be located nationwide. During the late 18th and early 19th centuries, lands immediately associated with the large houses were generally turned over into a parkland estate (demesne). Although the creation of a parkland landscape involved working with nature, rather than against it, the considerable constructional effort went into its creation. Earth was moved, field boundaries disappeared, streams were diverted to form lakes and quite often roads were completely diverted to avoid travelling anywhere near the main house or across the estate. Whilst the designed landscapes possessed an ornamental form, they still retained a valuable function; providing grazing for livestock and habitats for game. Some of the larger houses and demesnes in the surrounding area include Peamount House c. 730m to the south-southeast and Milltown House c. 1.58km to the southeast. There are no demesne landscapes located within the study area of the proposed development.

The Grand Canal, located to the immediate north of the proposed development area, is c. 131km long and links Dublin City to the River Shannon. Work began on the canal in 1756 and it was officially opened to traffic in 1804. While the rise of the railway significantly reduced the popularity of the canal, it was not until 1960 that the last cargo was transported along the Grand Canal. The proposed development area is located to the immediate southwest of disused quarries, which provided building material for the canal itself. Although the quarries are not shown on Rocque's 1760 map (Figure 15.4), they are depicted in detail on the first edition OS map (1843, Figure 15.5). Gollierstown Bridge (c. 1780) (RPS 131, NIAH 11208014) was constructed to facilitate the movement of material from the quarry and originally joined a trackway to the east of the proposed development area. Today the bridge is only in use as farm access.

15.3.2 Summary of Previous Archaeological Fieldwork

A review of the Excavations Bulletin (1970–2023) has revealed that a number of investigations have been carried out within the surrounding environs (Figure 15.2), which are summarised below. Archaeological testing carried out in order to inform this assessment is summarised in section 15.3.12.

Geophysical survey within the proposed Grange Castle Business Park West development was carried out by Target Geophysics in 2018 (Nicholls and Murphy 2018; Licence No. 18R0222). The site was included within the northwest portion of the surveyed area, within areas M1 and M2. The geophysical survey recorded potential archaeological remains within the proposed development area (Figure 15.7). These are summarised in more detail in section 15.3.12 below.

The survey of M4 was successful in defining the location and extent of potential archaeological remains associated with enclosure site DU017-095, which lies to the south of the proposed development area. Further possible archaeological features identified outside of the proposed development area included an enclosure and trackway to the southwest (M3), a possible ring ditch to the south (M5) and possible enclosure remains to the east (M9, M11 and

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M12), as well as remnants of early field systems (M4-M6 and M11). The results from M1-M12 highlight changing patterns of land use, including former cultivation regimes, disused field boundaries, buried services, and magnetic disturbance from modern sources of interference.

The geophysical survey was followed by archaeological testing within the proposed development area (Bayley 2022, Licence No. 20E0486) which identified five separate areas of archaeological potential (AA1-AA5), including burnt mound activity, possible kilns and a ditch containing medieval ceramic. These are summarised in more detail in section 15.3.13 below and the full report is included in Appendix 15.1.

In 2019 archaeological testing was carried out prior to the development of a distribution road development associated with the Grangecastle West Business Park (Bennett 2019:836; Licence No. 19E0370). A number of archaeological sites were identified to the east of the proposed development area. These comprised Milltown 1; Milltown 2, Milltown 3 and Brownstown 1. Excavations at Milltown 1 identified an enclosure consisting of two concentric enclosing ditches, a possible kiln and a pit filled with charcoal and heat shattered stone, likely associated with burnt mound activity (Bennett 2019:755; Licence No. 19E0680). Milltown 2 comprised a cluster of ditches and linear features (Bennett 2019:756; Licence No. 19E0681) and Milltown 3 comprised two linear ditches (Bennett 2019:757; Licence No. 19E0682). Excavations were carried out at Brownstown (Bennett 2020:656; Licence No. 19E0370 ext.), located in the northeast portion of the proposed development area. This was conducted after a programme of archaeological testing in 2019 (Bennett 2019:836; Licence No. 19E0370). The excavation of the identified in-situ burning revealed three separate brick kilns that were heavily ploughed out with no upstanding remains present. The main indicators for the presence of the kilns were broken brick within the furrows throughout the site and the pattern of in-situ burning. The brick kilns may be related to the wider quarrying activity shown on the first edition map (1843) at Gollierstown.

Figure 15.2: Locations of previous archaeological investigations**.**

Archaeological monitoring for a pipeline was carried out to the east of the proposed development area in 2003 and this resulted in the identification of a number (approx. 13) of human burials (Kehoe 2003; Licence No. 02E1281). These remains, although very poorly preserved, were discovered in-situ and as such represent a historic burial ground of likely early medieval date. The full extent of the burials was not recorded, but the remains were preserved in-situ and the pipeline re-directed to run to the immediate east of the hedge line. The site was recently added to the RMP as DU017-108, c. 370m to the east of the proposed development.

Additional archaeological test trenching was carried out during October 2023, as part of the Grangecastle Access Road (Phase 2), located to the immediate southeast of the proposed development area (Coffey 2023; Licence No. 23E0736). The test trenches targeted anomalies discovered during the previous geophysical survey (Target Ltd.; Licence No. 18R0222). Testing revealed four localised areas of archaeological significance, which were designated as Archaeological Areas 1-4 (AA1-4). These comprised two kilns and two hearths. No diagnostic material was recovered from the features during testing works, which may span in date from prehistoric to the early modern period.

In June 2023, a programme of archaeological testing was carried out at Gollierstown, Co. Dublin, c. 370m east of the proposed development area and south of the canal (McIlreavy 2023; Licence No. 23E0431). This followed a geophysical survey conducted across the site by Ger Dowling in April 2023 (Dowling 2023, Licence No. 23R0140). Works revealed three areas of archaeological potential, which have been designated as Archaeological Areas (AA) 1, 2 and 3. AA1 comprised an area of possible medieval activity formed by a number of ditches and one undated pit. AA2 comprised a circular enclosure, which may be early medieval or Bronze Age in date and is listed as DU017-111. The enclosing ditch is relatively shallow, which may

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indicate it has been truncated by ploughing. AA3 comprised the remains of a burnt mound, which is likely to be Bronze Age in date.

15.3.3 Cartographic Analysis

Down Survey Maps of the Barony of Newcastle, c. 1655

The Down Survey maps were created as a means to identify land ownership and while they are often scant in detail, major topographical features and occasionally notable man-made landmarks are depicted. The proposed development area is placed within the open lands of 'Loughstown and Brownestowne Unfortified Lands' and 'The Lord Rannelane Gallretts Towne' to the north of 'Mill Towne'.

Rocque's An Actual Survey of County Dublin, 1760 (Figure 15.3)

Rocque's map of 1760 depicts a largely agricultural landscape with a dispersed settlement. The Grand Canal is visible as 'New Canal' to the north, but the development area is shown as open fields to the northeast of 'Laughtown'. Two structures marked 'Brownstown' lie to the immediate southwest of the proposed development. A 'Burying Place' is marked further to the southwest, which is still in use as Brownstown Cemetery, within which is the surviving western quadrant of an ecclesiastical enclosure (DU021-001001). A lime kiln is marked to the southeast near Milltown.

John Taylor's Map of the County of Dublin, 1816

Little has changed in the landscape by the time of Taylor's map of 1816. The development area remains within open land and is partially occupied by a 'Commons' marked to the north of Brownstown, including a trackway leading north to the Grand Canal, which is now named as such. Quarries are shown to the immediate east and northeast of the proposed development, either side of the canal. Associated structures are also depicted, one of which is marked as a kiln, a second is marked as a limekiln. Gollierstown Bridge (RPS 131, NIAH 11208014) is also now visible to the northeast, annotated as 'Gollardstown Bridge'. Peamount House and demesne landscape are depicted to the southeast.

First edition Ordnance Survey Map, 1843, scale 1:10,560 (Figure 15.4)

The development area is located within all or part of 12 fields and the townland boundaries between Coolscuddan, Brownstown, Gollierstown and Milltown are shown running through the site, with the Brownstown/Gollierstown boundary forming part of the eastern boundary. The canal and the quarries to the immediate northeast are shown in detail along with associated structures.

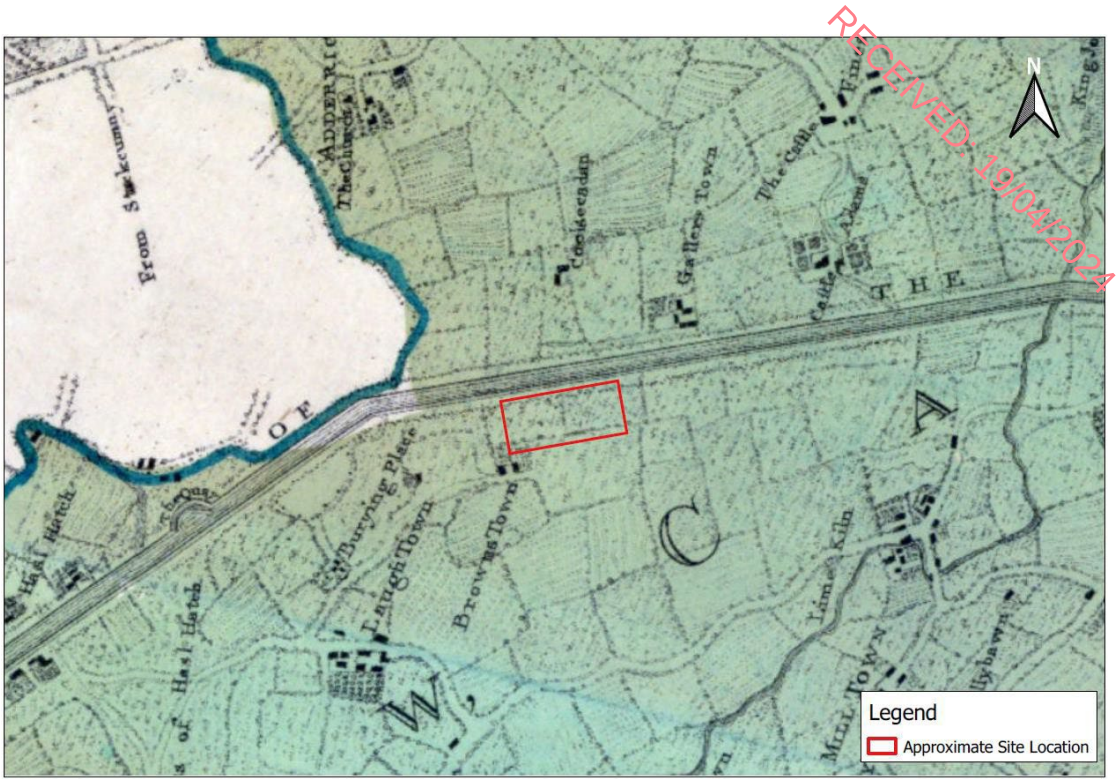

Figure 15.3: Extract from Rocque's map of 1760, (showing the approximate location of the proposed development area).

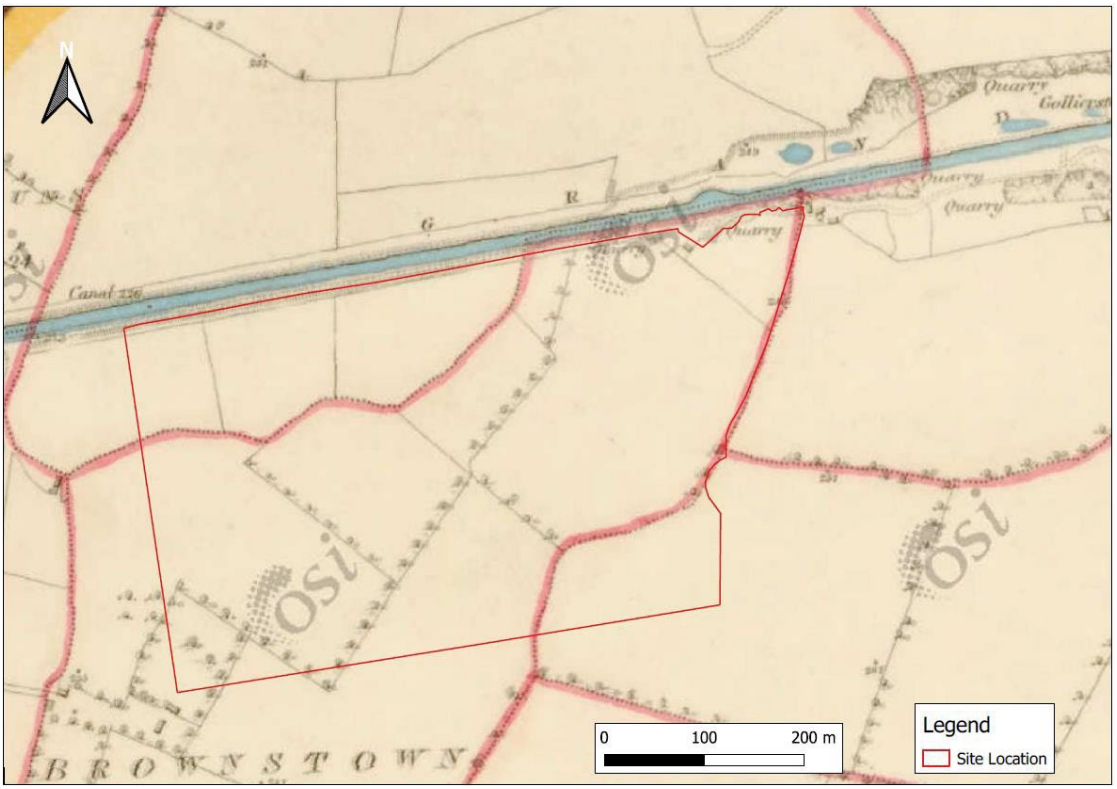

Figure 15.4: Extract from the first edition OS map of 1843, showing the proposed development area.

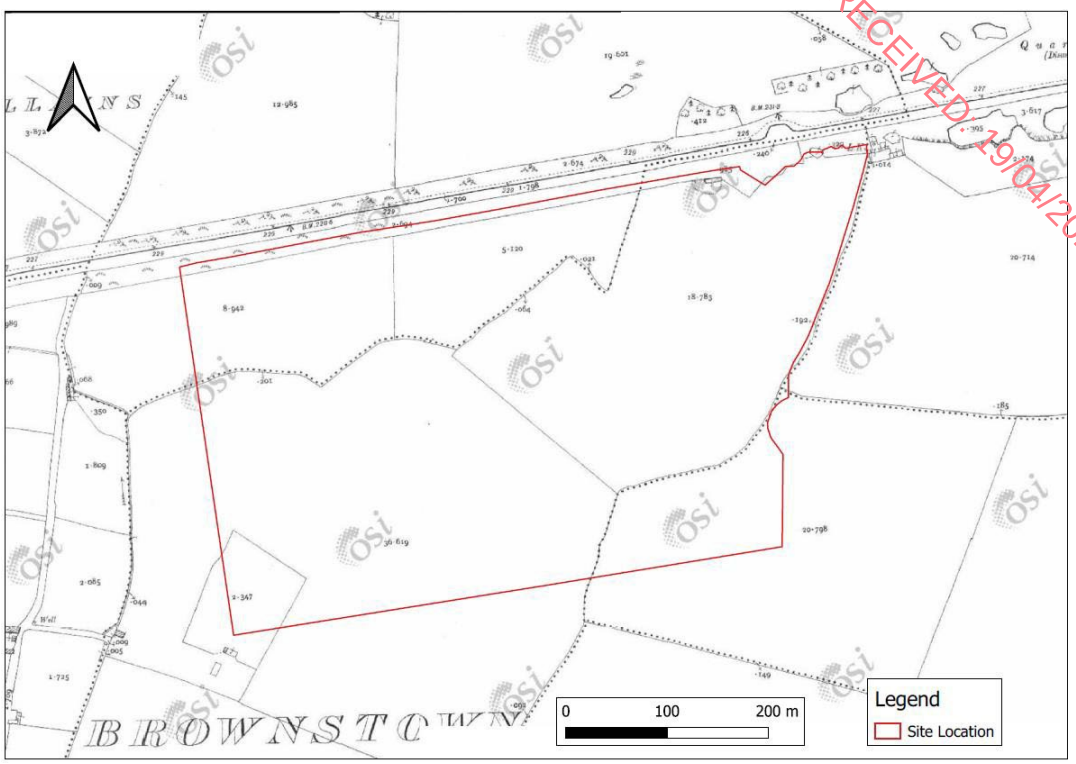

Figure 15.5: Extract from the OS map of 1912, showing the proposed development area.

Second edition Ordnance Survey Map, 1871, scale 1:10,560

There are no major changes to note within the cartography of this map that relate to the proposed development area, although the quarries are no longer annotated as such.

Ordnance Survey Map, 1912, scale 1:2,500 (Figure 15.5)

The lands occupied by the proposed development area have been significantly opened up by the time of this map, with the site now located within parts of six fields. The quarries to the northeast are depicted in slightly less detail than previously and are marked as disused, although a lime kiln (L.K.) remains present.

Ordnance Survey Map, 1938, scale 1:10,560

There are no major changes to note within the cartography of this map that relate to the proposed development area.

15.3.4 County Development Plan

Record of Monuments and Places

The South County Dublin Development Plan (2022–2028) recognises the statutory protection afforded to all RMP sites under the National Monuments Legislation (1930–2014). The development plans list a number of aims and objectives in relation to archaeological heritage (Appendix 15.2). It is a policy of the South County Dublin Development Plan (2022–2028) to

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promote the in-situ preservation of archaeology as the preferred option where development would have an impact on buried artefacts. Where preservation in situ is not feasible, sites of archaeological interest shall be subject to archaeological investigations and recording according to best practice, in advance of development.

There are no recorded monuments located within the proposed development area. There are five sites recorded within the 500m study area around the proposed development, the closest of which is an enclosure (DU017-095), located c. 234m to the south (Table 15.1, Figure 15.1).

RMP No.	Location	Class	Distance from proposed development
DU017-095	Loughtown Upper	Enclosure	c. 234m south
DU017-089	Coolscuddan	Enclosure	c. 267m north
DU017-106	Brownstown	Earthwork	c. 336m south
DU017-105	Loughtown Lower	Earthwork	c. 364m southwest
DU017-108	Gollierstown	Burial ground	c. 375m east

Table 155.1 – Recorded Monuments within the study area.

Record of Protected Structures

The South Dublin County Development Plan (2022–2028) recognises the value of the built heritage to the city and is committed to the protection and enhancement of this heritage by providing measures for the protection of architectural heritage (Appendix 15.3). These include the establishment of a Record of Protected Structures (RPS) and the designation of Architectural Conservation Areas (ACAs).

There are no structures included on the RPS within the proposed development area. There is one structure listed on the RPS within the 500m study area, Gollierstown Bridge (RPS 131), which is also listed on the NIAH Survey. The bridge is located c. 400m east of the proposed development area.

Architectural Conservation Areas

There are no Architectural Conservation Areas (ACAs) within the study area.

15.3.5 National Inventory of Architectural Heritage (NIAH)

Building Survey

A review of the architectural survey was undertaken as part of this assessment and included buildings within the 500m study area. There is one structure listed on the NIAH building

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survey, Gollierstown Bridge (NIAH 11208014), which is also a protected structure (Figure 15.1). The bridge is located c. 400m east of the proposed development area.

Structures listed in the NIAH Building Survey do not receive statutory protection; however, those which are also listed in the RPS, receive protection under that designation. The Gollierstown Bridge is both a protected structure and listed in the NIAH.

Garden Survey

There are no demesne landscapes present within the study area. The closest demesne landscape is associated with Peamount House, located c. 675m to the southeast, which is included on the NIAH Garden Survey (Site ID. 2209). The demesne boundary remains visible, although the site has since been developed and expanded with institutional buildings.

15.3.6 Aerial Photographic and LIDAR Analysis (Figure 15.6)

Inspection of the aerial photographic coverage of the proposed development area held by the Ordnance Survey (1995–2013), Google Earth (2008–2023) and Bing Maps revealed that the proposed development area has remained as greenfield since at least the mid-1990s. Historic field boundaries are visible in various images, including the 1995 OS photography and July 2013 Google Earth images. The outline of the quarries depicted on historic OS mapping to the northeast are also discernible.

LIDAR survey, which is available on the GSI Open Topographical Data Viewer, does not show any previously unrecorded archaeological sites within the proposed development area. Potential earthworks are indicated to the east of the site, surrounding the location of the potential early medieval burial ground (DU017-108). The earthworks are not indicated within the historical mapping, so it is possible that they have an archaeological origin.

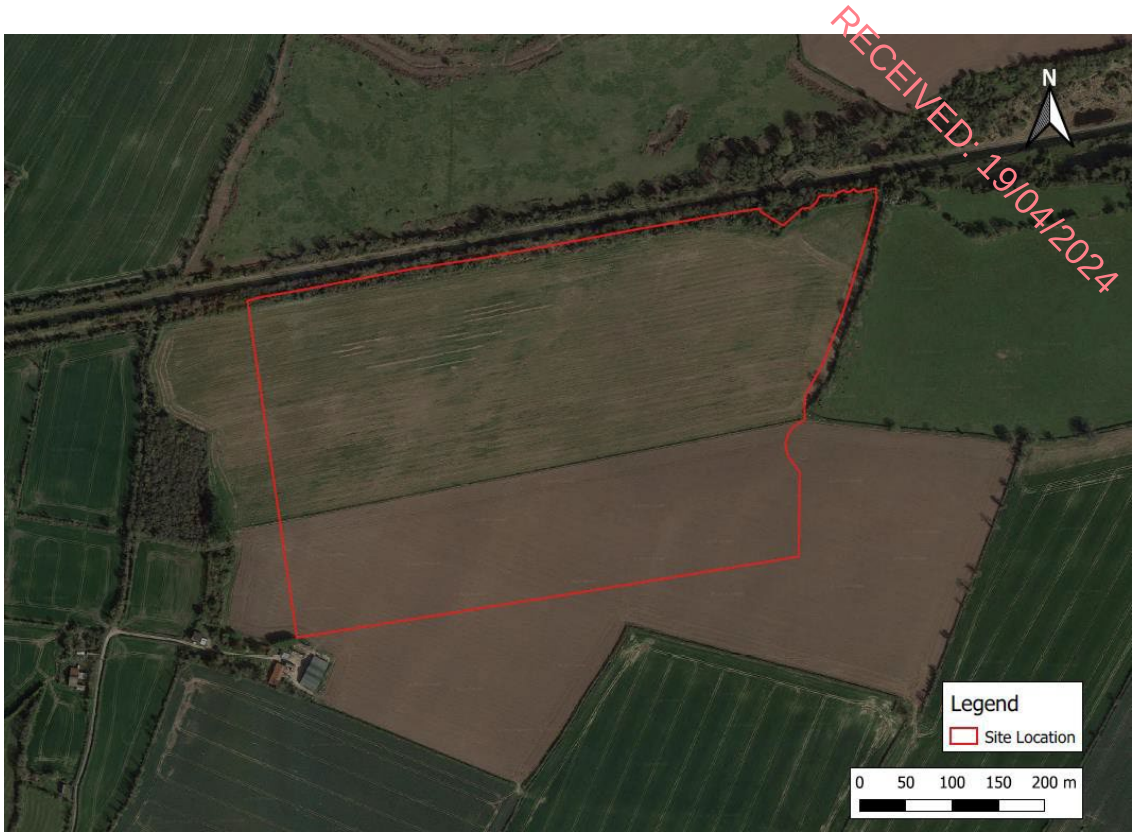

Figure 15.6: Aerial photograph from Google Earth (2021), showing the proposed development area.

15.3.7 Topographical Files of the National Museum of Ireland

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area. No stray finds are recorded from within the proposed development or the surrounding study area.

15.3.8 Cultural Heritage Sites

The term 'cultural heritage' can be used as an over-arching term that can be applied to both archaeology and architectural features; however, it can also refer to more ephemeral aspects of the environment, which are often recorded in folk law or tradition or possibly date to a more recent period. Settlements or industrial features such as mills, millraces, kilns, and bridges which are visible on historic mapping but have disappeared from the modern landscape can also be considered as sites with cultural heritage value. No such sites have been identified within the proposed development area; although the historic quarries, immediately adjacent to the proposed development, would possess some cultural heritage interest.

15.3.9 Placename Analysis

Townland and topographic names are an invaluable source of information on topography, land ownership and land use within the landscape. They also provide information on history; archaeological monuments and folklore of an area. A place name may refer to a long-forgotten

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site and may indicate the possibility that the remains of certain sites may still survive below the ground surface. The Ordnance Survey surveyors wrote down townland names in the 1830's and 1840's, when the entire country was mapped for the first time. Some of the townland names in the study area are of Irish origin and through time have been anglicised. The main references used for the place name analysis is Irish Local Names Explained by P.W Joyce (1870) and logainm.ie. A description and possible explanation of each townland name in the environs of the proposed development area are provided in Table 15.2.

Name	Derivation	Possible Meaning
Balscott	*Baile an Scotaigh*	Scott's Town
Brownstown	*Baile an Bhrúnaigh*	Brown's Town
Coolscuddan	*Cúil Scadáin*	Scadan's corner
Gollierstown	*Baile Gallrath*	Gallonston / Galretts Town
Loughtown Lower	*Baile an Locha Íochtarach*	Town of the lake, lower
Loughtown Upper	*Baile an Locha Uachtarach*	Town of the lake, upper
Milltown	*Baile an Mhuilinn*	Mill town
Mullauns	*Na Mulláin*	Flat hills
Stacumny Cottage	*Cotáiste Steach Cuimne*	Cuimne's house, cottage

Table 15.2: Placenames within the study area.

15.3.10 Townlands

The townland is an Irish land unit of considerable longevity as many of the units are likely to represent much earlier land divisions. However, the term townland was not used to denote a unit of land until the Civil Survey of 1654. It bears no relation to the modern word '*town*' but like the Irish word *baile* refers to a place. It is possible that the word is derived from the Old English *tun land* and meant 'the land forming an estate or manor' (Culleton 1999, 174).

Gaelic land ownership required a clear definition of the territories held by each sept and a need for strong, permanent fences around their territories. It is possible that boundaries following ridge tops, streams or bog are more likely to be older in date than those composed of straight lines (*ibid*. 179).

The vast majority of townlands are referred to in the 17th century, when land documentation records begin. Many of the townlands are mapped within the Down Survey of the 1650s, so called as all measurements were carefully *'laid downe'* on paper at a scale of forty perches to

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one inch. Therefore, most are in the context of pre-17th century landscape organisation (McErlean 1983, 315).

In the 19th century, some demesnes, deer parks or large farms were given townland status during the Ordnance Survey and some imprecise townland boundaries in areas such as bogs or lakes, were given more precise definition (*ibid*.). Larger tracts of land were divided into a number of townlands, and named Upper, Middle, or Lower, as well as Beg and More (small and large) and north, east, south and west (Culleton 1999, 179). By the time the first Ordnance Survey had been completed a total of 62,000 townlands were recorded in Ireland.

Although not usually recorded as archaeological monuments in their own right, townland boundaries are important as cultural heritage features as they have indicated the extents of the smallest land division unit in the country—the townland. It remains unclear how old these land units actually are, though it has been convincingly argued that they date to at least the medieval period and may be significantly older than this in some cases (McErlean 1983; MacCotter 2008).

The townland boundaries between Coolscuddan and Brownstown, and Brownstown and Milltown are located within the proposed development. The boundary between Brownstown and Gollierstown forms part of the eastern border of the proposed development. The townland boundaries have been removed, with the exception of a section of the boundary along the eastern portion of the proposed development area.

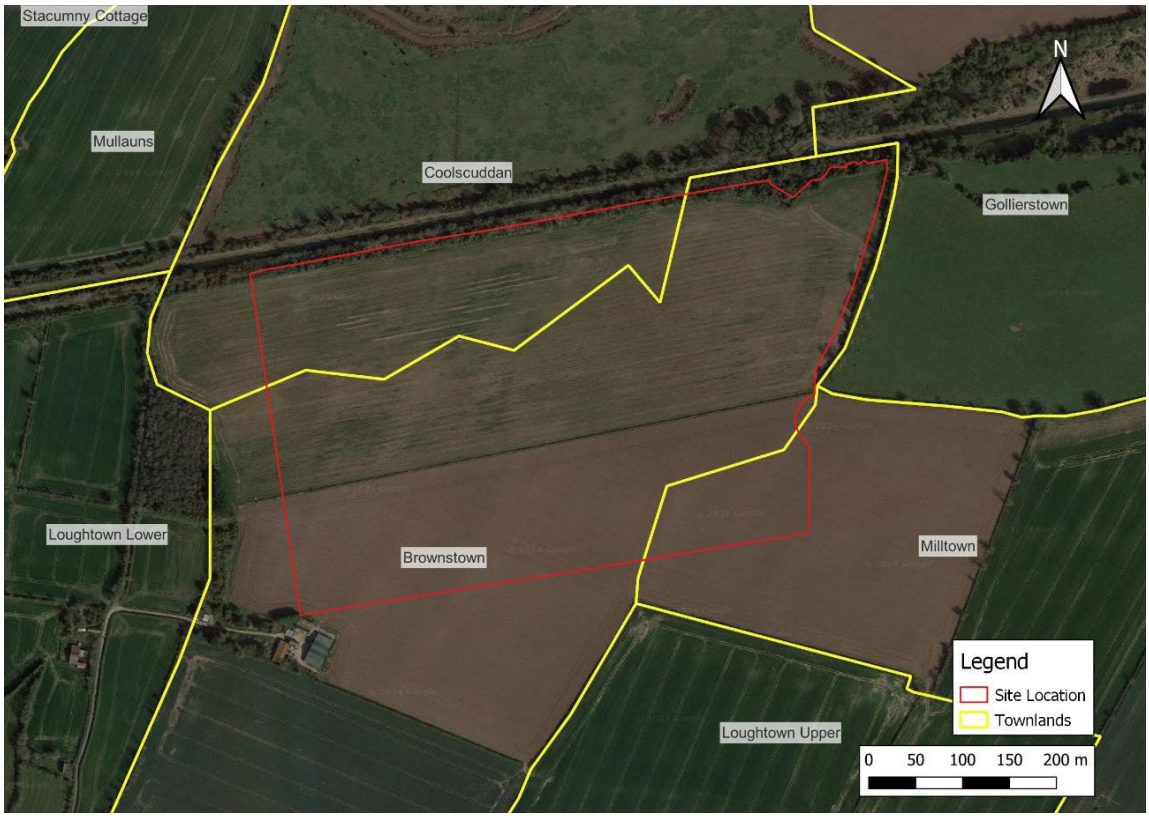

Figure 15.7: Aerial photograph from Google Earth (2021), showing the site location and townland boundaries.

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15.3.11 Field Inspection

The field inspection sought to assess the site, its previous and current land use, the topography, and any additional information relevant to the report. During the course of the field investigation the proposed development area and its immediate surrounding environs were inspected.

The proposed development area forms part of a larger arable field, currently under arable production. The field is level and bounded to the north by mature trees and vegetation that flanks the grand canal. The eastern boundary is formed by the remains of a townland boundary that separates Brownstown from Gollierstown. This is formed by a mature hedgerow and ditch with interspersed trees. Modern farm buildings are located to the southwest along with a small area planted with trees. No previously unrecorded features, areas, or structures of archaeological or architectural heritage merit were noted during the course of the inspection. The townland boundaries that once crossed the development area are no longer present.

15.3.12 Geophysical Survey

Geophysical survey within the overall Grange Castle Business Park West development was carried out by Target Geophysics in 2018 (Nicholls and Murphy 2018; Licence No. 18R0222), on behalf of South Dublin County Council. The proposed development was included within the northwest portion of the surveyed area, within areas M1 and M2. The geophysical survey recorded potential archaeological remains within the proposed development area (Figure 15.7). These included a concentration of strongly magnetic responses, small-scale positives, and increased response within the centre of M1 that were interpreted as potentially representing the remains of a possible *fulacht fia*, group of pit/linear remains or later vernacular building. The potential remains of a small enclosure and pits/postholes were also identified in the northeast of M1. A possible building was also identified within M2, in the southwest of the proposed development.

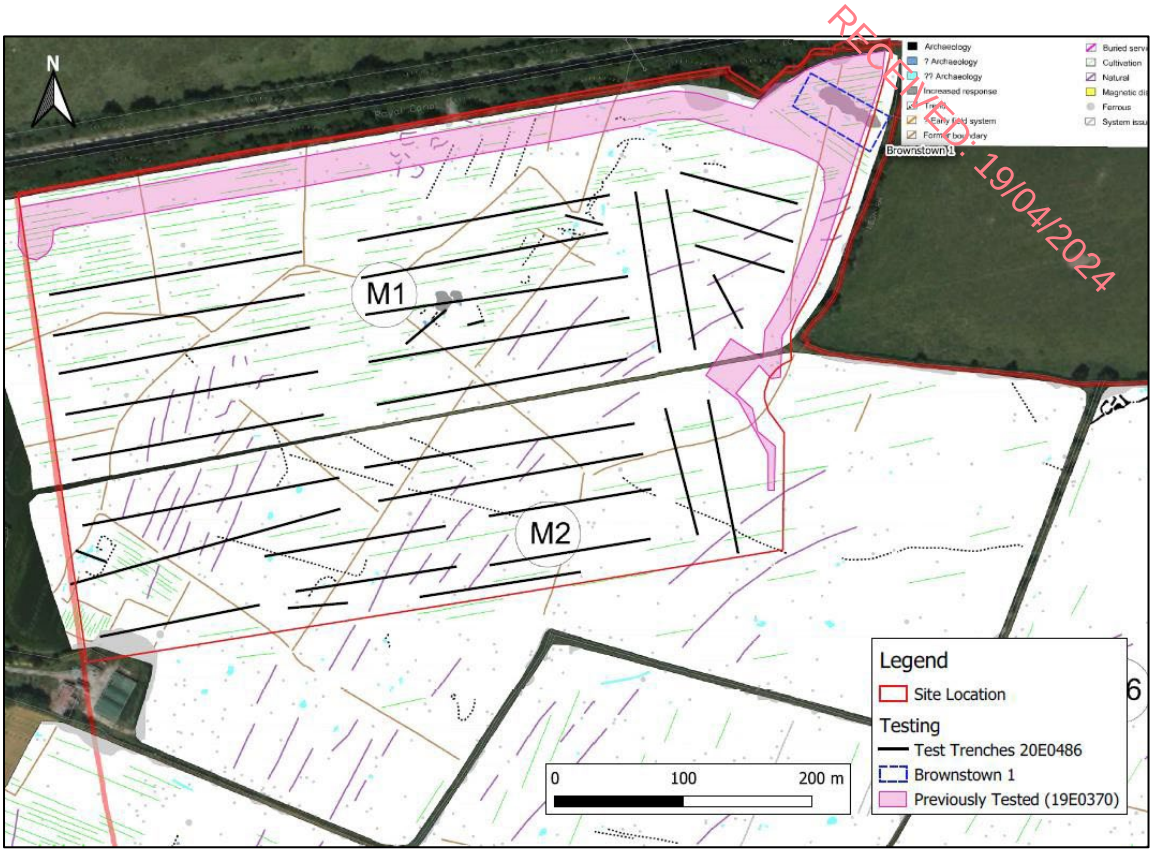

Figure 15.8: Detail of previous geophysical survey and position of 2021 test trenches within the proposed development area.

15.3.13 Archaeological Test Trenching

A programme of archaeological testing was carried out within the development area in April 2021 (Bayley 2022, Licence No. 20E0486, Figure 15.7/8, Appendix 15.1). The trenches targeted geophysical anomalies and open greenfield space within the proposed development area. A total of five Archaeological Areas (AA1-5) were identified during the course of testing. At the time of the testing assessment, the northern boundary of the proposed development area was not included in the overall development area (as illustrated in Appendix 15.1). The northwest corner was not subject to testing, as this area was archaeological excavated as part of the distribution road development.

AA1, located centrally in the northern half of the site, revealed the largest concentration of archaeological features, consisting of multiple burnt mound spreads with associated troughs and pits (Trenches 10, 11 and 13). The second area (AA2) was located in the northwest of the site and consisted of a pit filled with material similar to that found in a burnt spread. The third and fourth areas of potential (AA3 and AA4) were located towards the southeast of the site and both areas consisted of isolated hearths or kilns. AA4 was located within the southern part of the proposed development area The fifth area (AA5) was located in the southwest of the test area and consisted of a ditch from which medieval pottery sherds were recovered.

Detailed plans of each archaeological area are shown in Appendix 15.1.

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Figure 15.9: Results of test trenching within the proposed development area showing AA1-5.

15.3.14 Conclusions

The proposed development area is located in the townlands of Brownstown, Coolscuddan and Milltown, County Dublin. There are no recorded monuments within the study area. There are five recorded monuments within the 500m study area, the closest of which consists of an enclosure (DU017-095), located c. 234m to the south.

There are no protected structures or buildings listed in the NIAH, located within the proposed development area. There is one protected structure, which is also listed on the NIAH Survey, within the 500m study area; Gollierstown Bridge (RPS 131, NIAH 11208014), located c. 400m to the east.

A review of Excavations Bulletin (1970–2023) and the available excavation reports has revealed that geophysical survey within the proposed development was carried out by Target Geophysics in 2018 (Nicholls and Murphy 2018; Licence No. 18R0222). The geophysical survey recorded potential archaeological remains within the proposed development area, which may indicate the remains of a possible *fulacht fia*, group of pit/linear remains or later vernacular building. The potential remains of a small enclosure and pits/postholes were also identified in the northeast of M1. A possible building was also identified within M2, in the southwest of the proposed development. The geophysical survey was followed by archaeological test trenching within (Licence No. 20E0486), and to the immediate east of (Licence No. 19E0370), the proposed development. These works led to the excavation of Brownstown 1 (Licence No. 19E0370 ext.), which recorded the remains of three brick kilns, probably of post-medieval date. Testing within the development area (Licence No. 20E0486) identified five separate

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areas of archaeological potential (AA1-AA5). This included an area of activity related to multiple burnt mound spreads with associated troughs and pits (AA1), a pit filled with burnt mound material (AA2), isolated hearths or kilns (AA3 and AA4), and a ditch from which medieval pottery was recovered (AA5). Archaeological monitoring for a pipeline was carried out c. 375m to the east of the proposed development area in 2003 and this resulted in the identification of a number (approx. 13) of human burials (Kehoe 2003; Licence No. 02E1281). The site was recently added to the RMP as DU017-108.

No stray finds are recorded in the topographical files of the National Museum of Ireland from within the proposed development or its immediate environs.

Analysis of the available historic cartographic sources depicts the proposed development area as largely undisturbed agricultural greenfield throughout the post-medieval period. Analysis of aerial photography has indicated that this has remained the case throughout the 20th and early 21st centuries. Significant quarrying, initially associated with the construction of the Grand Canal, has taken place to the northeast of the proposed development, and structures associated with the quarries are depicted on historic OS maps immediately adjacent to the proposed development.

A field inspection has been carried out as part of this assessment and this confirmed the results of the desktop analysis. No additional area or sites of archaeological, architectural, or cultural heritage significance were identified. The archaeological areas identified within the proposed development area during 2021 possess no upstanding remains.

15.4 Characteristics of the Proposed Development

The proposed development will include the construction of:

- 6 no. studio/sound stage buildings (ranging between 2,950 sq. m and 3,832 sq. m gfa and totalling c. 22,200 sq. m gfa) comprising internal double height stages with overhead catwalks, 2-storey ancillary production offices including office space, plant and switch rooms, toilets, ICT rooms and staff toilets (c. 35,131 sq. m);
- 4 no. single storey workshop buildings (c. 18,240 sq. m) comprising internal workshop areas, staff toilets and showers, ICT, plant, and switch rooms;
- 3-storey TV studio and welcome centre building (c.10,984 sq. m) comprising 3 no. TV studios and various supporting spaces at Ground Floor level including backstage shooting area, green rooms, hair and makeup rooms, production suites with ancillary offices, wardrobe, laundry room, vision dept, lighting dept, pro service, run and crew kit room, chief engineer office, studio manager office, scenic store, prop store, camera and grip room, lighting and electrical room, plant room, mechanical room, sound control rooms, vision rooms, recording rooms, guest holding areas, security offices, staff toilets and locker rooms; First Floor level to include standard dressing rooms, TV post production rooms, kitchen and crew area, toilets, mechanical/electrical room, technical offices, media store; Second Floor level to include star dressing rooms, toilets, TV post production rooms and outdoor balcony;
- 2 no. outdoor stage areas associated with the TV Studio and Welcome Centre;
- Dining Hall with ancillary theatre (c. 4,363 sq. m) comprising indoor and outdoor dining areas, kitchen, storage and mechanical rooms, toilets, 3 no. meeting rooms and a theatre;
- Standalone café (c. 94 sq. m)

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- 3 no. single storey production suite buildings (c.769 sq. m) comprising offices, conference room, kitchenette, communal areas, and toilets;
- 3-storey car parking deck to include 472 no car parking spaces with ancillary offices (c. 3,965 sq.m) refuse recycling area and rooftop plant; and
- Site landscaping to include:
    - an amenity walkway and biodiversity area along the northern boundary of the site;
    - public realm and planting areas in the vicinity of the welcome centre and production suite offices;
    - green roofs; and
    - boundary treatments.
- Hard standing to include backlot area and shooting lanes to facilitate outdoor filming;
- Provision of an Electrical Substation;
- Provision of primary and secondary gate houses;
- Provision of surface car parking & HGV parking area;
- Provision of a waste collection area adjacent to the proposed backlot;
- Provision of rooftop PV panels (Workshops A and B)
- All associated site development works, drainage and services provision, boundary treatments (including security fencing), and associated works.

15.5 Potential Impacts of the Proposed Project

15.5.1 Construction Phase

Archaeological Heritage

No recorded archaeological monuments will be impacted by the construction of the proposed development.

AA1-5 were identified within the proposed development area during archaeological test trenching (Licence No. 20E0486) in 2021. All five areas will be directly, permanently, and negatively impacted upon by the construction of the proposed development, being located within the footprint of the proposed buildings and roadway. Impacts, prior to the application of mitigation, are significant.

It is possible that small or isolated archaeological remains have the potential to survive beneath the current ground level, outside of the footprint of the excavated test trenches. Ground disturbances associated with the construction of the development have the potential to directly and negatively impact on any such remains. Impacts have the potential to range from moderate to very significant, dependant on the nature, extent, and significance of any remain that may be present.

Cultural Heritage

The site of two townland boundaries crosses the proposed development area.. Ground disturbances associated with the proposed development will directly and negative impact on the buried remains of these boundaries. The impact is moderate negative.

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Architectural Heritage

No impacts upon the architectural heritage resource are predicted as a result of the construction of the proposed development.

15.5.2 Operational Phase

Archaeological Heritage

No impacts upon the archaeological resource are predicted as a result of the operation of the proposed development.

Cultural Heritage

The development is set back from the edge of the mature boundary that flanks the Grand Canal (between 58m and 80m), located to the north of the site. A green space will be established as part of the development in this area, including planting. The introduction of a media park will result in indirect negative impacts on the canal, as a heritage feature in what is currently a rural setting. The existing vegetation between the canal and the development will be retained but the impact on the setting of the heritage feature over the short-term will be indirect negative slight reducing to imperceptible over the long-term (following the establishment of landscape planting.

Architectural Heritage

No impacts upon the architectural heritage resource are predicted as a result of the operation of the proposed development. The setting of Gollierstown Bridge (c. 400m to the east) will remain unaffected by the development.

15.6 Mitigation Measures

15.6.1 Construction Phase

Archaeological Heritage

It is acknowledged that that preservation in-situ is the preferred method for the conservation of archaeological remains. With regards to AA1-5, it is not possible to preserve the remains in-situ due to the ground disturbance required for the development, including the construction of buildings and infrastructure. Therefore, AA1-5 will be preserved by record prior to the commencement of construction. This will be carried out under licence to the National Monuments Service of the DoHLGH.

All topsoil stripping within the proposed development area will be subject to archaeological monitoring during construction. This will be carried out by a suitably qualified archaeologist. If any features of archaeological significance are identified, consultation with the National

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Monuments Service of the DoHLGH will be required in order to determine whether preservation by record or in-situ is the most appropriate manner in which to proceed.

Cultural Heritage

During the course of monitoring topsoil stripping, the site of the townland boundaries crossing the development area will be recorded as part of the overall monitoring exercise. Sections of these boundaries will survive beyond the extent of the development area, preserving evidence of their form and construction.

Architectural Heritage

No mitigation is required.

15.6.2 Operational Phase

No mitigation is required for the archaeological, architectural, or cultural heritage resource at operational phase.

15.7 Residual Impacts

15.7.1 Archaeological Heritage

Following the completion of mitigation measures, there will be no significant residual impacts upon the archaeological resource.

15.7.2 Cultural Heritage

Following the completion of mitigation measures, there will be no significant residual impacts upon the cultural heritage resource.

15.7.3 Architectural Heritage

Following the completion of mitigation measures, there will be no significant residual impacts upon the architectural resource.

15.8 Monitoring

The mitigation measures detailed above would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted impacts and the effectiveness of the mitigation measures.

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15.9 Reinstatement

Not applicable.

15.10 Interactions

No interactions have been identified during the course of this assessment.

15.11 Cumulative Impacts

All permitted and proposed developments within the study area have been reviewed. As any archaeological remains within the proposed development area will be preserved by record no cumulative impacts have been identified. Similarly, no cumulative impacts have been identified upon the cultural heritage or architectural heritage resource.

15.12 'Do-Nothing' Effect

If the proposed development was not to proceed, there would be no impacts upon the archaeological, architectural, or cultural heritage resource.

15.13 Difficulties Encountered in Compiling the Chapter

No difficulties were encountered during the compilation of this chapter.

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ELECTRONIC SOURCES

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www.heritagemaps.ie – The Heritage Council web-based spatial data viewer which focuses on the built, cultural, and natural heritage.

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Appendices

APPENDIX 15.1: ARCHAEOLOGICAL TESTING REPORT

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APPENDIX 15.2: LEGISLATION PROTECTING THE ARCHAEOLOGICAL RESOURCE

PROTECTION OF CULTURAL HERITAGE

The cultural heritage in Ireland is safeguarded through national and international policy designed to secure the protection of the cultural heritage resource to the fullest possible extent (Department of Arts, Heritage, Gaeltacht, and the Islands 1999, 35). This is undertaken in accordance with the provisions of the *European Convention on the Protection of the Archaeological Heritage* (Valletta Convention), ratified by Ireland in 1997.

THE ARCHAEOLOGICAL RESOURCE

The *National Monuments Act 1930 to 2014* and relevant provisions of the *National Cultural Institutions Act* 1997 are the primary means of ensuring the satisfactory protection of archaeological remains, which includes all man-made structures of whatever form or date except habitually used for ecclesiastical purposes. A National Monument is described as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto' (National Monuments Act 1930 Section 2). A number of mechanisms under the National Monuments Act are applied to secure the protection of archaeological monuments. These include the Register of Historic Monuments, the Record of Monuments and Places, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

OWNERSHIP AND GUARDIANSHIP OF NATIONAL MONUMENTS

The Minister may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

REGISTER OF HISTORIC MONUMENTS

Section 5 of the 1987 Act requires the Minister to establish and maintain a Register of Historic Monuments. Historic monuments and archaeological areas present on the register are afforded statutory protection under the 1987 Act. Any interference with sites recorded on the register is illegal without the permission of the Minister. Two months' notice in writing is required prior to any work being undertaken on or in the vicinity of a registered monument. The register also includes sites under Preservation Orders and Temporary Preservation Orders. All registered monuments are included in the Record of Monuments and Places.

PRESERVATION ORDERS AND TEMPORARY PRESERVATION ORDERS

Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal.

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Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

RECORD OF MONUMENTS AND PLACES

Section 12(1) of the 1994 Act requires the Minister for Arts, Heritage, Gaeltacht, and the Islands (now the Minister for the Department of Housing, Local Government and Heritage) to establish and maintain a record of monuments and places where the Minister believes that such monuments exist. The record comprises a list of monuments and relevant places and a map/s showing each monument and relevant place in respect of each county in the state. All sites recorded on the Record of Monuments and Places receive statutory protection under the National Monuments Act 1994. All recorded monuments on the proposed development site are represented on the accompanying maps.

Section 12(3) of the 1994 Act provides that 'where the owner or occupier (other than the Minister for Arts, Heritage, Gaeltacht and the Islands) of a monument or place included in the Record, or any other person, proposes to carry out, or to cause or permit the carrying out of, any work at or in relation to such a monument or place, he or she shall give notice in writing to the Minister of Arts, Heritage, Gaeltacht and the Islands to carry out work and shall not, except in case of urgent necessity and with the consent of the Minister, commence the work until two months after giving of notice'.

Under the National Monuments (Amendment) Act 2004, anyone who demolishes or in any way interferes with a recorded site is liable to a fine not exceeding €3,000 or imprisonment for up to 6 months. On summary conviction and on conviction of indictment, a fine not exceeding €10,000 or imprisonment for up to 5 years is the penalty. In addition, they are liable for costs for the repair of the damage caused.

In addition to this, under the *European Communities (Environmental Impact Assessment) Regulations 1989*, Environmental Impact Statements (EIS) are required for various classes and sizes of development project to assess the impact the proposed development will have on the existing environment, which includes the cultural, archaeological, and built heritage resources. These document's recommendations are typically incorporated into the conditions under which the proposed development must proceed, and thus offer an additional layer of protection for monuments which have not been listed on the RMP.

THE PLANNING AND DEVELOPMENT ACT 2000

Under planning legislation, each local authority is obliged to draw up a Development Plan setting out their aims and policies with regard to the growth of the area over a five-year period. They cover a range of issues including archaeology and built heritage, setting out their policies and objectives with regard to the protection and enhancement of both. These policies can vary from county to county. The Planning and Development Act 2000 recognises that proper planning and sustainable development includes the protection of the archaeological heritage. Conditions relating to archaeology may be attached to individual planning permissions.

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South Dublin County Council Development Plan 2022-2028

South County Dublin contains a large number of buildings, structures, and sites of architectural, historic and/or artistic importance, in addition to numerous archaeological sites. This significant archaeological and architectural heritage is a valuable resource adding to the historical and cultural character of the County. The Development Plan contains policies which are intended to ensure the protection of this heritage. Village Design Statements can be utilised as a tool to guide development in smaller centres. It should be noted that archaeological sites and archaeological zones of interest are identified by a recorded monument reference number on the land use zoning maps. The recorded monument reference numbers are taken from the Record of Monuments and Places for Dublin, published by Department of the Environment, Heritage, and Local Government.

Policy NCBH13: Archaeological Heritage

Manage development in a manner that protects and conserves the Archaeological Heritage of the County and avoids adverse impacts on sites, monuments, features, or objects of significant historical or archaeological interest.

NCBH13 Objective 1:

To favour the preservation in-situ of all sites, monuments, and features of significant historical or archaeological interest in accordance with the recommendations of the Framework and Principles for the Protection of Archaeological Heritage, DAHGI (1999), or any superseding national policy document.

NCB13 Objective 2:

To ensure that development is designed to avoid impacting on archaeological heritage including previously unknown sites, features, and objects.

NCBH13 Objective 3:

To protect and enhance sites listed in the Record of Monuments and Places and ensure that development in the vicinity of a Recorded Monument or Area of Archaeological Potential does not detract from the setting of the site, monument, feature, or object and is sited and designed appropriately.

NCBH13 Objective 4:

To protect and preserve the archaeological value of underwater archaeological sites including associated features and any discovered battlefield sites of significant archaeological potential within the County.

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NCBH13 Objective 5:

To protect historical burial grounds within South Dublin County and encourage their maintenance in accordance with conservation principles.

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APPENDIX 15.3: LEGISLATION PROTECTING THE ARCHITECTURAL RESOURCE

The main laws protecting the built heritage are the *Architectural Heritage (National Inventory)* and National Monuments (Miscellaneous Provisions) Act 1999 and the Local Government (Planning and Development) Acts 1963–1999, which has now been superseded by the Planning and Development Act, 2000. The Architectural Heritage Act requires the Minister to establish a survey to identify, record and assess the architectural heritage of the country. The background to this legislation derives from Article 2 of the 1985 Convention for the Protection of Architectural Heritage (Granada Convention). This states that:

> *For the purpose of precise identification of the monuments, groups of structures and sites to be protected, each member state will undertake to maintain inventories of that architectural heritage.*

The National Inventory of Architectural Heritage (NIAH) was established in 1990 to fulfil Ireland's obligation under the Granada Convention, through the establishment and maintenance of a central record, documenting and evaluating the architecture of Ireland (NIAH Handbook 2005:2). As inclusion in the inventory does not provide statutory protection, the survey information is used in conjunction with the *Architectural Heritage Protection Guidelines for Planning Authorities* to advise local authorities on compilation of a Record of Protected Structures as required by the *Planning and Development Act, 2000.*

PROTECTION UNDER THE RECORD OF PROTECTED STRUCTURES AND COUNTY DEVELOPMENT PLAN

Structures of architectural, cultural, social, scientific, historical, technical, or archaeological interest can be protected under the Planning and Development Act, 2000, where the conditions relating to the protection of the architectural heritage are set out in Part IV of the act. This act superseded the Local Government (Planning and Development) Act, 1999, and came into force on 1st January 2000.

The act provides for the inclusion of Protected Structures into the planning authorities' development plans and sets out statutory regulations regarding works affecting such structures. Under new legislation, no distinction is made between buildings formerly classified under development plans as List 1 and List 2. Such buildings are now all regarded as 'Protected Structures' and enjoy equal statutory protection. Under the act the entire structure is protected, including a structure's interior, exterior, attendant grounds and also any structures within the attendant grounds.

The act defines a Protected Structure as (a) a structure, or (b) a specified part of a structure which is included in a Record of Protected Structures (RPS), and, where that record so indicates, includes any specified feature which is in the attendant grounds of the structure, and which would not otherwise be included in this definition. Protection of the structure, or part thereof, includes conservation, preservation, and improvement compatible with maintaining its character and interest. Part IV of the act deals with architectural heritage, and Section 57 deals specifically with works affecting the character of Protected Structures or proposed Protected Structures and states that no works should materially affect the character of the structure or any element of the structure that contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social, or technical interest. The act does not provide specific criteria for assigning a special interest to a structure. However, the National Inventory of Architectural Heritage (NIAH) offers guidelines to its field workers as to

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how to designate a building with a special interest, which are not mutually exclusive. This offers guidance by example rather than by definition:

Archaeological

It is to be noted that the NIAH is biased towards post-1700 structures. Structures that have archaeological features may be recorded, providing the archaeological features are incorporated within post-1700 elements. Industrial fabric is considered to have technical significance and should only be attributed archaeological significance if the structure has pre-1700 features.

Architectural

A structure may be considered of special architectural interest under the following criteria:

- Good quality or well executed architectural design
- The work of a known and distinguished architect, engineer, designer, craftsman
- A structure that makes a positive contribution to a setting, such as a streetscape or rural setting
- Modest or vernacular structures may be considered to be of architectural interest, as they are part of the history of the built heritage of Ireland.
- Well-designed decorative features, externally and/or internally

Historical

A structure may be considered of special historical interest under the following criteria:

- A significant historical event associated with the structure
- An association with a significant historical figure
- Has a known interesting and/or unusual change of use, e.g. a former workhouse now in use as a hotel
- A memorial to a historical event.

Technical

A structure may be considered of special technical interest under the following criteria:

- Incorporates building materials of particular interest, i.e. the materials or the technology used for construction
- It is the work of a known or distinguished engineer
- Incorporates innovative engineering design, e.g. bridges, canals, or mill weirs
- A structure which has an architectural interest may also merit a technical interest due to the structural techniques used in its construction, e.g. a curvilinear glasshouse, early use of concrete, cast-iron prefabrication.
- Mechanical fixtures relating to a structure may be considered of technical significance.

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Cultural

A structure may be considered of special cultural interest under the following criteria:

- An association with a known fictitious character or event, e.g. Sandycove Martello Tower, which featured in Ulysses.
- Other structure that illustrate the development of society, such as early schoolhouses, swimming baths or printworks.

Scientific

A structure may be considered of special scientific interest under the following criteria:

- A structure or place which is considered to be an extraordinary or pioneering scientific or technical achievement in the Irish context, e.g. Mizen Head Bridge, Birr Telescope.

Social

A structure may be considered of special social interest under the following criteria:

- A focal point of spiritual, political, national, or other cultural sentiment to a group of people, e.g. a place of worship, a meeting point, assembly rooms.
- Developed or constructed by a community or organisation, e.g. the construction of the railways or the building of a church through the patronage of the local community
- Illustrates a particular lifestyle, philosophy, or social condition of the past, e.g. the hierarchical accommodation in a country house, philanthropic housing, vernacular structures.

Artistic

A structure may be considered of special artistic interest under the following criteria:

- Work of a skilled craftsman or artist, e.g. plasterwork, wrought-iron work, carved elements or details, stained glass, stations of the cross.
- Well-designed mass-produced structures or elements may also be considered of artistic interest.

From the NIAH Handbook 2003 & 2005 pages 15–20)

The Local Authority has the power to order conservation and restoration works to be undertaken by the owner of the protected structure if it considers the building to need repair. Similarly, an owner or developer must make a written request to the Local Authority to carry out any works on a protected structure and its environs, which will be reviewed within three months of application. Failure to do so may result in prosecution.

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South Dublin County Council Development Plan 2022-2028

It is the Policy of Dublin City Council:

Policy NCBH19:

Protected Structures Conserve and protect buildings, structures and sites contained in the Record of Protected Structures and carefully consider any proposals for development that would affect the setting, special character or appearance of a Protected Structure including its historic curtilage, both directly and indirectly.

Objective 1: To ensure the protection of all structures (or parts of structures) and their immediate surroundings including the curtilage and attendant grounds of structures identified in the Record of Protected Structures.

Objective 2: To ensure that all development proposals that affect a Protected Structure and its setting including proposals to extend, alter or refurbish any Protected Structure are sympathetic to its special character and integrity and are appropriate in terms of architectural treatment, character, scale, and form. All such proposals shall be consistent with the Architectural Heritage Protection Guidelines for Planning Authorities, DAHG (2011 or any superseding documents) including the principles of conservation.

Objective 3: To address dereliction and to welcome, encourage and support the rehabilitation, renovation, appropriate use and sensitive re-use of Protected Structures consistent with RPO 9.30 of the RSES.

Objective 4: To support alternative uses for Protected Structures including former institutional sites in order to provide continued security of the heritage value of these buildings, attendant grounds, and associated landscape features. To this end, the relaxation of site zoning restrictions may be considered in order to secure the preservation and conservation of the protected structure where the use proposed is compatible with the existing structure and where the proposed development is consistent with best practice conservation policies and the proper planning and sustainable development of the area.

Objective 5: To prohibit demolition and inappropriate alterations of Protected Structures unless in very exceptional circumstances.

Objective 6: To ensure that any works to upgrade the energy efficiency of Protected Structures and historic buildings are sensitive to traditional construction methods and materials and do not have a detrimental physical or visual impact on the structure. Regard should be had to the DAHG publication 'Energy Efficiency in Traditional Buildings' (2010).

Objective 7: To review the National Inventory of Architectural Heritage (NIAH) and update the Record of Protected Structures in accordance with any direct Ministerial recommendations.

Objective 8: To support the restoration of the Mill Race (RPS Ref. 007), recognising that it is in private ownership, from where it leaves the Liffey at Fonthill to where it enters the Mills area at Palmerstown having regard to the potential for biodiversity enhancements.

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Objective 9: To investigate the merit of including the following on the Record of Protected Structures and where such merit is identified to undertake the necessary public consultation process under the Planning and Development Acts:

à Palmyra House, Whitechurch Road, Rathfarnham, Dublin 16. à Friarstown House and outbuildings, Bohernabreena, Co. Dublin D24 F890. à SIAC Bridge, Monastery Road, Clondalkin, Dublin 22. à Old Milestone on north-west side of Templeogue Road Set in front of the modern boundary wall of No. 211 Templeogue Road, Dublin 6W. à Fort (or Callaghan's) Bridge, Kiltipper / Friarstown Upper / Ballinascorney Lower, Dublin 24. à Granite Boundary Stone outside Nos. 50 / 52, Whitehall Road, Dublin 12. à Road sign Bothair An Racadair, Whitehall Road.

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16.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

16.1 Introduction

Murray and Associates were engaged to complete a Landscape and Visual Impact Assessment for a proposed media Park development at Grangecastle, on behalf of Lens Media Ltd.

16.1.1 Statement of Authority

The report was completed by Mr John Ward (B. Agr, Sc. (L. Hort) MLArch, MILI). John has been in practice since 1993 and is Principal landscape architect at Murray & Associates. He holds a master's degree in landscape architecture from University College Dublin (1993) and is a full Corporate Member of The Irish Landscape Institute. The landscape and visual assessment of the proposed development is a means of appraising the effect that the proposed development would have on the receiving environment in terms of the quality of landscape – both physically and visually. Also considered are construction and demolition works, light emissions and any other relevant landscape and visual factors.

16.1.2 Development Overview

The proposed site abuts the Grand Canal, approximately 6km to the West of Clondalkin,4.5km South-West of Lucan and 3.5km East of Celbridge. Figure 1. Shows the site in relation to the wider context of Dublin, Kildare and Meath, Figure 2. Shows the site and its surrounding/local context whilst figure 3. Depicts the sites extents in relation to its immediate context.

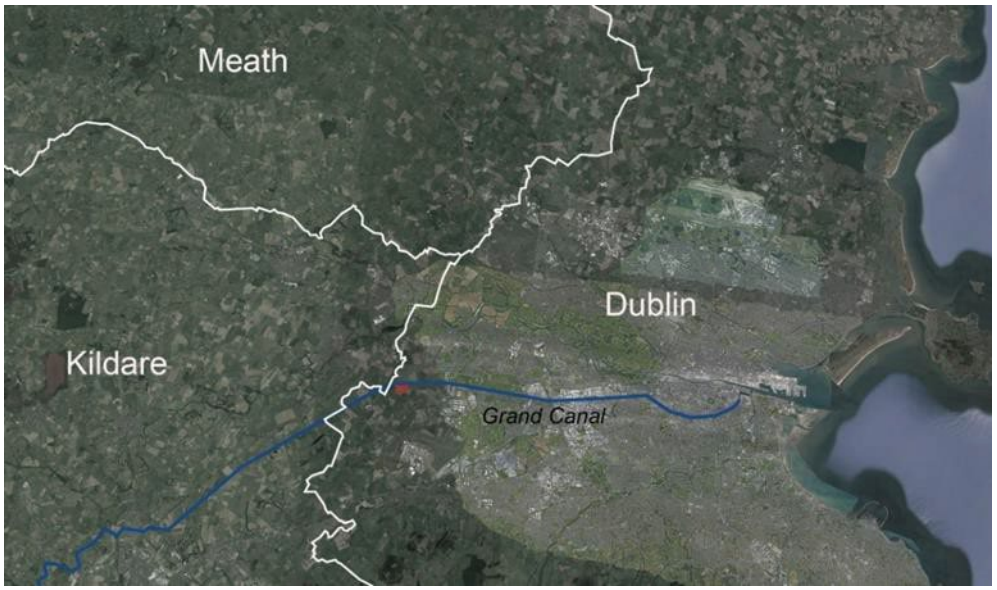

Figure 16.1: Site and wider context.

Figure 16.2: Site and Local Context.

Figure 16.3: Site and Immediate Surrounds.

16.1.3 Methodology

Legislation, Policy and Guidelines

The following sources were used to inform and structure this report:

- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

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- The National Landscape Strategy (NLS) for Ireland 2015-2025.
- Guidelines on the information to be contained in Environmental Impact Assessment Reports, Environmental Protection Agency (2022 (EPA Guidelines 2022)).
- Draft Advice Notes for Preparing Environmental Impact Statements (EPA, 2015).
- Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the Landscape Institute.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, 2018, published by the Department of Housing, Planning and Local Government.
- Technical Information Note on Townscape Character Assessment, 2016, published by the Landscape Institute.
- Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19, published by the Landscape Institute.
- Transport Infrastructure Ireland Publication no. PE-ENV-01101, published December 2020: Landscape Character Assessment (LCA) and Landscape and Visual Impact Assessment (LVIA) of Specified Infrastructure Projects - Overarching Technical Document

Study Methodology

Landscape impacts are defined as changes in the fabric, character, and quality of the landscape as a result of the development (*Guidelines for Landscape and Visual Impact Assessment* - 3rd Edition, by the Landscape Institute / Institute of Environmental Assessment published by E&FN Spon, 2013). This includes direct impacts to landscape receptors and greater effects that can alter the wider distinctiveness of the landscape. Landscape receptors are physical or natural resources, special interest or viewer group that will experience an impact. The sensitivity (of a landscape receptor) is the vulnerability to change. The extent of the landscape impacts has been assessed by professional evaluation using the terminology defined as per Tables 1, 2, 3, and 4.

The terminology in the following tables is based on the criteria set down in the Guidelines for Landscape and Visual Impact Assessment (3rd Edition, by the Landscape Institute / Institute of Environmental Assessment published by E&FN Spon, 2013). Landscape impacts are assumed to be permanent. This report also has regard to the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018), and Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).

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Extent	Description
Level 1 Imperceptible Effects	An effect capable of measurement but without noticeable consequences. There are no noticeable changes to landscape context, character, or features.
Level 2 Not significant	An effect which causes noticeable changes in the character of the landscape but without noticeable consequences. There are no appreciable changes to landscape context, character, or features.
Level 3 Slight Effects	An effect which causes noticeable changes in the character of the landscape without affecting its sensitivities. There are minor changes over a small proportion of the area or moderate changes in a localised area or changes that are reparable over time.
Level 4 Moderate Effects	An effect that alters the character of the landscape in a manner that is consistent with existing and emerging trends. There are minor changes over some of the area (up to 30%) or moderate changes in a localised area.
Level 5 Significant Effects	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the landscape. There are notable changes in landscape characteristics over a substantial area (30-50%) or an intensive change over a more limited area.
Level 6 Very Significant Effects	An effect which, by its character, magnitude, duration, or intensity significantly alters the majority of a sensitive aspect of the environment. There are notable changes in landscape characteristics over a substantial area (50-70%) or a very intensive change over a more limited area.
Level 7 Profound Effects	An effect which obliterates sensitive characteristics. There are notable changes in landscape characteristics over an extensive area (70-100%) or a very intensive change over a more limited area.

Table 16.1: The Significance of Landscape Impact (based on ratings from the EPA Guidelines, 2022).

Visual impacts relate solely to changes in available views of the landscape and the effects of those changes on people viewing the landscape, or "the change in the appearance or view of the built or natural landscape and urban areas" as stated in Recital 16 of the EIA Directive. They include the direct impact of the development on views, the potential reaction of viewers, their location and number and the impact on visual amenity. The intensity of the visual impacts is assessed by professional evaluation using the terminology defined as per the tables below.

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Extent	Description
Level 1 Imperceptible Effects	There are no noticeable changes to views in the visual landscape.
Level 2 Not significant	An effect which causes noticeable changes in the character of the visual environment but without noticeable consequences. The proposal is adequately screened due to the existing landform, vegetation, or constructed features.
Level 3 Slight Effects	An effect which causes noticeable changes in the character of the visual environment without affecting its sensitivities. The affected view forms only a small element in the overall visual composition or changes the view in a marginal manner.
Level 4 Moderate Effects	An effect that alters the character of the visual environment in a manner that is consistent with existing and emerging trends. The proposal affects an appreciable segment of the overall visual composition, or there is an intrusion in the foreground of a view.
Level 5 Significant Effects	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the visual environment. The proposal affects a large proportion of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Level 6 Very Significant Effects	An effect which, by its character, magnitude, duration, or intensity significantly alters the majority of a sensitive aspect of the visual environment. The proposal affects the majority of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Level 7 Profound Effects	An effect which obliterates sensitive characteristics. The view is entirely altered, obscured, or affected.

Table 16.2: Significance of Visual Effect (based on ratings from the EPA Guidelines, 2022)

Extent	Description
Neutral Effect	Neither detracts from nor enhances the landscape of the receiving environment or view
Positive Effect	Improves or enhances the landscape of the receiving environment or a particular view
Negative Effect	Detracts from the quality of the landscape or view

Table 16.3: Quality of the Landscape and Visual Impact (EPA Guidelines 2022).

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Extent	Description
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting one year or less
Short-term	Effects lasting one to seven years
Medium-term	Effects lasting seven to fifteen years
Long-term	Effects lasting fifteen to sixty years
Permanent Effects	Effects lasting over sixty years.
Reversible Effects	Effects that can be undone, for example through remediation or restoration.

Table 16.4: The Duration of Landscape and Visual Effects (EPA Guidelines 2022).

Extent	Describes the size of the area, the number of sites and the proportion of a population affected by an effect
Content	Describes whether the extent, duration or frequency conforms or contrasts with established conditions

Table 16.5: The Extent and Context of Effects (EPA Guidelines 2022).

Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Table 16.6: The Probability of Effects (EPA Guidelines 2022).

The landscape and visual assessment methodology will be utilized in conjunction with a professional evaluation of the proposed development to determine the degree of impact.

The term 'study area' as used in this report refers to the site itself (i.e. the extent of the planning application) and its wider landscape context in the study of the context, physical landscape, and landscape character. This may extend for approximately 1km or more in all directions from the site in order to achieve an understanding of the overall landscape. In terms of the visual assessment, the study of visual amenity may extend outside the study area, from areas where views of the site are available, but the majority of visual impacts for a development of this nature would be most likely within the local context, as this landscape is relatively flat and enclosed. Please see Figures 1, 2 and 3 for diagrams indicating the site and study area.

The methodology employed in the landscape and visual impact assessment is as follows:

- Identifying Baseline Conditions: Desktop survey of detailed maps, aerial photography, and other information relevant to the study area.
- Characterizing the Landscape & Identifying Sensitive Receptors: Site survey and photographic survey to determine landscape character of the general study area and specific landscape of the site and to identify the sensitivity of receptors that have potential to be affected by changes in the baseline conditions.

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- Predicting the Magnitude of Likely Changes to the Baseline Landscape & Visual Environment: In determining visibility, the views to and from the proposed development areas are considered based on the heights, finishes, design and other visual characteristics of the proposed structures and setting. Verified Photomontages have been prepared by a specialist 3-D Visualizations company to represent selected views which are typical of the views within the area and are intended to demonstrate the scale of the buildings in the wider landscape. The extent of visual effects of the proposed development on the built environment is demonstrated through a selection of representative view locations around the proposed development. The photomontages on which the following assessments is based are provided in the CGIs and Verified Views brochure issued by Macroworks.
- Assessing the Significance of Effect Taking into Account Sensitivity of Receptors and Magnitude of Effect: Assessment of the potential significant impacts of the proposed scheme utilizing the plan and elevation drawings of the scheme and Verified Views to determine the main impacting features and the degree to which these elements would be visible in relation to the baseline environment.
- Identifying and assessing appropriate mitigation measures, including alternatives: A scheme of mitigation measures is proposed, where relevant. These will be defined as measures which will be generally implemented and specific landscape measures which would be site-specific and address particular landscape or visual issues identified.
- Assessing the significance of residual effects, taking account of any mitigation measures: For the purposes of assessment the predicted visual effects of the scheme are assumed at 10 years following the completion of the proposed development.

Specific Considerations from the EPA Guidance 2022

The EPA Guidance 2022 suggests that the following should be considered in Landscape and Visual Assessment, and these are considered in the assessment where relevant:

Visual Effects:

Context

- Character
- Significance
- Sensitivity
- Views & Prospects

Landscape Amenity:

- Public access
- Public amenities
- Recreation
- Tourism

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The Landscape:

- Landscape Appearance and Character
- Landscape Context
- Historical Landscapes.

16.1.4 Terminology

Landscape impacts are defined as changes in the fabric, character, and quality of the landscape as a result of the development. This includes direct effects on landscape receptors and greater effects that can alter the wider distinctiveness of the landscape. Landscape receptors are the physical or natural resource, special interest or viewer group that will experience an impact. The sensitivity of a landscape receptor is its vulnerability to change.

The extents of landscape effects are assessed by firstly establishing the baseline conditions by classifying baseline data according to its importance and sensitivity as per Table 8. Secondly, evaluation of the landscape impact on the baseline environment using the terminology defined in Tables 1, 3 and 4.

The UK Landscape institutes *technical information Note Townscape Character Assessment* recommends that where a proposed development Is within or dominated by built elements that the term 'Townscape' is used instead of 'Landscape'. The subject site is located on the outer edge of lands zoned for commercial development with the land to the West and North designated for rural amenity and agriculture.

Significance and Sensitivity of the Local Landscape and Visual Amenities

In landscape and visual assessments, one of the key factors is the sensitivity of a landscape to change, where the proposed development will inevitably result in adding a new element to the landscape. The publication *Guidelines for Landscape and Visual Impact Assessment* (2013) defines sensitivity as: *"A term applied to specific receptors, combining judgments of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor."*

Sensitivity refers to the inherent sensitivity to change of the landscape resource, as well as the visual sensitivity in terms of views, visibility, number and nature of viewers and scope to mitigate visual impact.

During the initial research and evaluation of the suitability of the subject site for the development, a typology was developed based on the fieldwork and research into the site. These categories will help to identify the sensitivity of the existing receptors.

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Landscape Typology/Receptors	Category
ACA and/or Urban Landscape associated with listed or protected buildings	IV
Key Public Urban Spaces/ Historic Character Street/ Local Parks/ Tourist Attractions/Routes, Mature trees in the public realm, Local Landmark	III
Local Streets, Residential landscapes	II
Degraded urban townscapes/ streetscapes, Arterial Roads	I
A low-quality landscape, e.g. Industrial landscape, etc.	Not sensitive

Table 16.7: Baseline Evaluation – Sensitivity of Landscape Receptor (developed by the author for the proposed development with reference to fieldwork and research).

Receptor	Category
Listed Views in Relevant Planning Documents	IV
Views from Key Public Urban Spaces	III
Good quality / extensive views from listed buildings, within 50m	II
Local receptors within 100m of the site (residential properties, nursing homes, residential care units, schools, cemeteries, tourist accommodation, tourist facilities, parks) with direct views of the development	I
Publicly accessible viewpoints identified in the study with high-quality views or within a high-quality visual environment.	Not sensitive

Table 16.8: Baseline Evaluations – Sensitivity of Visual Receptors (developed by the author for the proposed development with reference to fieldwork and research).

The significance of effects can be measured as a function of the magnitude of change and the sensitivity of the receptor. This allows for the following Table to be compiled that act as a guide-point for the assessor. It is important to note that the assessor's professional judgement, common sense and experience are also factors in ascribing rational judgements for the significance of effects.

	Magnitude of Change				
Sensitivity	Very High	High	Medium	Low	No appreciable change
Very High (IV)	Profound	Very significant	Significant	Moderate	Slight
High (III)	Very Significant	Significant	Significant	Moderate	Slight
Medium (II)	Significant	Significant	Moderate	Slight	Not significant
Low (I)	Moderate	Moderate	Slight	Not Significant	Imperceptible
No sensitivity	Slight	Slight	Not significant	Imperceptible	Imperceptible

Table 16.9: Level of Impact resulting from Combination of Sensitivity Rating and Magnitude of Change.

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16.2 Planning Context

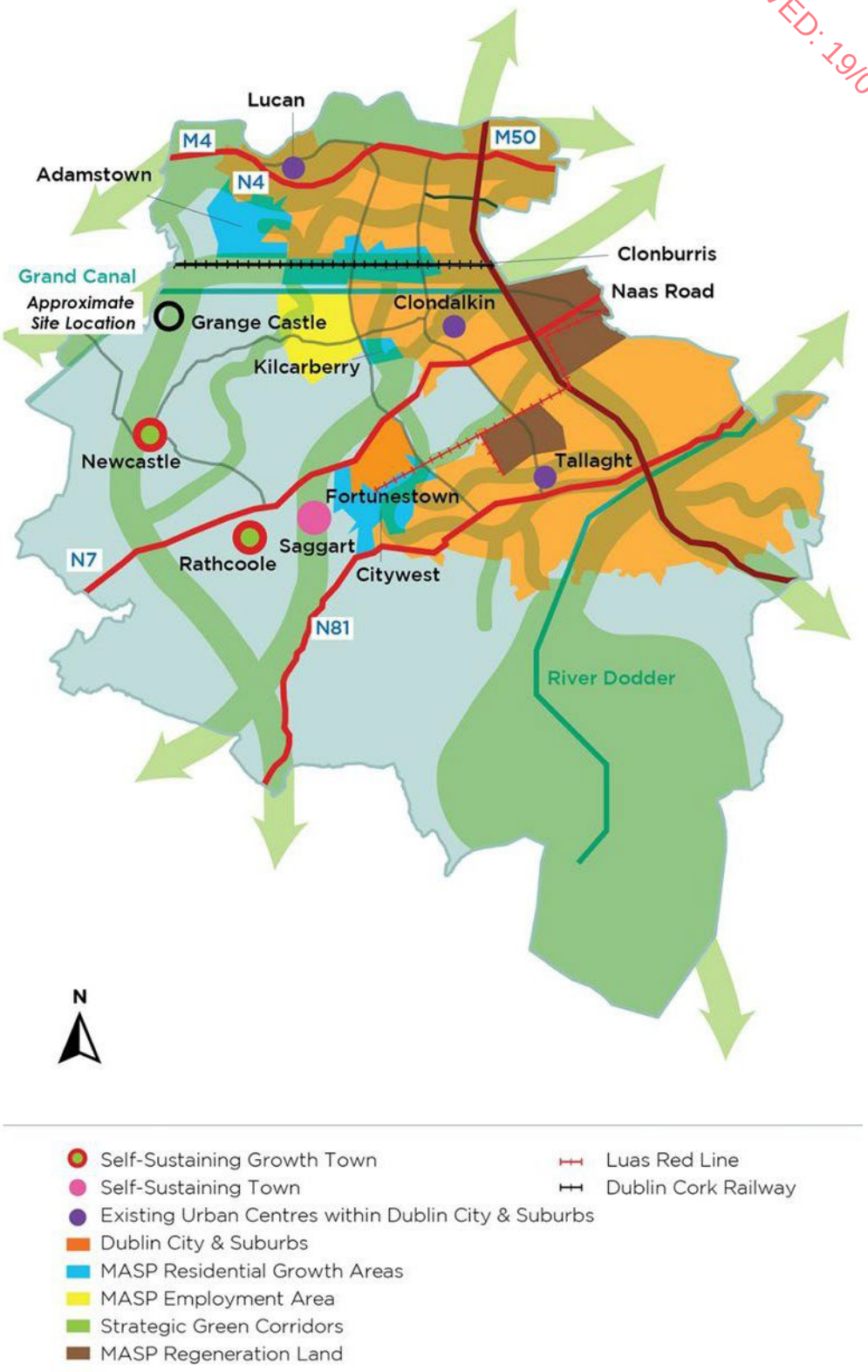

Figure 16.4: South Dublin County Core Strategy Map 2022-2028 with site location shown.

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16.2.1 South Dublin County Development Plan 2022-2028

Chapter 2: Core Strategy and Settlements

The proposed site at Grange Castle is located within an area of EE zoning. To provide for enterprise and employment related uses. SDCC's employment strategy is "*informed by an evidence-based approach which considers both existing land use zoning for employment purposes, and the requirement for additional employment lands based on population and employment growth assumptions".*

Relevant Policy:

- **Policy CS5: Lands for Employment***: Ensure that sufficient serviced lands continue to be available in the right place for employment generation over the lifetime of the Development Plan.*

Chapter 3: Natural, Cultural and Built Heritage

The proposed site is located alongside the Grand Canal, which is recognised as a Proposed Natural Heritage Area and acts as an important wildlife corridor within South Dublin County.

The protection of Habitats and Species Outside of Designated Areas states that**:**

"*A number of habitats and species listed in Annex 1 and Annex 2 of the Habitats Directive are also known to occur at locations outside of protected sites. Strict protection is afforded under Annex IV of the Habitats Directive to some of these species, for example all bat species and otter. The planning process will seek to protect rare and threatened species, including species protected by law and their habitats. Applicants must demonstrate that proposals will not have a significant adverse impact on such species and their habitats. The Planning Authority will take account of the views of the Prescribed Bodies and any licensing requirements in relation to protected species. Wildlife habitats that are not nationally designated may still be important at a county level by acting as Green Infrastructure stepping-stones within the wider ecological network. This is encapsulated by Article 10 of the Habitats Directive which encourages the management of features of the landscape which are of major importance for wild plant (flora) and animals (fauna) and which are essential for the migration and dispersal of species."*

Relevant Policy:

- **Policy NCBH5:** Protection of Habitats and Species Outside of Designated Areas Protect and promote the conservation of biodiversity outside of designated areas and ensure that species and habitats that are protected under the Wildlife Acts 1976 to 2018, the Birds Directive 1979 and the Habitats Directive 1992, the Flora (Protection) Order 2015, and wildlife corridors are adequately protected.

The SDCC Development plan states that the Grand Canal abutting the site to the North is *"an artificial linear waterway that hosts a rich variety of habitats and plant and animal species, including protected species. It acts as a direct national link and an ecological corridor between*

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the River Shannon and Dublin Bay and is a key element in South Dublin County's ecological and green infrastructure network".

- **Policy NCBH9:** To Protect and promote the Grand Canal as a key component of the County's Green Infrastructure and ecosystem services network, and protect and enhance the visual, recreational, environmental, ecological, industrial heritage and amenity value of the Grand Canal, recognising its sensitivities as a proposed Natural Heritage Area with adjacent wetlands and associated habitats.

- **NCBH9 Objective 1:** To protect and enhance the important biodiversity resource offered by the Grand Canal, recognising, and protecting the vital function that the Canal provides as a key corridor for habitats and wildlife from the River Shannon to Dublin Bay.

- **NCBH9 Objective 2:** To facilitate the appropriate development of the Grand Canal as a recreational route for walking, cycling, nature study and water-based activities including fishing, canal boating, rowing, paddle boarding and canoeing / kayaking, subject to environmental safeguards and assessments.

- **NCBH9 Objective 3:** To ensure that development along or adjacent to the Grand Canal contributes to the creation of an integrated network of appropriately designed walking and cycling routes connecting with the Grand Canal Way Green Route and which takes due cognisance of the sensitive nature of this national ecological corridor.

- **NCB9 Objective 4:** To ensure that development along and adjacent to the Grand Canal protects and incorporates natural heritage features including watercourses, wetlands, grasslands, woodlands, mature trees, hedgerows, and ditches and includes an appropriate set-back distance or buffer area from the pNHA boundary to facilitate protected species and biodiversity and a fully functioning Green Infrastructure network.

- **Policy NCBH14:** Landscapes Preserve and enhance the character of the County's landscapes, particularly areas that have been deemed to have a medium to high Landscape Value or medium to high Landscape Sensitivity and to ensure that landscape considerations are an important factor in the management of development.

Chapter 4: Green Infrastructure

The SDCC Development plan 2022-2028 presents a vision of "Promoting the development of an integrated GI network for South Dublin County working with and enhancing existing biodiversity and natural heritage, improving our resilience to climate change, and enabling the role of GI in delivering sustainable communities to provide environmental, economic, and social benefits.

Relevant Policy:

- **Policy GI1:** To Protect, enhance, and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing, and further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams that provide a shared space for amenity and

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recreation, biodiversity protection, water quality, flood management and adaptation to climate change.

- **GI1 Objective 4:** To require development to incorporate GI as an integral part of the design and layout concept for all development in the County including but not restricted to residential, commercial, and mixed use through the explicit identification of GI as part of a landscape plan, identifying environmental assets and including proposals which protect, manage, and enhance GI resources providing links to local and countywide GI networks.

- **GI1 Objective 5:** Continue to liaise with adjoining local authorities to ensure the protection and enhancement of cross county GI corridors.

- **Policy GI2:** Strengthen the existing Green Infrastructure (GI) network and ensure all new developments contribute towards GI, in order to protect and enhance biodiversity across the County as part of South Dublin County Council's commitment to the National Biodiversity Action Plan 2021-2025 and the South Dublin County Council Biodiversity Action Plan, 2020-2026, the National Planning Framework (NPF) and the Eastern and Midlands Region Spatial and Economic Strategy (RSES)

- **GI2 Objective 4:** To integrate GI, and include areas to be managed for biodiversity, as an essential component of all new developments in accordance with the requirements set out in Chapter 12: Implementation and Monitoring and the policies and objectives of this chapter.

Map Ref.	Prospect	Map Ref.	Prospect
1.	Athgoe Hill	10.	Piperstown Hill
2.	Bustyhill	11.	Glenasmole Valley
3.	Windmill Hill	12.	Cruagh Mountain
4.	Lugmore / Tallaght Hill	13	Kilakee Mountain
5.	Verschoyle's Hill	14.	Ballymorefinn Hill
6.	Mountpelier Hill	15.	Seahan Mountain
7.	Knockannavea	16.	Corrig Mountain
8.	Saggart Hill	17.	Seefingan Mountain
9.	Sliamh na mBánóg	18.	Kippure Mountain

Table 16.5: List of prospects to be protected and retained (Chapter 3 SDCC Development Plan 2022-2028).

Consideration has been given to whether the site, and the proposed development, might fall into any of the designated Key Views indicated in SDCC's development Plan.

As indicated in the map following. it is considered unlikely that the proposed development will feature in any of these views.

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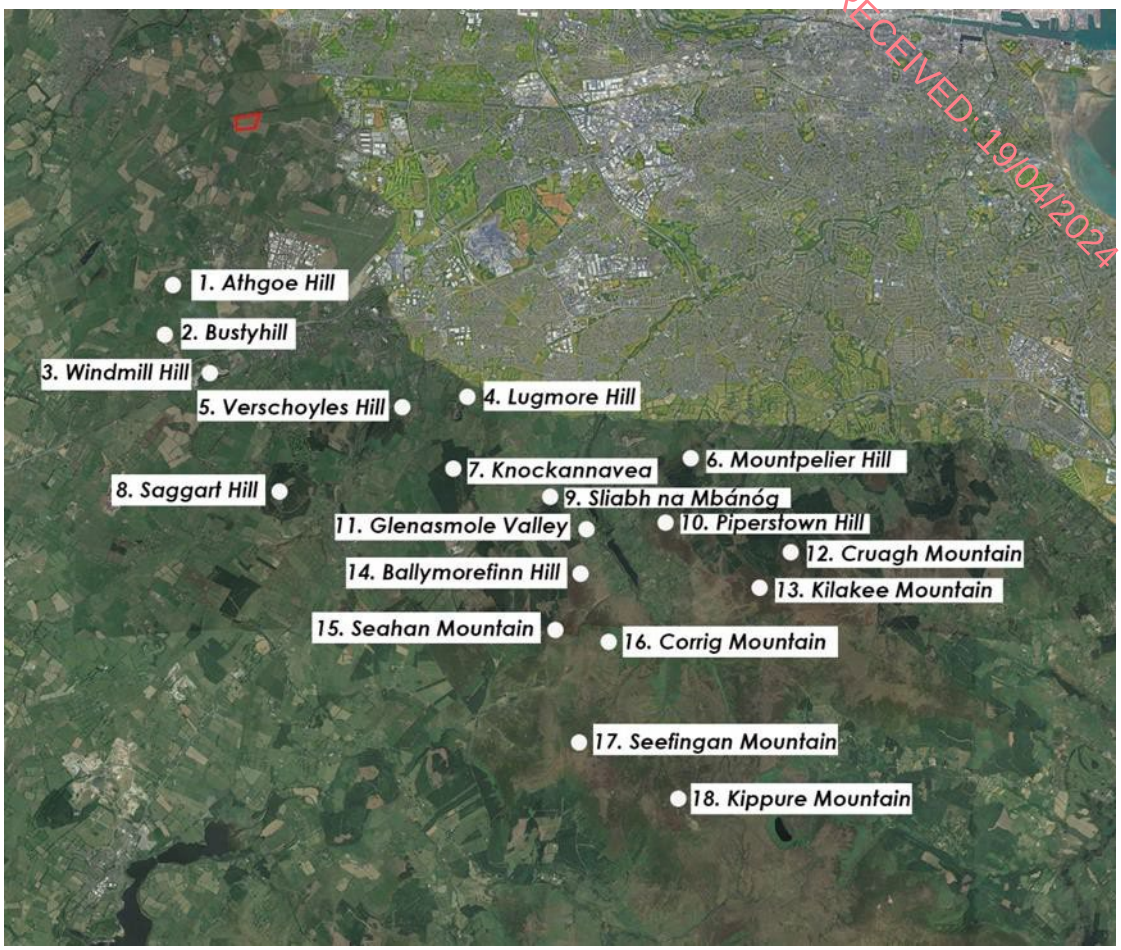

Figure 16.6: Map of protected views and prospects in relation to the site.

16.2.2 National Planning Framework (NPF) 2018

The NPF recommends a more flexible approach within planning policies and standards in relation to building height and parking provision.

NPO 11 favours development that encourages more people and generates more jobs and activity in existing urban areas.

NPO 13 promotes a performance-based approach to planning standards, and '*in particular building height'*, that '*seek to achieve well-designed high-quality outcomes in order to achieve targeted growth*'.

16.2.3 Urban Development and Building Heights 2018

With regard to demonstrating that the proposed development is an appropriate addition to the fabric of the surrounding area, the Guidelines set out the following criteria (appropriate extracts with regard to landscape and visual amenity):

At the scale of the relevant city/town

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- Development proposals incorporating increased building height, including proposals within architecturally sensitive areas, should successfully integrate into/ enhance the character and public realm of the area, having regard to topography, its cultural context, setting of key landmarks and protection of key views.

- On larger urban redevelopment sites, proposed developments should make a positive contribution to place-making, incorporating new streets and public spaces, using massing and height to achieve the required densities but with sufficient variety in scale and form to respond to the scale of adjoining developments and create visual interest in the streetscape.

At the scale of district/neighbourhood/street

- The proposal responds to its overall natural and built environment and makes a positive contribution to the urban neighbourhood and streetscape

- The proposal is not monolithic and avoids long, uninterrupted walls of building in the form of slab blocks with materials / building fabric well considered.

- The proposal enhances the urban design context for public spaces and key thoroughfares and inland waterway/ marine frontage, thereby enabling additional height in development form to be favourably considered in terms of enhancing a sense of scale and enclosure while being in line with the requirements of "The Planning System and Flood Risk Management – Guidelines for Planning Authorities" (2009).

- The proposal makes a positive contribution to the improvement of legibility through the site or wider urban area within which the development is situated and integrates in a cohesive manner.

- The proposal positively contributes to the mix of uses and/ or building/ dwelling typologies available in the neighbourhood.

16.2.4 Further Planning and Objectives

As previously outlined, the site lies along the Grand Canal which is a proposed NHA. Furthermore, the site is located at the junction of two important green infrastructure corridors as identified on SDCC's Green Infrastructure Strategy Map. Both corridors link into Kildare's GI Network with connections both along the canal and further south towards the Wicklow Mountains.

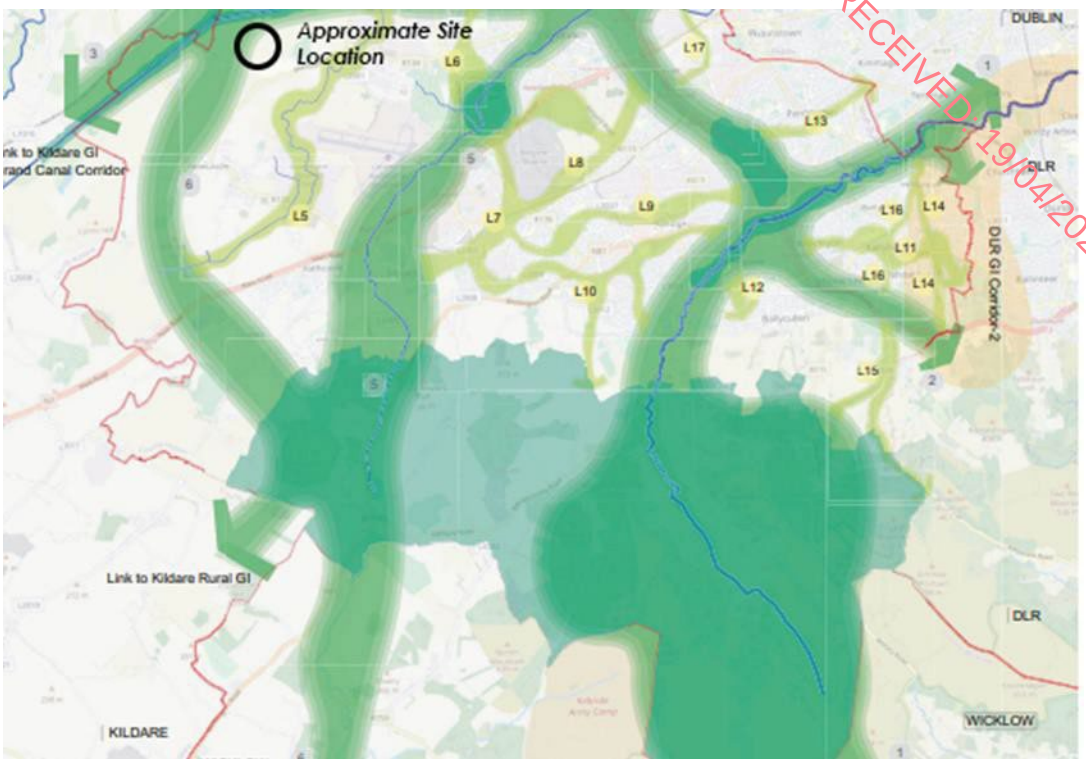

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Figure 16.7: SDCC Green Infrastructure map with site location shown.

16.3 Baseline Environment

In this section, the baseline landscape is described and classified. The various components of the landscape are considered and described, including adjacent structures and public spaces, urban fabric, topography, cultural landscape elements and the scenic quality of the study area.

The objective of this part of the assessment is to define a baseline of landscape and visual quality against which the effects of the development can be measured. The existing landscape is described from fieldwork and against the context of the relevant planning documents.

16.3.1 Existing Landscape Context and Character

The site of approximately 22.6 hectares is located in the townland of Brownstown, 3km Northwest of Clondalkin, and 4km southwest of Lucan. The Kildare Dublin border lies just west of the site with the Grand Canal sitting immediately North of the Redline boundary. Currently the site is comprised of open arable farming land and is devoid of vegetation except for a line of mature trees and hedgerow which runs directly along the canal. There are further existing trees to the East of the site and a small patch of woodland directly to the west however they both sit beyond the Redline Boundary.

Lands surrounding the site are of a similar character and development is dispersed with a low number of buildings or residences in the vicinity.

To the Southwest corner of the site there is a small cluster of agricultural buildings which directly address the site boundary and provide the primary means of access to the field.

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16.3.2 Existing Visual Context and Views

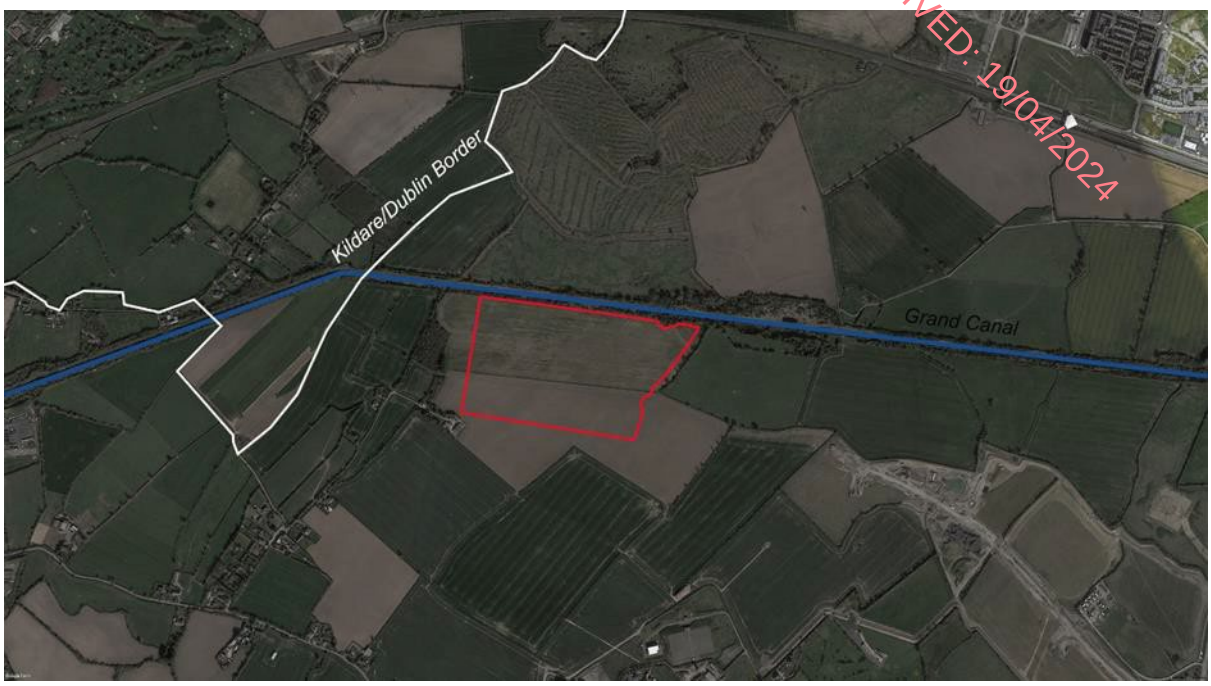

Figure 16.8: Site with Redline Boundary shown.

Visual

- Although the site is only densely screened by woodland and hedgerow on one side, the low-lying nature of its immediate surrounds and substantial setback from any major road connection mean it is not easily distinguishable within the wider landscape context.
- There are no protected views within the site area.
- To the North of the site where there is more prevalent infrastructure which includes the train line and Grand canal along with its pedestrian pathway. However, as previously alluded to this boundary of the site is delineated by existing mature tree planting and so the site is not easily visible from this orientation.

Landscape

- The current landscape is generally unremarkable in the context; typical of urban-rural fringe areas locally and regionally.
- The internal site landscape is comprised of arable farmland.
- The existing site presents as vacant greenfield land, with mature tree planting to the Northern boundary parallel to the canal and a small cluster of farm buildings to the south-west corner of the site.

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16.3.3 Characteristics of the Proposed Development

Figure 16.9: Site Masterplan.

Description of the Proposed Development

Lens Media Limited are seeking planning permission for the development of a Media Park at a 22.6 ha site located in the townlands of Coolscudden, Brownstown and Milltown, west of Grange Castle Business Park, Newcastle, County Dublin. The site is bounded by the Grand Canal to the north. The proposed development will include the removal of existing vegetation and walls in the southwestern corner of the site and construction of:

- 6 no. studio/sound stage buildings comprising internal double height stages with overhead catwalks, 2-storey ancillary production offices including office space, plant and switch rooms, toilets, ICT rooms and staff toilets (c. 35,187 sq. m).
- 4 no. single storey workshop buildings (totalling c. 18,244 sq. m) comprising internal workshop areas, staff toilets and showers, ICT, plant and switch rooms.
- 3-storey TV studio and reception building (c. 10,875sq. m) comprising 3 no. TV studios and various supporting spaces at Ground Floor level including backstage shooting area, green rooms, hair and makeup rooms, production suites with ancillary offices, wardrobe, laundry room, vision dept, lighting dept, pro service, run and crew kit room, chief engineer office, studio manager office, scenic store, props store, cameras and grip room, lighting and electrical room, plant room, mechanical room, sound control rooms, vision rooms, recording rooms, guest holding areas, security offices, staff toilets and locker rooms; First Floor level to include standard dressing rooms, multipurpose spaces, kitchen and crew area, toilets, mechanical/electrical room,

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technical offices, media store; Second Floor level to include star dressing rooms, toilets, multipurpose rooms and outdoor balcony;

- 2 no. outdoor stage areas associated with the TV Studio and Reception Building
- Dining Hall Building with ancillary 100 seat theatre (c. 4,351sq. m) comprising indoor and outdoor dining areas, kitchen, storage and mechanical rooms, toilets and 3 no. meeting rooms.
- Standalone café (c. 96 sq. m)
- 3 no. single storey production suite buildings (totalling c. 795 sq. m) comprising offices, conference room, kitchenette, communal areas and toilets.
- 3-storey car parking deck (c. 14,782.sq.m) to include 472 no car parking spaces with ancillary offices (c. 4,307sq.m) refuse recycling area and rooftop plant; and
- Site landscaping to include:
    - an amenity walkway and biodiversity area along the northern boundary of the site.
    - public realm and planting areas in the vicinity of TV Studio and Reception Building and production suite offices.
    - green roofs; and
    - boundary treatments.
- Hard standing to include backlot area and shooting lanes to facilitate outdoor filming.
- Provision of an Electrical Substation (c 236 sq. m gfa);
- Provision of primary and secondary gate houses.
- Provision of surface car parking & HGV parking area,
- Provision of a waste collection area adjacent to the proposed backlot.
- Provision of rooftop PV panels (Workshops A and B).
- Provision of Green Roofs.
- All associated site development works, drainage and services provision, boundary treatments (including security fencing), and associated works.

The primary proposed vehicular, cyclist and pedestrian entrance will be located at the eastern boundary with a secondary vehicular access at the southeastern corner of the site.

Landscape and Open Space

The proposed landscape scheme for Grange Castle Media Park will be comprised of two main open spaces, a large open meadow area to the centre of the media park campus and the 50 m buffer area running parallel to the canal which will be served by a public connection along the Eastern Boundary of the site. Further landscape works are to include screening of the site's boundaries with native tree and hedgerow planting, a plaza/break out space to the front of the reception building and theatre, hard landscaping to all parking areas and pathways, site-wide tree and shrub planting and the provision of green roofs to buildings which have been identified as suitable to support them.

16.3.4 Summary of Proposals

- To both reinforce and enhance the interface with the canal through a considerate design approach which is cognisant of its context and that offers a valuable public realm amenity.

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- To incorporate where possible Sustainable urban drainage measures, which will provide efficient and environmentally conscious water management solutions.
- To provide seasonal interest through a planting approach that includes high quantities of native species, and that will be beneficial to local fauna and pollinators.
- To propose and incorporate sustainable landscape management strategies such as natural grasslands and pollinator friendly native meadows.
- To create a strong natural buffer around the site with native tree planting which will assist in bedding the scheme into its context and tie in with existing green infrastructure corridors.
- To provide spaces for dwelling and recreation using materials which complement architectural forms and finishes

16.3.5 Landscape and Visual Sensitivity

Landscape

On assessment of SDCC's Landscape Character Types and Sensitivity for South Dublin County, an exact designation for the proposed site location is not available, however lands to the South, West and north of the site are considered to be of medium sensitivity as they form part of the Newcastle Lowlands. This area is deemed important due to its provision of agricultural lands which are identified as providing both a distinctive and unique identity to the area. Overall, the landscape sensitivity of the area can be considered low to medium.

Visual

Overall visual sensitivity is considered to be low to medium. Sensitivity is considered medium for residential receptors that are adjacent or closer to the proposed site, and for areas which receive higher numbers of footfall and public use. Whilst sensitivity is considered to be low for places in which low numbers of people may occasionally pass through but are not passively used for extended periods of time. Please refer to table 10 for the viewpoint location, distance from the site, description of the view, and the specific sensitivity ratings. Furthermore, refer to Appendix 16.1 for the locations of the viewpoints and photomontages prepared by Macroworks.

16.3.6 Magnitude and Quality of Change in the Landscape and Visual Environment

The proposed development will result in a low to medium magnitude of change to the landscape, which will give rise to a limited number of landscape and visual effects.

The main visual change on site will occur due to the transition of its nature from a relatively low-lying Greenfield being used for arable farming, to a functioning media park and the massing of buildings that Is associated with this change in land use.

The taller building elements will be softened at ground level in nearby views, due to the extensive tree and hedgerow planting proposed to the site's boundaries and to the 50m Buffer

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area. As seen in the photomontages this will help to integrate the buildings into the wider landscape by better bedding them into the landscape and reducing visual focus on the facades.

In the wider context, where the taller elements of the building are likely to be visible and the facades and public realm are not, the likely extent of the change within the landscape context is considered to be slight to moderate as there will be minimal changes to the visual mass and skyline of the area. As previously mentioned, there are developments of a similar nature just east and South of the site in Grange Castle Business Park and Greenogue Business Park. The magnitude of change will vary depending on the viewpoint location and how visible the proposed development is in that view. Table 10 gives the magnitude of change for each receptor.

Regarding the quality of change, the proposed development is generally considered as an enhancement of the area. There will also be an enrichment of the landscape amenity value of the site primarily due to the provision of public access to the 50 M buffer area which will provide a space for both passive and active recreational opportunities.

Construction stage landscape and visual impacts, where they occur, are considered to be of negative quality, as would be the norm during construction and these impacts will only be short-term.

Ref.	Viewpoint location	Distance from site	Description of View	Level of Sensitivity	Magnitude of Change	Overall Change
V1	Newcastle Golf Centre	0.8 km	View from Newcastle golf centre North towards Eastern Boundary of the site. View partially obstructed by existing mature trees. Massing of buildings visible towards clubhouse.	Medium (II)	Low	Slight
V2	Local road South of site at Brownstown	0.8 km	View from gate along local road at Brownstown towards the Southern Boundary of the site	Medium (II)	Low	Slight
V3	Brownstown Cemetery	0.6 km	View from cemetery North towards sites Southwestern boundary. View of site is wholly obstructed by mature trees.	Medium (II)	Low	Slight
V4	Adamstown train station	1.2 km	Elevated Car Park adjacent to Adamstown Train station. Outline of building roofs is visible but is mostly screened by existing vegetation in proximity to the Canal.	Medium (II)	Low	Slight
V5	Hillcrest railway Bridge	0.8 km	View form Hillcrest railway Bridge South	Low (I)	Medium	Slight

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			towards sites Northern Boundary. The site is partially screened by existing vegetation.			
V6	12th Lock Grand Canal	2 km	View from Grand Canal Way adjacent to 12th Lock Bridge towards Eastern boundary of site. Outline of site not visible	Medium (II)	Low	Slight
V7	Brownstown Lane	130M	View from Gate at Brownstown Lane, Massing of proposed development mostly screened by mature trees at field boundary.	Medium (II)	Low	Slight
V8	Golierstown Bridge	400M	View from Golierstown Bridge towards Eastern Site Boundary, massing of buildings is not in view due to screening from existing mature vegetation along the Canal.	Medium (II)	Low	Slight
V8A	Golierstown Bridge	400M	View from Golierstown Bridge towards Eastern Site Boundary, roof line of buildings is only slightly in view due to screening from existing mature vegetation along the Canal.	Medium (II)	Low	Slight
V9	View from the entrance of the Grange Castle West Access Road	1.5 KM	View from the entrance of the Grange Castle West Access Road at its junction with the R120. The proposed development is not on view as it is screened by the terrain.	Medium (II)	No appreciable change	Not significant

Table 16.10: Visual Sensitivity Analysis.

16.4 Residual Impact of the Proposed Development

The residual impacts are the impacts that the development is most likely to have on the receiving environment. For the sake of clarity, these shall be considered under the following headings: Landscape Impacts and Visual Impacts.

These impacts are measured under the following categories:

- Construction Phase
- Operational Phase

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16.4.1 Construction Phase

During the construction process, the site will undergo a change from that of a greenfield site into a large construction site. Any impacts generated at this stage will be short-term in duration.

There will be moderately negative effects associated with the construction works of this development elsewhere. This will be due to the site clearance, and the building processes required to construct the proposed development and the associated access required to do so. Such effects are temporary and short term. Hours of construction activity associated with any development on the site will be restricted in accordance with the relevant local authority guidance.

Visual impacts will be more acute than in the operational phase, but short-term in duration. This is due to construction traffic, site hoardings, cranes etc. Cranes and other similar machinery required for construction will be taller than the proposed buildings and therefore more visible in the landscape. There will also be vehicular and crane movement and changes to the configuration of the site which are typical of building sites. Visually, the impacts will be moderately negative and will impact the adjacent properties more acutely than the operational phase. As the building progresses, the adjacent users' views will alter, this is considered in the operational change effects.

16.4.2 Operational Phase – Residual Landscape Impact

Following construction, the main landscape effects of the proposed development are associated with the completion of the site. The completed landscape character will have a positive effect on the site and the surrounding areas through the completion of new public realm to the North of the site which can be accessed along the Eastern site boundary from the main roadway, alongside a strengthening of the existing Grand Canal Green infrastructure corridor.

The addition of new structures to the skyline will have an effect on the urban fabric, yet due to the location of the site, this is considered to be in line with the landscape character of the surrounding area, with developments of a similar nature such as Grange Castle Business Park and Greenogue business Park in close proximity to the proposed.

In terms of screening from potential visual receptors this is addressed through the proposal of a 5m wayleave which is heavily screened by tree planting and hedgerow to the Western, Eastern and Southern boundaries and a 50 m buffer zone to the North of the site which serves as a public amenity space and also functions to enhance the ecological value of this section of the Grand Canal Green infrastructure Corridor.

16.4.3 Potential Night-Time Effects

Site lighting will consist of directionally focused lighting that seeks to minimise light spill. In order to further mitigate any potential chance of light spill, hedgerow planting to the boundaries of the site and high volumes of tree planting to the 50m buffer area will prevent light from spilling onto the canal and thus having any potential adverse effect on local wildlife. Please Refer to Lighting design drawings submitted by Honan O'Brien for further details regarding the proposed lighting strategy.

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16.4.4 Operational Phase – Residual Visual Impact

The residual visual impacts are those that will persist following the implementation and establishment of the proposed landscape measures. See Table 9 Residual Visual Impacts Assessment Summary for specific details on the visual impact on the identified receptors.

16.4.5 Neighbourhood/Street Scale – Public Realm Receptors

The street-level impacts to users of the public realm will be positive due to the creation a new pedestrian link to the Northern Buffer area which runs alongside the Grand Canal. These measures will enhance the visual value of the locality and contribute to the positive effects of the proposed development on the existing visual landscape.

With regard to other sensitive views from within the surrounding area, the development will not have any perceivable effect on sensitive views listed in the South Dublin County Council Development Plan.

16.4.6 Summary

The proposed development will have an overall slight positive effect on the landscape character of the area due to the implementation of a large biodiverse landscape with publicly accessible routes, and sustainable active management. The proposed development's form and materials are cognisant of the character of the area and will blend into and further enhance the existing site surrounds.

In visual terms, there will be an improvement in the landscape from an internal and external perspective. Internal areas will experience positive visual impacts due to the high volumes of proposed new trees, shrub planting and managed meadow areas which will function both as an aesthetic asset to the site but will also contribute towards enhancing local biodiversity and more seamlessly aligning the scheme with the existing landscapes character. Due to the landscape proposals including heavy levels of screening planting to all boundaries the proposed development will have a generally low visual impact on the wider area. Over time, as vegetation matures, and the scheme begins to blend more into the landscape any initial views will be further softened and reduced.

The proposed development will have a predominantly positive impact both at the immediate and local scale and will be in keeping with policies of the South Dublin County Development plan 2022-2028. The development acknowledges important relevant policy such as.

- The protection, recognition and enhancement of key natural, cultural, and built heritage assets which have shaped South Dublin County.
- The preservation of the character and distinctiveness of the counties landscapes.
- The assurance that the environment and heritage are maintained in a sustainable manner, whilst also enabling a proactive approach to development.
- The creation of a strong and resilient economic base providing expanded opportunities for employment and facilitating a good quality of life within vibrant and attractive places to live, work, visit and invest.
- The promotion and the development of an integrated GI network for South Dublin County working with and enhancing existing biodiversity and natural heritage,

bolstering resilience to climate change, and enabling the role of GI in delivering sustainable communities to provide environmental, economic, and social benefits.

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Table 16.11: Residual Visual Impact Assessment Summary.

Ref.	Viewpoint	Level of Sensitivity	Magnitude of Change to View - Construction	Residual Construction Impact	Magnitude of Change to View - Operational	Residual Operational Impact
V1	View from Newcastle golf centre North towards Eastern Boundary of the site. View partially obstructed by existing mature trees. Massing of buildings visible towards clubhouse.	Medium (II)	Medium	Not significant	Low	Slight
V2	View from gate along local road at Brownstown towards the Southern Boundary of the site	Medium (II)	Medium	Not significant	Low	Slight
V3	View from cemetery North towards sites Southwestern boundary. View of site is wholly obstructed by mature trees.	Medium (III)	Low	Not significant	Low	Slight
V4	Elevated Car Park adjacent to Adamstown Train station. Outline of building roofs is visible but is mostly screened by existing vegetation in proximity to the Canal.	Medium (II)	Medium	Not significant	Low	Slight
V5	View form Hillcrest railway Bridge South towards sites Northern Boundary. The site is partially screened by existing vegetation.	Low (I)	Medium	Not significant	Medium	Slight

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V6	View from Grand Canal Way adjacent to 12th Lock Bridge towards Eastern boundary of site. Outline of site not visible	Medium (II)	Low	Not significant	Low	Slight
V7	View from Gate at Brownstown Lane, Massing of proposed development mostly screened by mature trees at field boundary.	Medium (II)	Low	Not significant	Low	Slight
V8	View from Golierstown Bridge towards Eastern Site Boundary, massing of buildings is not in view due to screening from existing mature vegetation along the Canal.	Medium (II)	Low	Not significant	Low	Slight
V8A	View from Golierstown Bridge towards Eastern Site Boundary, massing of buildings is slightly in view but is almost completely screened by existing mature vegetation along the Canal.	Medium (II)	Low	Not significant	Low	Slight
V9	View from the entrance of the Grange Castle West Access Road at its junction with the R120. The proposed development is not on view as it is screened by the terrain.	Medium (II)	No appreciable change	Not significant	No appreciable change	Not significant

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16.5 "Do Nothing" Scenario

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

The current land use of the subject site is as a vacant Greenfield site, and this would likely not persist in the longer term given its EE zoning on South Dublin County Core Strategy Map 2022-2028. it is highly likely that a development of a similar nature would be proposed in the near future.

16.6 "Worst-Case" Scenario

The views selected for analysis are those from where the proposed development is most likely to be visible and so the analysis of impacts, above, represents a worst-case scenario.

16.7 Monitoring

16.7.1 Construction Phase

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

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

16.7.2 Operational Phase

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

16.8 Interactions of Impacts

16.8.1 Interactions

The assessment of the landscape impacts associated with the proposed development has a number of interactions with other parameters of the assessment. In summary, these are as follows:

- Population and Human Health
- Biodiversity

The interactions of landscape with these parameters can be summarised as follows:

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Population & Human Health

The landscape and visual impact associated with human beings focuses on the effects to dwellings. The proposed development generates visual effects; the effects and associated amelioration of these effects is discussed in the impact section of the report.

Biodiversity

The long-term effects of the proposed development will have a positive effect on the tree cover associated with the development. Existing treelines and hedges are retained around the boundaries and new planting areas are proposed where feasible, while pedestrian and emergency vehicle routes areas are also considered.

16.9 Potential Cumulative Impacts

The lands on which the proposed development is to take place have been zoned EE – *To provide for enterprise and employment related uses as set out in the South Dublin County Development Plan 2022 – 2028*. As a general note the proposed is an employment driven development of a Greenfield site and is in keeping with the EE zoning which the Development Plan confers on the site. A more detailed analysis of the particulars of this zoning and its application to the site is contained in the planning report submitted with this application.

16.9.1 Construction

As this is in an urban fringe area on lands zoned for Enterprise and Employment uses, there is a potential for other sites in close proximity to be brought forward for redevelopment, and construction activity may be extensive in the future. There is a permitted development for five logistics / warehousing units at a site just to the East (SD23A/0301) of the proposed development and an undecided application for a medical manufacturing facility (SD23A/0331) to the southeast of the site. If all sites are developed concurrently there is potential for short term moderate negative cumulative impacts as a result of cranes and other similar machinery required for construction that will be taller than the proposed buildings and therefore more visible in the landscape.

16.9.2 Operation

The proposed site is in relative proximity to areas which have undergone extensive development of commercial, residential, and mixed-use development in recent years including Celbridge, Adamstown and Grange Castle. However, the site itself and surrounding lands are greenfield sites of rural character that have historically been used as arable farmland. Once operational as a media campus in the context of surrounding lands which are also likely to be developed, the potential cumulative impact of the operational phase of the proposed development will be significant.

16.10 References

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Environment Protection Agency, 2002. PA *Guidelines on The Information to Be Contained in Environmental Impact Statements.*

Environment Protection Agency, 2003. *Advice Notes for Preparing Environmental Impact Statements.*

Environment Protection Agency, 2015. *Draft Advice Notes for Preparing Environmental Impact Statements.*

Environment Protection Agency, 2017. *Draft Revised Guidelines on The Information to Be Contained in Environmental Impact Statements*.

South Dublin County Council,2022. County Development Plan 2022-2028.

Routledge, 2013. The Landscape Institute / Institute of Environmental Assessment *Guidelines for Landscape and Visual Impact Assessment* 3rd Edition

Appendix 16.1: Visual Impact Images.

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Viewpoint 1 - Existing View + Outline View
Viewpoint 1 - Montage View

Viewpoint 2 - Existing View + Outline View
Viewpoint 2 - Montage View

Viewpoint 3 - Existing View + Outline View*

Viewpoint 4 - Existing View + Outline View
Viewpoint 4 - Montage View

Viewpoint 5 - Existing View + Outline View
Viewpoint 5 - Montage View

Viewpoint 6 - Existing View + Outline View*

Viewpoint 7 - Existing View + Outline View
Viewpoint 7 - Montage View

Viewpoint 8 - Existing View + Outline View*

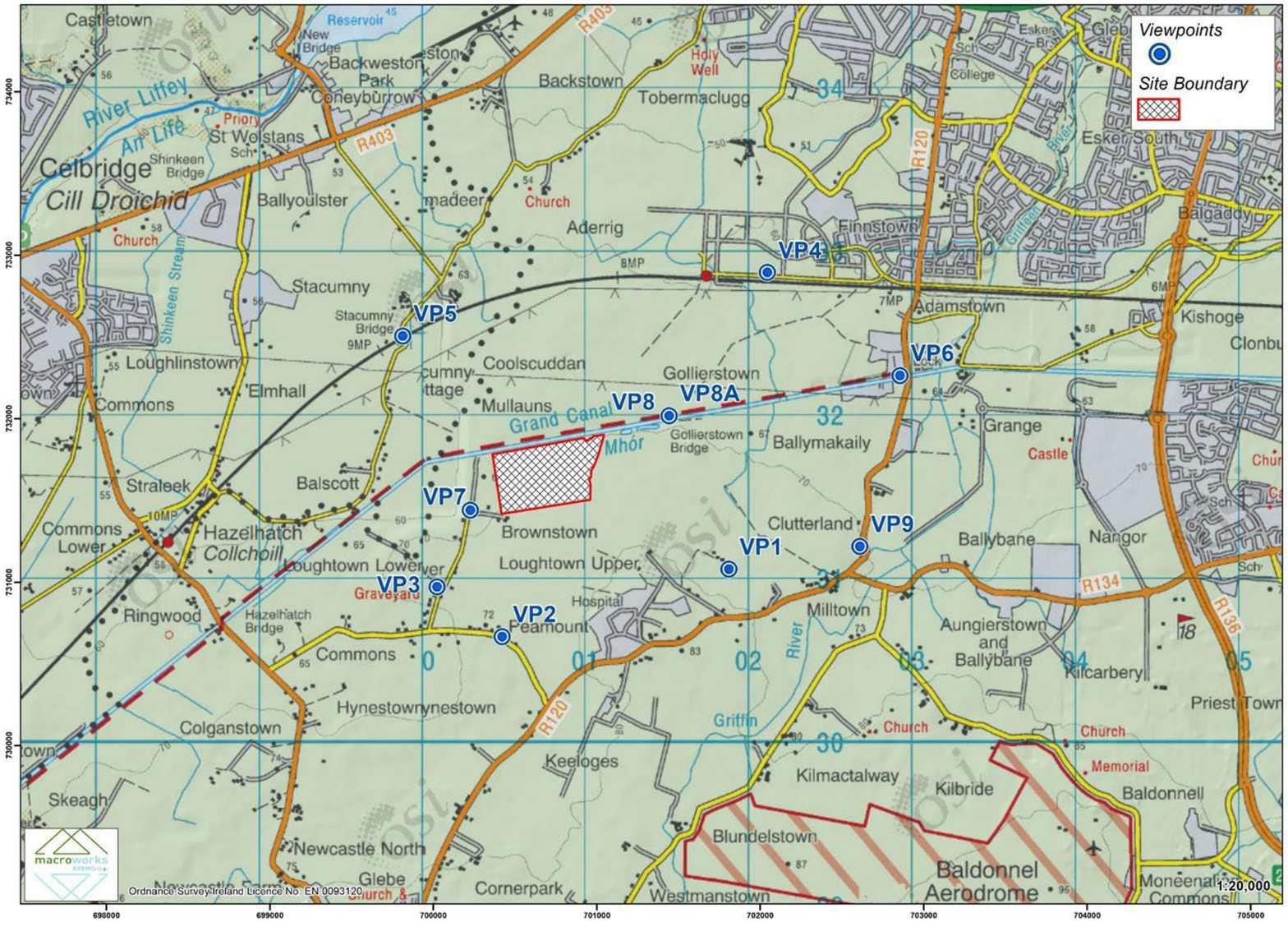
Viewpoint 8A - Existing View + Outline View
Viewpoint 8A - Montage View

Viewpoint 9 - Existing View + Outline View

***NB - There is no Montage View for this viewpoint as the proposed development it completely screened by existing vegetation and/or terrain**

****NB - There is no Montage View for this viewpoint as the proposed development it completely screened by terrain**

LVIA viewpoint locations selected for the Grange Castle Media Park project



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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

Newcastle Golf Centre VP1

Existing View

Outline View
indicating physical position and scale of the proposed development irrespective of screening

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	701809	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	731080	Camera:	Canon 1-D Mark II digital SLR	Time:	09:51
Direction of View	59° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

Newcastle Golf Centre VP1

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

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Direction of View	59° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

Local road south of site at Brownstown VP2

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	700421	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	730668	Camera:	Canon 1-D Mark II digital SLR	Time:	08:24
Direction of View	36° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

Local road south of site at Brownstown VP2

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	700421	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	730668	Camera:	Canon 1-D Mark II digital SLR	Time:	08:24
Direction of View	36° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

Brownstown Cemetery VP3

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	700023	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	730972	Camera:	Canon 1-D Mark II digital SLR	Time:	14:53
Direction of View	43° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

Elevated carpark adjacted to Adamstown Train Station

VP4

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	702045	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732895	Camera:	Canon 1-D Mark II digital SLR	Time:	13:54
Direction of View	146° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

Elevated carpark adjacted to Adamstown Train Station

VP4 Page 2 of 2

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To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	702045	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732895	Camera:	Canon 1-D Mark II digital SLR	Time:	13:54
Direction of View	146° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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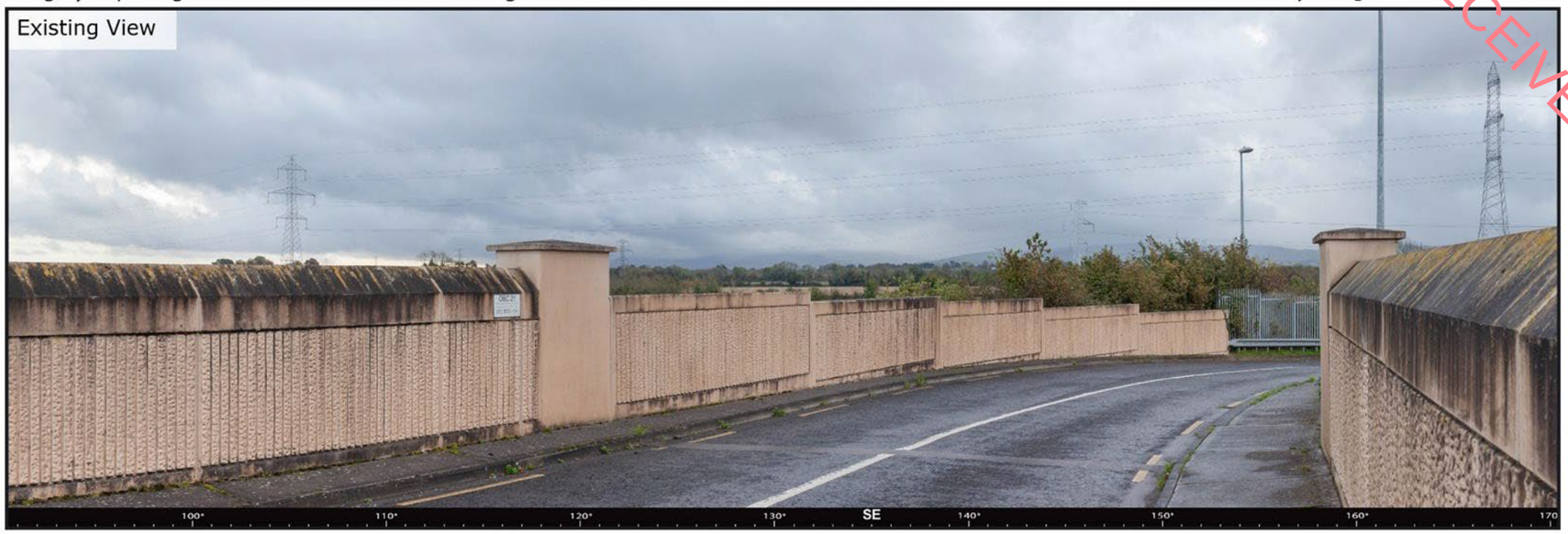
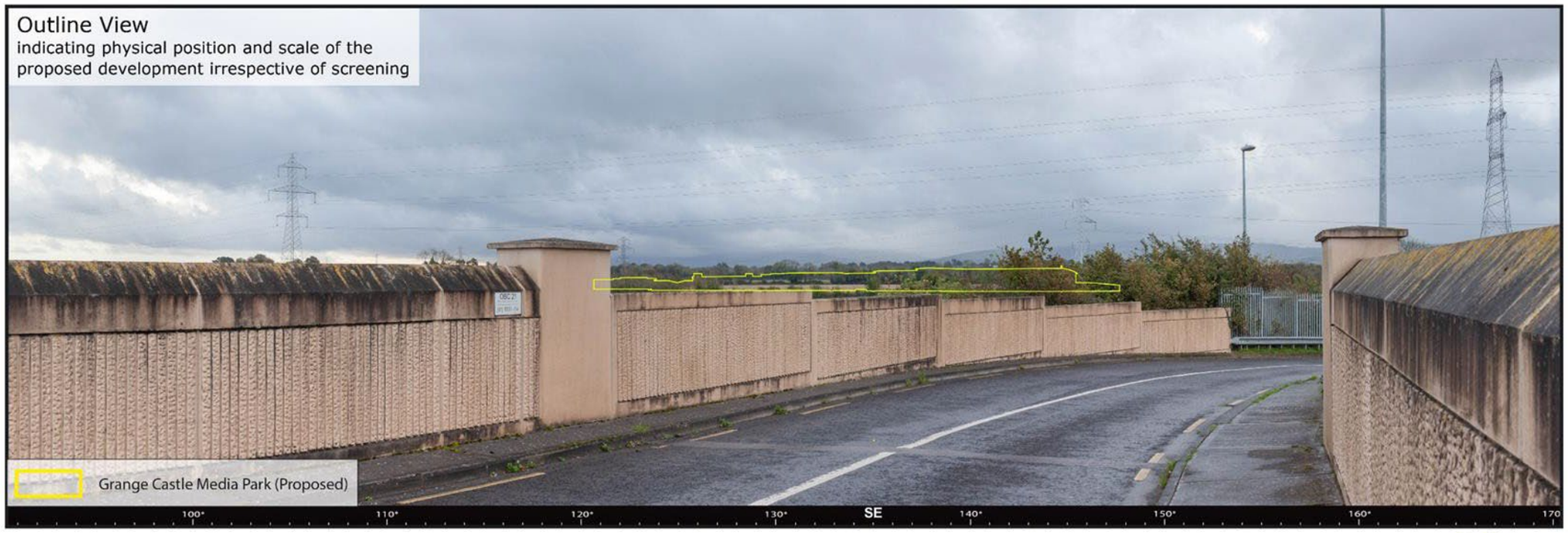
Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline) — Hillcrest railway bridge — VP5 — Page 1 of 2

Existing View



Outline View
indicating physical position and scale of the proposed development irrespective of screening



These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	699813	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732506	Camera:	Canon 1-D Mark II digital SLR	Time:	08:53
Direction of View 130°	E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

Hillcrest railway bridge VP5 Page 2 of 2

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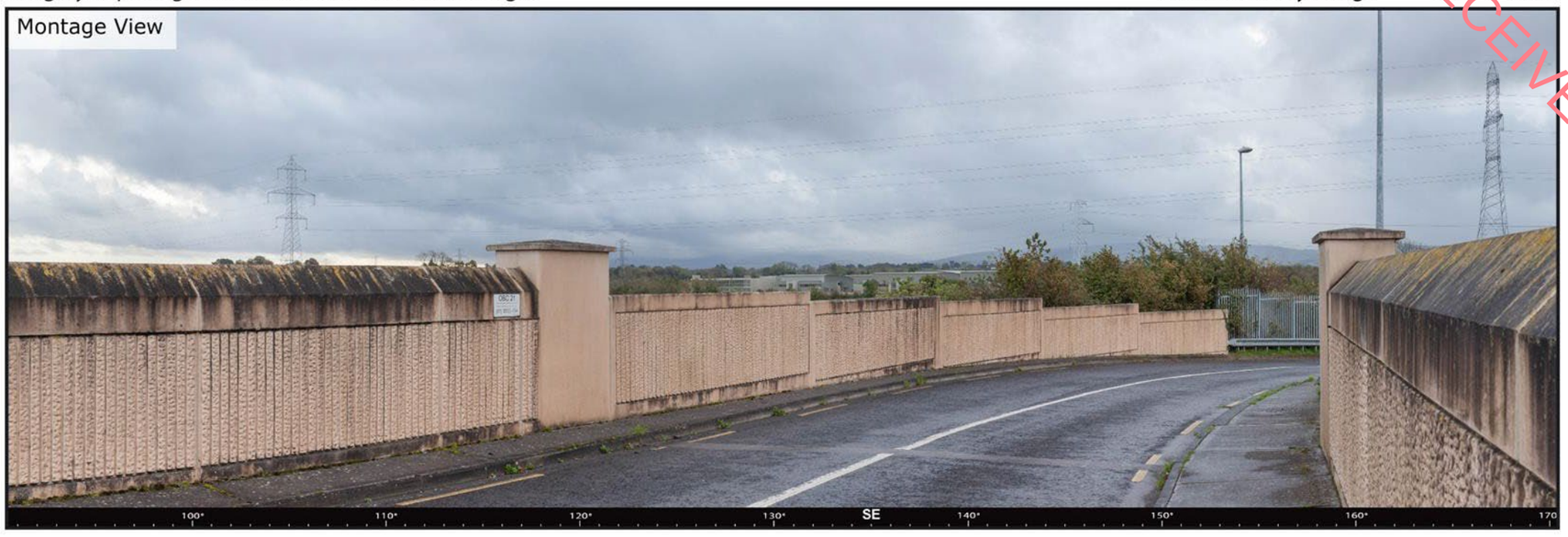

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	699813	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732506	Camera:	Canon 1-D Mark II digital SLR	Time:	08:53
Direction of View 130°	E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

Hillcrest railway bridge VP5

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	699813	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732506	Camera:	Canon 1-D Mark II digital SLR	Time:	08:53
Direction of View 130°	E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

Grand Canal Way adjecent to 12th Lock bridge VP6

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To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	702855	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732264	Camera:	Canon 1-D Mark II digital SLR	Time:	16:08
Direction of View	117° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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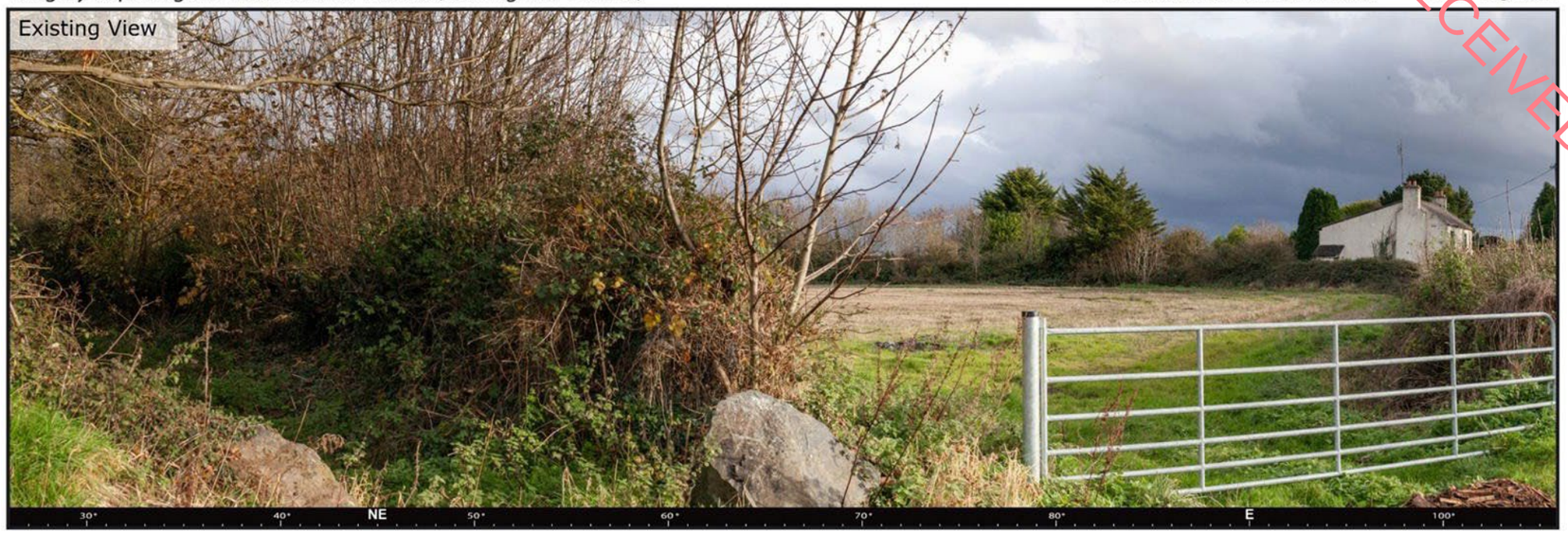
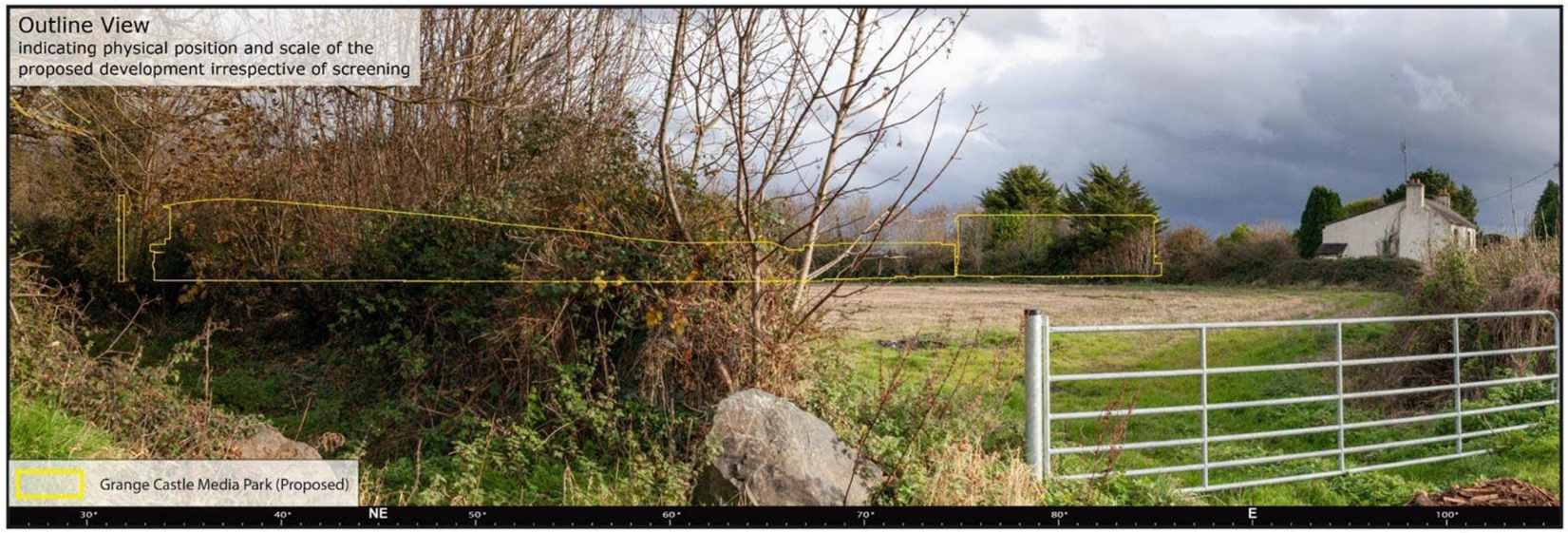
Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

View from Brownstown Lane VP7





These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	700225	Lens:	50mm / Full Frame Sensor	Date:	2023/12/06
Northing (ITM):	731440	Camera:	Canon 1-D Mark II digital SLR	Time:	11:38
Direction of View	66° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

View from Brownstown Lane VP7

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These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	700225	Lens:	50mm / Full Frame Sensor	Date:	2023/12/06
Northing (ITM):	731440	Camera:	Canon 1-D Mark II digital SLR	Time:	11:38
Direction of View	66° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline)

View from Golierstown Bridge VP3

Existing View

Outline View
indicating physical position and scale of the proposed development irrespective of screening

These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	701444	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732019	Camera:	Canon 1-D Mark II digital SLR	Time:	11:27
Direction of View	66° E of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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Grange Castle Media Park

Imagery depicting the view towards the site (Montage)

View from Golierstown Bridge (2) VP 8A

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To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	701443	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	732018	Camera:	Canon 1-D Mark II digital SLR	Time:	11:27
Direction of View	110° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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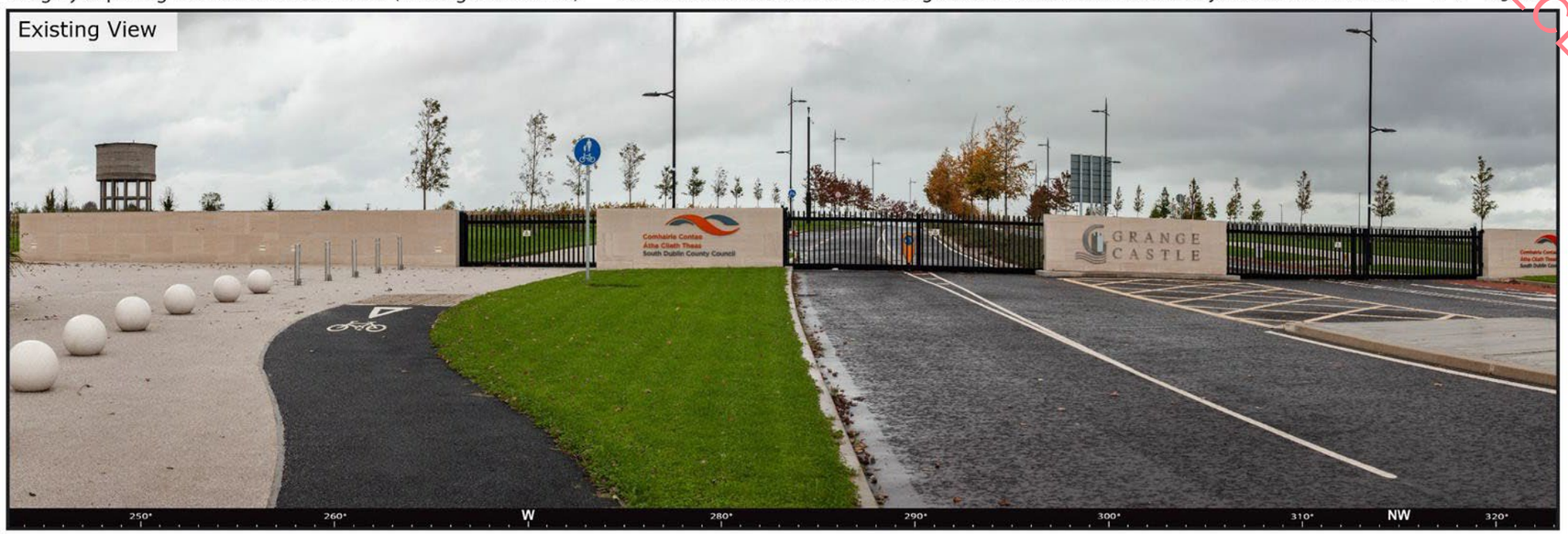
Grange Castle Media Park

Imagery depicting the view towards the site (Existing and Outline) View from the entrance of the Grange Castle West Access Road at its junction with the R120 VP9



These are 80° panoramic montages captured and presented in accordance with the guidance set by the British Landscape Institute 2011 - Advice Note 01/11.

To view these panoramas on a flat surface one must move from left to right along its length whilst maintaining a perpendicular viewing direction and the specified correct viewing distance of 30cm. To see this entire panoramic scene in reality would necessitate turning one's head through 40°.

Easting (ITM):	702610	Lens:	50mm / Full Frame Sensor	Date:	2023/10/23
Northing (ITM):	731218	Camera:	Canon 1-D Mark II digital SLR	Time:	10:36
Direction of View	77° W of Grid North	Camera Height:	1.7m Above Ground Level		
Angle of View:	80°				

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17.0 INTERACTIONS AND CUMULATIVE EFFECTS

17.1 Introduction

This section of the EIAR has been prepared by Gavin Lawlor and Bernard Dwyer, Tom Philips + Associates and deals with likely interactions between effects predicted as a result of the proposed project.

In addition to the requirement under the Planning and Development Regulations 2001 (as amended) to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction of those effects. These are assessed below.

This section addresses the intra project significant effects (i.e. those occurring between environmental topics within the project). Inter project effects (i.e. those which are likely to occur as a result of the likely impacts of the proposed project interacting with the impacts of other projects in the locality) have also been considered.

We have reviewed a number of planned and permitted projects that have the potential to interact with either the construction or operational phases of the proposed development. The projects considered most likely to interact with the proposed development are identified in Appendix 1.1.

Further detail relevant to the interaction of impacts may be found in the earlier chapters of the EIAR.

17.2 Methodology

The EIAR has considered and assessed the interactive effects and cumulative effects arising from the construction and operation of the proposed project based on best scientific knowledge. The relevant interactions and interdependencies between specific environmental aspects have been summarised in the matrix set out in Table 18.1.

Interactive effects (or interactions), specifically refer to any direct or indirect effects caused by the interaction of environmental factors as outlined in Article 3 (1) of the amended EIA Directive;

> "*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)."

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

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

This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000 (as amended) and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001 (as amended) as well as the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

The EPA Guidance in turn references: *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, European Commission, 1999.* In terms of interactions, the guidelines state the following:

> *"careful consideration of pathways – direct and indirect – that can magnify effects through the interaction or accumulation of effects – for instance the potential for cumulative significant effects to arise from multiple non-significant effects."*

In terms of Cumulative effects, Annex Iv(5) of the EIA Directive requires:

> *"A description of the likely significant effects of the proposed project on the environment resulting from, inter alia…*
>
> *(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;…"*

We have reviewed a number of planned and permitted projects that have the potential to interact with either the construction or operational phases of the proposed development. The projects considered most likely to interact with the proposed development are identified in Chapter 1 with a more comprehensive list of planned or permitted projects outlined in Appendix 1.1.

17.3 Inter-Relationships/ Interactions

In practice many potential impacts from various sources have slight or subtle interactions with other sources of impact. However, the EIAR concludes that most inter-relationships are neutral in impact when the mitigation measures proposed in each chapter are incorporated into the operation of the proposed development.

17.3.1 Interactions between Population & Human Health and Air

Potential interactions between population and human health and air quality are outlined in Chapters 5 & 9 of the EIAR. In order to reduce the risk to health from poor air quality, National and European statutory bodies have set limit values in ambient air for a range of air pollutants.

An adverse impact due to air quality in either the construction or operational phase of the proposed project has the potential to cause human health and dust nuisance issues. The mitigation measures that will be put in place at the proposed project will ensure that the impact complies with all ambient air quality legislative limits and, therefore, that the predicted residual impact is short-term, negative and imperceptible during the construction phase, and long-term, neutral and imperceptible during the operational phase.

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17.3.2 Interactions between Population & Human Health and Noise and Vibration

There is potential for interactions between population and human health and noise and vibration during both the construction and operational stages of the proposed project that have been assessed in Chapter 11. The highest potential for noise and vibration impacts of the proposed project will occur during the construction phase due to the operation of various plant and machinery used to construct the development and heavy goods vehicles movement to, from and around the site.

Chapter 11 sets out a number of mitigation measures to be implemented during the construction phase, as well as best practice mitigation measures relating to building services & plant for the development once operational. No mitigation measures are required for the additional traffic on the surrounding roads once operational as changes to traffic flows will not result in a perceptible increase in noise level in the surrounding environment.

It should be noted that the day to day operation of the proposed development will not give rise to any significant levels of vibration off site and therefore the associated impact is ***neutral, not significant, and long-term.***

17.3.3 Interactions between Population & Human Health and Waste

The implementation of the mitigation measures outlined in chapter 12 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the Proposed project during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

Other developments in the area, and the indicative future development, will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative effects associated with waste generation and waste management. With mitigation measures described in chapter 12 in place, the predicted effects on human health due to waste will be ***long-term, imperceptible, and neutral.***

17.3.4 Interactions between Population & Human Health and Traffic and Transportation

During the construction stage of the project the potential impacts to population and human health will primarily be from onsite (plant and vehicle movement) and the increase in offsite plant and traffic movements. A Construction and Environmental Management Plan has been prepared by Barret Mahony Consulting Engineers, as part of the planning application which incorporates a range of integrated control measures and associated management activities with the objective of minimising the effects of construction activities associated with the development. Chapter 13 prepared by Barrett Mahony Consulting Engineers also sets out a number of mitigation measures. Provided the proposed mitigation measures and management procedures are incorporated during the construction phase, the impact on human health of the local receiving environment will be ***negative, slight, and short-term.***

With the mitigation measures in place, the effect of the project on traffic and transport is envisaged to be slight, likely in probability and long-term. The Mobility Management Plan initiatives are likely to result in lower volumes of car traffic than that assumed in the modelling assessment.

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Prior to mitigation, the assessment of potential operational traffic impact already demonstrates that no significant effects are expected to arise from operational traffic associated with the proposed project.

Notwithstanding this, a Mobility Management Plan will be implemented as a 'best practice' measure which will seek to minimise car-based trips, particularly single-occupancy car trips, through the proposed measures (refer to Section 13.10) to discourage car use and encourage sustainable transport options.

The introduction of new active travel routes near the Grange Castle Media Park site is expected to encourage sustainable forms of travel and will have a **moderate positive** effect on human health. The Bus Connects network is to be introduced on a phased basis over the coming years. This phase involves services in the West/South West of Dublin, serving areas including Grange Castle. The Camac River Greenway branch from the Grand Canal through Clondalkin Village to Corkagh Park and City West is also proposed along with a secondary cycling route along the R120, running north-south before connecting to the Nangor Road and onto the existing route along the R136. As such, the predicted impact during the operational phase is considered to have a ***negligible and 'not significant' long-term effect***.

17.3.5 Interactions between Population & Human Health and Landscape and Visual Impact

The potential interactions between Landscape, Visual impact and Human Health relate largely to the health benefits of green infrastructure. Green Infrastructure planning aims to maximising the benefits of the multi-functionality of nature that includes natural ecological processes, sustaining air and water quality and providing vital amenity and recreational spaces for communities. It also serves to provide an ecological framework for the social, economic, and environmental health of an area. The enhancement of local green infrastructure therefore has knock on benefits for human health outcomes.

As outlined in Chapter 18 of the EIAR, the completed landscape character will have a positive effect on the site and the surrounding areas through the completion of new public realm to the North of the site which can be accessed along the Eastern site boundary from the main roadway, alongside a strengthening of the existing Grand Canal Green infrastructure corridor. The predicted effect during the operational phase is therefore considered to be ***long term, positive, moderate.***

17.3.6 Interactions between Biodiversity and Hydrology

Construction Phase

There is potential for water (rainfall and/or groundwater) to become contaminated with pollutants released during construction activity. If not mitigated, contaminated water can pose a temporary risk.

Liaison with the Ecologist Ger O'Donoghue (see section 6.5.3, Chapter 6) on this strategy, has confirmed there is no ecological concerns and there will be no significant negative operational effects on adjacent habitats.

Based on the potential for release and distance to Natura sites there is no likelihood of an impact on the surface water quality in the Liffey or Natura sites.

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In the absence of mitigation measures the potential impacts during the construction phase on surface water quality are following EIA guidance ***negative***, ***not significant,*** and ***temporary***.

Operational Phase

Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

It is proposed to construct a new SuDs for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site connecting to the Grand Canal. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s).

As any bulk oil storage is contained, there is no potential for impact on off-site water bodies or Natura sites. Even without mitigation, based on the hazard loading and distance to the Liffey and the Natura sites there is no potential for an impact.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water quality are following EPA guidance ***negative***, ***not significant,*** and ***long-term***.

17.3.7 Interactions between Biodiversity and Traffic and Transportation

The potential interactions between Biodiversity and Traffic and Transportation are related to Construction traffic and associated visual and other sensory disturbance effects have the potential to cause localized temporary to short-term displacement and disturbance impacts upon non-volant mammal species. Increased traffic can lead to an increase in road fatalities for non-volant mammals.

17.3.8 Interactions between Land, Soils and Groundwater and Hydrology

Construction Phase

There is potential for water (rainfall and/or groundwater) to become contaminated with pollutants released during construction activity. If not mitigated, contaminated water can pose a temporary risk.

During construction of the development, there is a risk of accidental pollution incidences from the following sources:

- Suspended solids (muddy water with increase turbidity) – arising from exposed ground, stockpiles and access roads and ground disturbance.
- Cement/concrete (increase turbidity and pH) – arising from construction materials.

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- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or onsite storage.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

Taking into account the design and mitigation measures set out in Chapter 7 and 8 of this EIA Report, there is a residual negative interaction between land, soil, and hydrology during the construction phase. The interaction is considered to be neutral, not significant, and short term.

Operational Phase

Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water quality are following EPA guidance ***negative***, ***not significant,*** and ***long-term.***

17.3.9 Interactions between Land, Soils and Groundwater and Air Quality

Construction Phase

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and potential nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity.

The risk of dust impacts due to the proposed development are summarised in Table 9.13, Chapter 9 for each activity. The magnitude of risk determined is used to prescribe the level of site specific mitigation required for each activity to prevent significant impacts occurring.

There is at most a low risk of dust impacts associated with the proposed works. As a result, best practice dust mitigation measures associated with low risk sites will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***short-term, negative, and imperceptible.***

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and air quality during the operational phase.

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17.3.10 Interactions between Land, Soils, Geology and Hydrogeology and Biodiversity

Construction Phase

There is potential for groundwater to become contaminated with pollutants associated with construction activity. Contaminated groundwater which arises from construction sites can pose a significant short-term risk to the underlying Dublin GWB quality for the duration of the construction if contaminated water is allowed percolate to the aquifer. The potential main contaminants include:

- Pollution due to discharges or spillages during the construction phase;
- Suspended solids (muddy water with increase turbidity) – arising from excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from construction materials;
- Hydrocarbons (ecotoxic) – accidental spillages from construction plant or onsite storage Soils contaminated by petroleum hydrocarbons can affect soil health. They can harm soil microorganisms, reducing their number and activity;
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

In the absence of mitigation measures the potential impacts during the construction phase on land, soils and geology, hydrogeology (groundwater) are ***negative***, ***not significant,*** and ***short term***.

Operational Phase

There are no potentially significant interactions identified between land, soils and hydrogeology, and biodiversity during the operational phase.

17.3.11 Interactions between Population and Human Health and Waste

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and the mitigation measures in Chapter 12, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term***, ***imperceptible,*** **and** ***neutral***.

17.3.12 Interactions between Air Quality and Traffic and Transportation

Interactions between Air and Traffic are outlined in Chapter 9 and Chapter 13 of the EIAR. Construction phase traffic can also impact air quality. The TII guidance Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (TII, 2022a), states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;

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- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5 m or greater.

The construction stage traffic will not increase by 1,000 AADT or 200 HDV AADT and, therefore, does not meet the above scoping criteria. In addition, there are no proposed changes to the traffic speeds or road alignment. As a result, a detailed air assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality.

Operational phase traffic can impact local air quality due to increased vehicle movements associated with the proposed development. The TII scoping criteria detailed in Section 9.2.2 were used to determine if any road links are affected by the proposed development and require inclusion in a detailed air dispersion modelling assessment. The proposed development will cause the operational phase traffic to increase by more than 1,000 AADT on 1 no. road link, the Grange Castle West Access Road to the site. Therefore, a detailed air dispersion modelling assessment of operational phase traffic emissions was conducted. To provide for a worst-case assessment and to assess potential cumulative impacts, the traffic data has included specific cumulative developments within the area. The impacts on the performance of the transport network are addressed in chapter 13 of this EIAR and the Traffic and Transport Assessment report produced by Barret Mahony Consulting Engineers.

17.3.13 Interactions between Waste and Traffic and Transportation

Interactions between Traffic and Waste are outlined in Chapters 13 and 14. Local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the development.

Provided the mitigation measures detailed in Chapters 12 & 13 and the requirements of the CEMP are adhered to, the effects should be ***short to long term, slight adverse.***

17.3.14 Interactions between Major Accidents and Disasters and other Disciplines

The likely significant interactions of impacts with regard to major accidents and disasters would be with areas such as soils, geology and hydrogeology, hydrology, air quality, noise and vibration, human health, and biodiversity and these are addressed in the respective chapters as required.

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	Matrix of Interactions																							
	Cultural Heritage		Population & Human Health		Biodiversity		Land, Soils, Geology & Hydrogeology		Hydrology		Air		Climate		Noise & Vibration		Landscape & Visual Impact		Traffic		Waste		Site Services		Major Accidents and Disasters	
	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op	Con	Op
Cultural Heritage																										
Population & Human Health											x				x	x		x	x	x	x	x			x	x
Biodiversity							x		x						x				x		x	x			x	x
Land, Soils, Geology & Hydrogeology															x				x		x	x			x	x
Hydrology																									x	x
Air																			x	x						
Climate																			x	x						
Noise & Vibration																			x	x					x	x
Landscape & Visual Impact																										
Traffic																					x					
Waste																										
Site Services																										
Major Accidents and Disasters																										

Table 17.1: Matrix of Potential Interactions Between Environmental Factors

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17.4 Cumulative Effects

17.4.1 Population and Human Health

The Strategic Environmental Assessment prepared for the South Dublin County Development Plan 2023-2029 has assessed the likely evolution of the County during the course of the Development Plan and the likely impacts. We have reviewed that assessment and conclude that it has reasonably assessed the likely evolution of the County through the implementation of the Development Plan. That assessment has *inter alia* considered predicted results from development of zoned land (including the subject principal site, which is zoned for redevelopment regardless of the project going ahead) in the county.

Regarding Population (and human health), the Strategic Environmental Assessment prepared for the South Dublin County Development Plan 2022-2028 states that:

> *"There are strong links between income and health, as it is recognised that the sustainability of current and future economic activity is an important element in protecting and promoting population health and in reducing poverty and deprivation. However, emphasising economic growth without due regard for social and environmental consequences of such growth can have negative impacts on health both for the population as a whole and for groups within the population.*
>
> *Access to multiple public transport modes and maximizing the movement of people via sustainable modes (including walking) is important for human health. A shift to using multiple public transport modes, which can incorporate walking, means less energy consumption, fewer emissions, and more active, healthy, and social communities.*
>
> *There needs to be particular attention to the environmental issues and sustainability endeavours to protect human health as the local economy develops. While employment is generally good for health, there can be negative impacts, usually related to the quality of the working environment and nature of work undertaken".*

The cumulative impact on population and human health for the construction and operation phases is anticipated to be ***long-term, neutral, and not significant.***

17.4.2 Biodiversity

Cumulative effects are defined by EPA Guidance (2017) as; 'the addition of many minor or significant effects, including the effects of other projects, to create larger, more significant effects'. An assessment of plans and projects occurring in within the proposed development site boundary and within the wider landscape were evaluated in combination with the project. A review of permitted developments in the wider area was completed (see Appendix 1.1), and the potential for any significant cumulative and in combination effects on the receiving environment were considered for the construction and operational phases of the proposed development below.

The plans and projects that have been proposed or implemented in recent years were considered as part of the assessment of potential cumulative and in combination effects. For instance, the current South Dublin County Development Plan (2022-2028) was considered in relation to the local ecology and planned actions for the protection and restoration of local biodiversity.

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There are several mechanisms by which projects in general may act in concert with each other to impact on the local flora, fauna and habitats in a given area. The scale at which these impacts may be felt depends greatly on the nature of these projects and the type of species and habitats in the receiving environment. Loss of habitat associated with a particular project may be exacerbated by multiple similar losses of habitat occurring in the wider area. Increases in noise or lighting from one project can have greater impact if the loss of screening vegetation associated with a neighbouring development allows for a wider cumulative 'spill' of impacts into the wider environment. Similarly, if pressures arising from the connection to wastewater services by multiple projects being developed means that the capacity of local wastewater treatment infrastructure is overwhelmed, the potential for downstream cumulative impacts must be considered. There are also potential positive cumulative effects that can be associated with the delivery of unrelated projects. For instance, if these projects cumulatively increase the amounts of a certain habitat attractive for species of importance and through their own landscaping commitments help improve the ecological connectivity through the wider area.

There are several developments that have either been submitted for planning permission or have been granted permission within and in close proximity to the proposed development site.

17.4.3 Land, Soils Geology and Hydrogeology

Construction Phase

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016).

The implementation of mitigation and monitoring measures detailed in Section 7.6.1; as well as the compliance of permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible,*** and ***short-term***.

Operational Phase

In relation to the potential cumulative impact on land, soils, geology and hydrogeology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the Site. Cumulatively this development and others in the area will result in localised reduced recharge to ground and increase in surface run-off.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, the petrol station, and along roads is possible unless diverted to surface water system with petrol interceptor.
- There will be a loss of greenfield area locally as part of the proposed Project.

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The development will result in an increase in hard standing which will result in localised reduced recharge to ground. The site is underlain mostly by a "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones". The cumulative impact is considered to be imperceptible. The implementation of SuDs measures on site will mitigate against and reduce the recharge rate to ground.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages. The proposed development is also located on lands that have been zoned for Enterprise and Employment in the South Dublin Development Plan which has been subject to Strategic Environmental Assessment (SEA).

The implementation of mitigation and monitoring measures detailed in Section 7.6.1; as well as the compliance of the above permitted development with their respective planning and zoning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible,*** and ***long-term.***

17.4.4 Hydrology

The anticipated cumulative effect of the Proposed project with any/all relevant other planned or permitted developments as outlined in Chapter 2 and 3 are discussed in below for construction and operational phases respectively.

Construction Phase

In relation to the potential cumulative effect on hydrology during the construction phase, the construction works which would have potential cumulative effects include:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials unless project-specific CEMPs are put in place for each development and complied with.

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016).

The implementation of mitigation and monitoring measures detailed in Section 8.6.1; as well as the compliance of permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the hydrology environment during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible,*** and ***short-term***.

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Operational Phase

In relation to the potential cumulative impact on hydrology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the Site. Cumulatively this development and others in the area will result in localised reduced recharge to ground and increase in surface run-off.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, the petrol station, and along roads is possible unless diverted to surface water system with petrol interceptor.
- There will be a small loss of greenfield area locally as part of the proposed Project.

The development will result in an increase in hard standing which will result in localised reduced recharge to ground. The site is underlain mostly by a "Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones". The cumulative impact is considered to be imperceptible. The implementation of SuDs measures on site will mitigate against and reduce the recharge rate to ground.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages.

The implementation of mitigation and monitoring measures detailed in Section 7.6.1; as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to hydrology environment during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible,*** and ***long-term***.

17.4.5 Air Quality

Construction Phase

According to the IAQM guidance (2014), if the construction phase of the proposed development coincides with the construction phase of any other permitted projects within 350 m of the site, there is a possibility of cumulative dust impacts occurring at any nearby sensitive receptors.

Should simultaneous construction phase occur, it would lead to cumulative dust soiling and dust-related impacts on human health, specifically localised to the works area associated with the proposed works.

A review of the planned and permitted projects within the vicinity of the site was undertaken. 1 no. development within 350 m of the site was identified that may have the potential for cumulative construction phase impacts, SD23A/0301.

There is a low risk of dust impacts associated with the proposed development. The dust mitigation measures outlined in Section 11.6.1 will be applied during the construction phase which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the

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construction phase of the proposed development and the aforementioned development are deemed ***short-term, direct, negative, and imperceptible.***

Operational Phase

There is the potential for cumulative impacts to air quality during the operational phase. This is due to traffic associated with other existing and permitted developments within the area. The traffic data provided for the operational stage air quality assessment included cumulative traffic (see Traffic Impact Assessment and Chapter 13 Material Assets – Traffic & Transportation for further details on specific developments). The cumulative operational phase impact is assessed within Section 9.5.3 and was found to have a neutral impact on air quality. The cumulative operational stage impact is ***long-term, localised, direct, neutral, imperceptible, and non-significant.***

17.4.6 Climate

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022a) states that "*for GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable*."

However, by presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

17.4.7 Noise and Vibration

Construction Phase

If construction activities at nearby sites are taking place concurrently with the construction of the proposed development, there is potential for cumulative noise impacts to occur. Due to the nature of construction works associated with the proposed development, noise levels from this site will dominate the noise environment when occurring in proximity to the noise sensitive locations along its immediate boundary. The noise contribution from other construction sites would need to be equal to those associated with the proposed development in order to result in any cumulative effect.

The implementation of mitigation and monitoring measures detailed in Section 11.6.1 as well as the compliance of the above permitted developments with their respective planning conditions, will ensure that each development will control noise and vibration impacts using best practice guidance documents and appropriate noise and vibration limits.

The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***negative, slight to moderate and short-term.***

Operational Phase

There are a number of permitted and planned industrial developments located in the vicinity and a complete list of these developments is provided in Appendix 1.1.

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During the operational phase any cumulative impacts will be due to plant noise operating from the granted sites in the night time period. Due to the propagation of sound over distance and the large distances between the closest receiver (NSL1) and the majority of the granted sites in the area (greater than 500m) there will be no audible contribution from the sites.

The following projects within 500m of the proposed development site boundary have been identified as having potential cumulative noise impacts to the surrounding NSLs and hence are considered in the cumulative scenario.

SDCC Reg. Ref.	Description	Distance to Site
SD188/0011	Site located within the Hazelhatch to 12th Lock, Co. Dublin. Permission for development consisting of: The Grand Canal Greenway, which will include the following features: 4.6km of shared walking and cycling Greenway along the existing northern Grand Canal towpath.	Adjacent to the proposed site, located to the north.
SD23A/0301	Site within the townlands of, Gollierstown and Milltown, (west of Grange Castle Business Park & The Adamstown Road (R120)), Newcastle, Dublin. Permission for development consisting of: The construction of five logistics / warehousing units (Units 1-5) with associated office accommodation, service yards, ancillary structures/areas, and substations.	Adjacent to the proposed site, located to the east.
SD23A/0331	Grange Castle Business Park West, Clondalkin, Dublin 22 10-year permission for development for a Filling & Packaging Facility for medicines	Adjacent to the proposed site, located to the east.

Table 17.2: Current Permissions/Applications within 500m of the site that were granted in 2023.

Once operational, potential effects associated with The Grand Canal Greenway (SD188/0011) will be low in noise, i.e. people cycling and walking, limited vehicular activity at car parking areas, occasional maintenance works comprising management of surface and vegetation. These activities have not been added to the cumulative noise assessment as they will not be a dominant noise source at the closest sensitive receivers and will be at least 10 dB below the proposed development's predicted operational noise levels presented in Section 11.5.5.

Review of calculated noise levels associated with SD23A/0301 relate to intermittent activities associated with unloading / loading activity at the logistics centre. This activity has not been added to the cumulative noise assessment as it will not form part of the background noise environment.

The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***negative, not significant,*** and ***long-term***.

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Figure 17.1: Other planning applications for assessment of potential cumulative impact (Source: Google Earth, annotated by TPA 2024).

17.4.8 Material Assets – Waste Management

As has been identified in the receiving environment section all cumulative developments that are already built and in operation contribute to our characterisation of the baseline environment. As such any further environmental impacts that the proposed project may have in addition to these already constructed and operational cumulative developments has been assessed in the preceding sections of this chapter.

Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase.

Developments that potentially could overlap during the construction phase of can be found in Appendix 1.1, along with descriptions.

Due to the high number of waste contractors in the South Dublin areas and Ireland there would be sufficient contractors available to handle waste generated from many these sites simultaneously, if required. The National Waste Collection Permit Office can be contacted to obtain a list of waste contractors and waste collection permit details. Similar waste materials would be generated by all the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be ***short-term, not significant, and neutral.***

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste,

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and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area, and the indicative future development, will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative effects associated with waste generation and waste management. As such the effect will be a ***long-term, imperceptible, and neutral.***

17.4.9 Material Assets – Site Services

Drainage and water supply material assets should be co-ordinated with communications, electrical and gas material assets to ensure that there are no physical conflicts and that all necessary clearances are provided.

There is no anticipated cumulative effect.

17.4.10 Material Assets – Traffic and Transportation

Construction Phase

As construction related traffic is minor relative to the volumes at operational scale, the cumulative impacts of these are not seen as significant.

Operational Phase

The cumulative impacts of the proposal during its operational phase has been fully analysed within scenarios 4, 7 and 10 of the operational phase traffic analysis detailed earlier, taking into consideration the impact both of the traffic from the proposed development and the 4 No. adjacent permitted developments deemed relevant to the analysis due to their proximity to the local road network of interest.

17.4.11 Archaeology and Cultural Heritage

All permitted and proposed developments within the study area have been reviewed. As any archaeological remains within the proposed development area will be preserved by record no cumulative impacts have been identified. Similarly, no cumulative impacts have been identified upon the cultural heritage or architectural heritage resource.

17.4.12 Landscape and Visual Impact Assessment

Construction Phase

As this is in an urban fringe area on lands zoned for Enterprise and Employment uses, there is a potential for other sites in close proximity to be brought forward for redevelopment, and construction activity may be extensive in the future. There is a permitted development for five logistics / warehousing units at a site just to the East (SD23A/0301) of the proposed development and an undecided application for a medical manufacturing facility (SD23A/0331) to the south east of the site. If all sites are developed concurrently there is potential for ***short term moderate negative*** cumulative impacts as a result of cranes and other similar machinery

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required for construction that will be taller than the proposed buildings and therefore more visible in the landscape.

Operational Phase

The proposed site is in relative proximity to areas which have undergone extensive development of commercial, residential, and mixed-use development in recent years including Celbridge, Adamstown and Grange Castle. However, the site itself and surrounding lands are greenfield sites of rural character that have historically been used as arable farmland. Once operational as a media campus in the context of surrounding lands which are also likely to be developed, the potential cumulative impact of the operational phase of the proposed development will be ***significant and long term***.

17.4.13 Major Accidents and Disasters

The subject site is not located within the consultation distance for any of the existing SEVESO sites located within the wider Grange Castle area and surrounding areas. The closest Upper Tier site is the Brenntag Chemicals facility approximately 3.2 km to the south.

The cumulative residual and operational effects of the proposed project have been assessed and, in regard to screening of major accidents and risks, cumulative effects are considered imperceptible and neutral as there is no risk to off-site receptors in relation to a major accident.

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18.0 MITIGATION

18.1 Introduction

The chapters contained within this EIAR have been ordered in a grouped format by their relevant topic. This chapter summarises all mitigation measures proposed in order to provide a comprehensive overview of the full range of mitigation measures discussed within each chapter.

Paragraph 2 (d) of Schedule 6 to the Planning and Development Regulations 2001, as amended by the 2018 regulations, provides that the following information must be contained in an EIAR:

"a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example, the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development".

18.2 Population and Human Health

18.2.1 Construction Phase Mitigation

Regarding population, housing, employment, economy, and social services and amenity, no negative impacts have been identified in relation to the provision of a media park at a site zoned for Enterprise and Employment use and as such, no mitigation measures are required.

The implementation of a Construction Environmental Management Plan (CEMP) during the construction phase will mitigate impacts on population and human health. The CEMP outlines the various measures to minimise potential impacts from noise, dust, groundwater contamination etc. These measures can be summarised as follows:

- Noise control audits will be conducted at regular intervals through the construction phase of the development and in accordance with the final CEMP as agreed with South Dublin County Council.
- The purpose of the audits will be to ensure that all appropriate steps are being taken to control construction noise emissions. To this end, consideration will be given to issues such as the following:
    - · Hours of operation
    - Opportunities for noise control 'at source'
    - Optimum siting of plant items
    - Correct use of proprietary noise control measures
    - Materials handling
    - Good maintenance of plant and equipment
- Effective site management regarding dust emissions will be ensured by the formulation of a dust management plan (DMP) for the site, by the Main Contractor.
- The key features of the DMP will be:

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- the DMP will cover both the excavation and fill of soil material phase, soil stabilization phase and the main construction phase.
- the specification of a site policy on dust;
- the identification of the site management responsibilities for dust;
- the development of documented systems for managing site practices and implementing management controls;
- the development of means by which the performance of the dust management plan can be assessed.

Dust Control – Site Roads

- Dust arising from site roads can be easily and effectively controlled. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80%.
- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for onsite vehicles.
- Bowsers will be available during periods of dry weather throughout the construction period.
- Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use.
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

Dust Control - Land Clearing / Earth Moving

- Land clearing / earth-moving during periods of high winds and dry weather conditions can be a significant source of dust.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Dust Control – Storage Piles

- The location and moisture content of storage piles are important factors which determine their potential for dust emissions.
- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site;
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

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Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures.

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- Public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.
- A wheel wash facility will be employed at the exit of the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material.

Pest Control

The Main Contractor will take all necessary steps to ensure that pests, rodents, insects and plants are controlled at all times. Control measures will be undertaken prior to commencement of any works on the site. Poison where used, will comply with any relevant Health and Safety requirements and which eliminate any danger to children, household pets and other wildlife. Old and discussed service pipes and voids will be removed or filled to avoid the potential pest to infest the site.

Delivery System

The key to efficient material/plant deliveries will be the effective management and coordination/ timing of all deliveries. Deliveries will be coordinated to prevent queuing of vehicles adversely affecting traffic flow and to minimise disruption to local traffic. They will be timed and coordinated to avoid conflict with collection of waste, other deliveries (particularly to adjoining owners) and rush hour traffic. During the project procurement phase, the Main Contractor will produce a schedule of deliveries, adopting a 'just in time' approach to avoid potential conflicts and unnecessary storage and handling.

Working Hours

Working hours shall be agreed with SDCC prior to commencement of construction work.

Groundwater Protection

It has been established that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 Chapter 7, will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 7.6.1.1 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal

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contractor. All sampling and soil handling will be undertaken by suitably qualified and trained persons using suitable personal protective equipment to avoid risks to human health.

Surface Water Protection

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located within the vicinity of the proposed site. On a precautionary basis, the mitigation measures set out in Section 8.6.1 will be implemented during the construction works for the protection of human health and populations.

18.2.2 Operational Phase Mitigation

When operational, the proposed development will not result in an increase in population of the Grange Castle area, as there are no residential units proposed as part of the development.

Regarding population, housing, employment, economy, and social services and amenity, no significant negative impacts have been identified in relation to the provision of a media park at a site zoned for Enterprise and Employment use.

A Mobility Management Plan will be implemented once operational to encourage modal shift within the development, thereby reducing car dependency and potential for traffic congestion in the area.

Sound stages will be constructed with appropriate sound proofing to ensure minimal impacts to nearby receptors.

The buildings are designed for most of the production to occur in large sound attenuated studios organized with “shooting lane” for the occasional exterior filming, and exterior “back lot”. The stages, with sound attenuation of NIC 14 – 20 metres for walls and roof assemblies at a height of 14 to 20 metres. While this provides ideal conditions for indoor filming, the stages also effectively provide an 14-20m-tall buffer wall of sound attenuated buildings around the perimeter of the site separating the exterior shooting areas to the interior shooting corridors protected by the height and mass of the stages and other buildings.

The “back lot” on the southwestern portion of the site will limit hours of construction/production and will provide notification to surrounding sensitive receptors. if night productions or special effects generating noise levels of greater than 75dbs, these will be scheduled with prior notification given to surrounding receptors.

Hours of operation of outdoor areas for film production will be agreed with SDCC prior to commencement of operations at the site.

Surface Water Protection

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA. On a precautionary basis, the mitigation measures set out in Section 8.6.2 will be implemented during the operational phase for the protection of human health and populations, and downstream material assets.

18.2.3 Monitoring

The measures and targets within the Mobility Management Plan will be monitored and updated as required.

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18.3 Biodiversity

18.3.1 Construction Phase Mitigation

Mitigation measures will be incorporated into the proposed development project to minimise the potential negative impacts on the ecology within the zone of influence (ZOI). These measured are outlined below in sequence, and incorporate elements outlined elsewhere in this EIAR and in the BMCE Construction Environmental Management Plan.

The following construction phase mitigation measures are proposed:

Habitats

There are no specific measures for habitats during the construction phase. Treelines currently located at the periphery of the site will be retained.

Nonvolant Mammals

There are no specific mitigation measures set out for nonvolant mammals during the construction phase.

Bats (International Protection)

No loss of bat roosts will occur due to the development. The development of the site will not impact bats utilising the Grand Canal. It is important to limit artificial lighting within the site to ensure no additional light pollution occurs on bat friendly habitat features, considered under the operational phase below.

Birds (National Protection)

The removal of vegetation could impact on nesting passerines such as blackbird and wren, thus, this activity should be carried out only outside of the bird-nesting season (March 1st-August 31st inclusive) in order to avoid impacts on nesting birds. In the event this work is required earlier an ecological clerk of works (ECoW) should be onsite to ensure no nesting birds are present. Should an occupied nest be found the clearance works will have to wait until after fledging.

Whilst halting the construction to times outside the wintering period was considered, the scale of works was not considered impactful enough to negatively impact wintering birds remaining within and outside of GCWBP. Rather, an ECoW will be involved in the construction and limit construction in areas based on when they are of value to birds. The monitoring section below outlines how bird surveys will continue during the construction phase and based on these results micro exclusion zones can be put in place. An ECoW will be employed during the construction phase to micromanage construction locations to avoid disturbance on key species.

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18.3.2 Operational Phase Mitigation

Habitats

In addition to the retention of existing green areas where feasible, the proposed development includes a Landscape Plan which provides for biodiversity offset through the additional planting. The Landscape Plan provides for extensive planting along a supporting strip adjacent to the southern boundary of the Grand Canal corridor and supports native species proposals having regard to the All-Ireland Pollinator Plan for the promotion of supporting habitats and a positive impact in terms of Biodiversity Net Gain.

Nonvolant Mammals

There are no specific mitigation measures proposed for nonvolant mammals during the operational phase of development.

Bats

Artificial lighting is to be limited within the site to ensure that no additional light pollution occurs on bat friendly habitat features.

The lighting plan proposed is designed so that there is a maximum of 1lux light spill in areas to the north and west where Canal and treelines are located. This will be achieved by using well controlled optics and mounting the luminaries without any tilt or with a small 5 degree tilt away from the boundaries in question. This will result in an overall upward light ratio of 0%.

All lights will use an amber-white spectrum which does not contain any blue light component. This colour type has less of a negative effect on invertebrates and bats in comparison to older models. In other areas of the site with less potential for disturbance 3000k warm white lighting has been proposed (instead of typical 4000k neutral white).

A dark zone will be established to the north of the site. A static monitoring program and Lux survey should be completed in the grassland to the north of the site, adjacent to the Grand Canal prior and after construction.

Birds

The loss of lands usable by Golden plover is of concern and it is essential the flocks utilizing the site have alternative, suitable lands they can use going into the future, particularly as development continues westwards. These lands need to be identified and farming practices managed in such a way that Golden Plover can utilize them. Ideally, these lands will already be used by Golden plover as the species appears faithful to existing sites.

Communication with South Dublin County Council have identified that such lands are available. SDCC are making available an area of land in its ownership within an overall landholding comprising 37 hectares in provision with the policies and objectives set out in the South Dublin County Development Plan 2022-2028 and the South Dublin Biodiversity Action Plan. The grazing lands at this location, which are within a distance of 9.1 km from the Grange Castle West lands contain large scale field systems and short sward management grassland, that can be maintained as a short sward during the winter months, thereby providing optimal conditions to support winter feeding birds. Land management strategies will be agreed with

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farmers and will form part of the conditions of relevant land management licenses issued by the Council to farmers managing the relevant lands. See Appendix 6.2.

18.3.3 Monitoring

An Ornithologist Ecological Clerk of Works will be employed during the construction phase to micromanage construction locations to avoid disturbance on key species. No ecological monitoring is required during the operational phase of development, and no reinstatement measures are proposed.

18.4 Land, Soils and Groundwater

18.4.1 Construction Phase Mitigation

Suspended Solids

In order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase:

- The buffer zone of minimum 10 m from the Grand Canal will be established early in the construction phase where no construction works will take place
- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Run-off water containing silt will be contained on site via settlement tanks and treated to ensure adequate silt removal.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection. Topsoil will be stored in stockpiles of max 2m high as per best practice. The stockpiles will be managed and maintained by the main contractor.
- Construction materials, including aggregates etc. will be stored a minimum of 20 meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.

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- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

In addition to the measures outlined above, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Cement/Concrete Works

Where feasible, all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Uisce Eireann / SDCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other Construction Chemicals

The following measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers

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to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Human Health and Populations

It has been established that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1, will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 7.6.1.1 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will

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be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor. All sampling and soil handling will be undertaken by suitably qualified and trained persons using suitable personal protective equipment to avoid risks to human health.

Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 will be implemented during the construction works for the protection of groundwater quality.

18.4.2 Operational Phase Mitigation

Land, Soils, Geology and Hydrogeology

The proposed development design includes hardstand cover across the site and as set out in the BMCE Civil Engineering Infrastructure Report for Planning Report, the proposed surface water drainage system is designed to comply with the 'Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Technical Document – Volume 2, New Developments, 2005' and the 'Greater Dublin Regional Code of Practice for Drainage Works, V6.0 2005'. CIRIA Design Manuals C753, C697 and C609 have also been used to design the surface water drainage system within the site.

It is proposed to construct a new surface water drainage system for the development to collect runoff from roofs and paved areas and any additional runoff from landscaped areas which doesn't percolate to ground. It is proposed that the new surface water network within the site will convey surface water flows to two swales located within the 50m buffer zone between the proposed development and the Grand Canal to the North of the site. Surface water flows from the site will outfall to the existing watercourse approx. 100m West of the site connecting to the Grand Canal. The swales will be designed to accommodate flows for the 1 in 100-year storm event. A hydrobrake will be fitted at the outfall of each swale which will limit the flow exiting the site to the existing greenfield runoff rate QBAR (57.5 l/s). Therefore, the risk of accidental discharge has been adequately addressed through design.

Human Health and Populations

It has been established that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 will be implemented during the operational phase for the protection of human health and populations.

Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the operational phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 7.6.1.1 will be implemented during the operational phase to control the storage of hazardous substances and the risk of accidental spills. It is noted that, as set out in Chapter 8 (Hydrology) the surface water discharges from the site are indirect and will be adequately attenuated via SuDS measures to ensure there is no long-term negative impact to any WFD water quality status.

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18.5 Hydrology

18.5.1 Construction Phase Mitigation

Construction works and the proposed mitigation measures are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects.

The Outline Construction Environmental Management Plan (CEMP) prepared by BMCE and project team, will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the site will be trained in the implementation of the procedures.

Suspended Solids

To manage the potential impact associated with sediment and sediment runoff, the following mitigation measures will be implemented during the construction phase.

- The 50m buffer zone from the Canal will be established early in the construction phase where no construction works will take place. During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion.
- All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.
- Construction materials, including aggregates etc. will be stored a minimum of 50 meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

In addition, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Cement/ Concrete Works

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Where feasible, all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Irish Water / SDCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other construction chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment

Wastewater Management

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Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Human Health and Populations

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located within the vicinity of the proposed site. On a precautionary basis, the mitigation measures set out in Section 8.6.1 will be implemented during the construction works for the protection of human health and populations.

Potential Impacts on Water Framework Directive Status

It has been established that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 8.6.1, will be implemented during the construction works for the protection of surface water quality.

18.5.2 Operational Phase Mitigation

Surface Water Quality

The design has taken account of the potential impacts of the development on surface water quality and measures have been incorporated into the design to mitigate these potential impacts. The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS). By design, these measures ensure the stormwater leaving the site is of a suitable quality prior to discharge. SuDS are drainage systems that are environmentally beneficial, causing minimal or no long term detrimental damage. The proposed surface water drainage system for this development has been designed as a sustainable urban drainage system with grass swales, permeable paving, and green roofs to:

- Treat runoff and remove pollutants to improve quality;
- Restrict outflow and to control quantity; and,
- Increase amenity value.

The proposed surface water SuDS approach will attenuate the rate of surface water runoff from the development, intercept first flush flows and improve the quality of water that is intercepted by the surface water drainage network through biodegradation, pollutant adsorption and settlement and retention of solids. There is a low potential loading of hazardous substances during operation (mainly leaks for vehicles) and the drainage design

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incorporates SuDS measures to treat normal run-off water quality in order to meet surface water regulations.

Human Health and Populations

It has been established that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA. On a precautionary basis, the mitigation measures set out in Section 8.6.2 will be implemented during the operational phase for the protection of human health and populations, and downstream material assets.

Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the operational phase to protect the hydrological environment (receptors). There is a potential of accidental discharges during the operational phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

There are no untreated discharges of wastewater during the operational phase to any open waterbody / watercourse receptors. The discharges to surface water will be adequately treated via SuDS measures to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse (receptor). The SuDS and proposed measures have been designed in detail with the ultimate aim and objective of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term / on-going integrity of same.

18.6 Air

18.6.1 Construction Phase Mitigation

The proposed development has been assessed as having a low risk of dust impacts during the construction phase because of earthworks, construction and trackout activities. The following dust mitigation measures shall be implemented during the construction phase of the proposed development and are appropriate for sites with a low risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement involves explaining the nature and duration of the works to local residents and businesses.

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- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary. This notice board should also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension. Therefore, mitigations must be implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water and mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on site use dust suppression/mitigation measures will be utilised.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas. If long haul routes are required these speeds may be increased, with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

Operations

- Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyers and covered skips.

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- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment where appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfacers as soon as practicable.
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate. This is to ensure moisture content is high enough to increase the stability of the soil, and therefore, suppress dust.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out. If this is required for a particular process, then ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems. This is to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective dust control measure for on-site vehicles.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes which are regularly damped down, with fixed or mobile sprinkler systems, or mobile water bowsers, and regularly cleaned.
- Implement a wheel washing system where reasonably practicable (with rumble grids to dislodge accumulated dust and mud prior to leaving the site).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility (when required) and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby to monitor dust, record inspection results in the site inspection log. This should

include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary. Cleaning is to be provided if necessary.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

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18.6.2 Monitoring

Construction Phase

During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Monitoring of emissions is not proposed for the construction phase of the proposed development as impacts are predicted to be imperceptible. Once the dust mitigation measures outlined in the mitigation section are implemented construction dust emissions will be imperceptible.

Operational Phase

There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be imperceptible.

18.7 Noise

18.7.1 Construction Phase Mitigation

The assessment detailed in Section 11.5.2 and Section 11.5.4 of Chapter 11 has found that predicted construction noise and vibration levels do not exceed the thresholds whereby a significant impact would be likely. Therefore, while the contractor should employ best practice noise and vibration control measures, specific mitigation measures are not necessary for the proposed construction works.

18.7.2 Operational Phase Mitigation

In order to ensure that acceptable operational noise levels at the nearest noise sensitive locations are achieved, the following mitigation measures should be considered during the detailed design stage.

Noise emissions from building services plant will be designed to ensure that noise levels at the façade of the noise-sensitive locations both within the development and in the surrounding area do not exceed the criteria discussed in 11.3.4 and Section 11.5.5.

During the detailed design of the development, the selection and location of mechanical and electrical plant will be undertaken in order to ensure the noise emission limits set out above are not exceeded. In addition to selecting plant with suitable noise levels, the following best practice measures are recommended where required, for all plant items in order to minimise potential noise disturbance for adjacent buildings:

- where ventilation is required for plant rooms, consideration will be given to acoustic louvers or attenuated acoustic vents, where required to reduce noise breakout;

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- ventilation plant serving plant rooms will be fitted with effective acoustic attenuators to reduce noise emissions to the external environment;
- the use of perimeter plant screens for plant areas to screen noise sources;
- the use of attenuators or silencers on external air handling plant;
- all mechanical plant items e.g. fans, pumps etc. shall be regularly maintained to ensure that excessive noise generated any worn or rattling components is minimised; and,
- Installed plant shall have no tonal or impulsive characteristics when in operation that would be audible at an NSL.

18.7.3 Monitoring

Construction Phase

During working hours, dust control methods will be monitored as appropriate. This depends on the prevailing meteorological conditions. Monitoring of emissions is not proposed for the construction phase of the proposed development as impacts are predicted to be imperceptible. Once the dust mitigation measures outlined in the mitigation section are implemented, then construction dust emissions will be imperceptible.

Operational Phase

There is no monitoring recommended for the operational phase of the development as impacts to air quality are predicted to be imperceptible.

18.8 Climate

18.8.1 Construction Phase Mitigation

Construction Phase Mitigation

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Waste materials will be re-used on site where possible and where re-use is not possible on-site, they will be sent off-site for recycling, re-use or recovery.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions.

In addition to the above best practice measures, the carbon assessment has highlighted the areas where the highest embodied carbon emissions occur, specifically due to building materials (see Section 10.5.2). To reduce carbon impacts from the proposed development, using alternative materials with lower embodied carbon emissions, such as timber frame walls

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or concrete with a 50% recycled cement content, can reduce the impact of the development on climate.

Alternative material types with lower embodied carbon should be investigated during the detailed design phase of the proposed development.

18.8.2 Operational Phase Mitigation

A number of measures have been incorporated into the of the development to mitigate the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated to avoid potential flooding impacts due to increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (see Section 10.5.3).

A number of design mitigation measures have been integrated into the development's design to reduce the impact on climate. Full details of these measures are outlined within the Sustainability and Energy Statement TGD L Compliance Report prepared by Homan O'Brien in relation to the development. Details are provided in Section 10.5.3 and include compliance with the NZEB regulations. These measures will aid in reducing the impact of the development on climate during the operational phase.

18.8.3 Monitoring

Construction Phase

No monitoring is required for the construction phase of the proposed development.

Operational Phase

No monitoring is required for the operational phase of the proposed development.

18.9 Material Assets (Waste)

18.9.1 Construction Phase Mitigation

The following mitigation measures will be implemented during the construction phase of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the Resource and Waste Management Plan (RWMP) (Appendix 12.1) in compliance with any planning conditions, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phase.
- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling, and recovery. The following waste types, at a minimum, will be segregated:
    - Concrete rubble;

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  - Plasterboard;
  - Metals;
  - Glass;
  - Timber; and
  - Waste generated by workers activities.
- Left over materials (e.g. timber off-cuts, concrete, and metal) and any suitable construction materials shall be re-used on-site, where possible; (alternatively, the waste will be sorted for recycling, recovery, or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager (RM) will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled, or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted, or licenced facilities; and,
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

18.9.2 Operational Phase Mitigation

The following mitigation measures will be implemented during the operational phase of the proposed development:

All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site.

As previously stated, a project specific OWMP has been prepared and is included as Appendix 12.2. The mitigation measures outlined in the OWMP will be implemented in full and form part of the mitigation strategy for the site. Implementation of this OWMP will ensure a high level of recycling, reuse, and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the EMR Waste Management Plan 2015 – 2021, draft NWMPCE Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland and the SDCC waste byelaws.

The Operator / Facilities Management of the site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – the ongoing implementation of this OWMP, ensuring a high level of recycling, reuse, and recovery at the site of the proposed development.

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18.10 Material Assets (Traffic and Transportation)

18.10.1 Construction Phase Mitigation

General Construction Traffic Strategy

Construction traffic will be limited to certain routes and times of day, with the aim of keeping disruption to existing local road network and residential areas to a minimum. To minimise disruption to the local areas, construction traffic volumes will be managed through the following measures:

- During peak hours, ancillary, maintenance and other site vehicle movements will be discouraged.
- Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues.
- Construction vehicle access routes will be restricted to/from the M50 via the R120 / R134, thus minimising impact to residential communities.
- All existing roads will remain open to general traffic through all stages of the construction.
- At pre-commencement stage, the Applicant shall provide a Community Liaison Plan (alongside a final Construction Management Plan).
- Construction vehicles shall not be permitted to park or wait on public roads outside the site boundary.
- All construction access roads shall be kept clean and a maintenance plan for same, shall be agreed with SDCC.
- Prior to commencement, an independent Environmental Monitoring Officer (EMO) shall be appointed to monitor any environmental impacts during construction. The EMO shall report to the Planning Authority and shall maintain communication with the Applicant, contractors, local community, and other relevant stakeholders.

Pedestrian Safety

Deliveries will be scheduled outside of peak traffic hours, to avoid disturbance to pedestrian traffic in the vicinity of the site.

Hours of Working

Working hours shall be agreed with SDCC prior to commencement of construction works.

Construction Traffic Management Plan

A detailed Construction Traffic Management Plan (CTMP) will be developed by the Contractor and presented to SDCC for approval prior to commencement of the construction works. The CTMP will contain detailed temporary traffic management drawings for each construction stage and will include the mitigation measures described in this section. Please refer to Outline Construction and Environmental management Plan prepared by Barret Mahony and Associates and submitted within this application for further details of proposed traffic management measures.

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18.10.2 Operational Phase Mitigation

The development shall incorporate several design and management elements intended to mitigate the impact of the development on the surrounding road network during its operational phase. These include:

- a high provision of secure bicycle parking, which shall serve to encourage bicycle journeys by both development occupants and visitors; and
- promotion of sustainable transport modes such as walking, cycling and public transport use.

As described in the Mobility Management Plan document prepared in support of this planning application, a Mobility Management Plan Coordinator shall be appointed for the proposed development, with the remit to implement and oversee an ongoing Mobility Management. This shall assist development occupants and visitors in making the most of sustainable transport opportunities and in avoiding single-occupant car journeys to and from the development site where possible.

18.10.3 Monitoring

Construction Phase

The construction phase should be monitored to ensure compliance with relevant local authority requirements, and effective implementation of the Construction Traffic Management Plan (CTMP).

Operational Phase

As described in the accompanying Mobility Management Plan (MMP) document, a Mobility Management Plan Coordinator (MMPC) shall be appointed for the Proposed Development, with the remit to implement and oversee an ongoing MMP. In conjunction with this, the MMPC will be responsible for monitoring the travel habits of development occupants and visitors.

The MMP is a dynamic process whereby a package of measures and campaigns is identified, piloted, and then monitored on an ongoing basis. The MMP will identify specific targets against which the effectiveness of the plan can be assessed at each review; these will typically take the form of target modal splits for journeys to and from a site. The MMP Coordinator will gather data on travel patterns, for instance by conducting periodic travel surveys of development occupants.

Post-development monitoring of the surrounding street network's performance is not required or proposed in this case.

18.11 Material Assets (Site Services)

All new-build service infrastructure is to be designed in accordance with the relevant service provider and asset owner's code of practice, which require due cognisance of the receiving environment.

Design depths of proposed infrastructure are to be optimised so that excessive excavations are avoided where possible, and by association a reduction in resultant waste and machinery

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operation time. It will be suggested that products and materials are supplied locally, where practicable and available, to reduce carbon footprint of travel and production.

18.11.1 Construction Phase Mitigation

The following mitigation measures are recommended for the construction phase:

- The contractor is to conduct works in accordance with all relevant local authority requirements, and health and safety legislation.
- Relevant service providers are to be consulted in advance of works to ensure works are carried out to relevant standards and specifications including procedures to ensure safe working practices are implemented for works in the vicinity of services, such as live gas mains, works in the vicinity of overhead electricity lines and live electricity lines and works to distribution watermains.
- Neighbouring sites are to be advised of construction methodologies in advance of works, in situations which may affect them.
- All retained underground services are to be protected.
- All decommissioned infrastructure will have to be sent to an accepting landfill for disposal.
- A construction methodology will be required by the contractor to be tailored to reduce, where possible, dust noise and air pollution; to minimise interference with the environment and the neighbouring areas.
- Any spoil or waste material generated from the construction process is to be temporarily stored at an approved location on site, before being removed to an accepting licensed disposal facility.
- All infrastructure is to be appropriately tested by an approved method during the construction phase, all in accordance with Uisce Éireann / SDCC requirements.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- Prior to the commencement of excavations in public areas, all utilities and public services are to be identified and checked; to ensure that adequate protection measures are implemented to minimise the risk of service disruption.
- All excavations within the public area are to be back-filled in a controlled manner and surface re-instated to the satisfaction of the Local Authority.

With the implementation of these mitigation measures, the severity of the impact of the proposed development on the built services will be minimised, with tie-ins to existing services and installation of new services completed in a satisfactory manner for the relevant service providers.

18.11.2 Operational Phase Mitigation

The material assets are to be constructed in accordance with all relevant local authority and UÉ standards.

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18.11.3 Monitoring

The construction of works should be monitored to ensure compliance with relevant SDCC and UÉ requirements, and health and safety legislation.

The operational phase of public works should be monitored by those responsible for the respective asset.

The operational phase of private assets should be monitored by the management company for the development. By ensuring that these networks are adequately supervised the potential for water or effluent leaks are reduced to within acceptable limits.

18.12 Landscape and Visual Impact

18.12.1 Construction Phase Mitigation

Hours of construction activity associated with any development on site will be restricted in accordance with the relevant local authority guidance.

18.12.2 Operational Phase Mitigation

In terms of screening from potential visual receptors, this is addressed through the proposal of a 5m wayleave which is heavily screened by tree planting and hedgerow to the Western, Eastern and Southern boundaries, and a 50m buffer zone to the North of the site which serves as a public amenity space and also functions to enhance the ecological value of this section of the Grand Canal Green Infrastructure Corridor.

Site lighting will consist of directionally focused lighting that seeks to minimise light spill. In order to further mitigate any potential chance of light spill, hedgerow planting to the boundaries of the site and high volumes of tree planting to the 50m buffer area will prevent light from spilling onto the canal, thus having any potential adverse effect on local wildlife.

18.12.3 Monitoring

Construction Phase

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

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

Operational Phase

This will consist of weed control, replacement planting, pruning, management of meadows etc. All landscape works will be in an establishment phase for the initial three years from planting. Prior to completion of the landscape works, a competent landscape contractor should be engaged and a detailed maintenance plan, scope of orientation and methodology should be put in place.

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18.13 Cultural Heritage including Archaeology

18.13.1 Construction Phase Mitigation

Archaeological Heritage

It is acknowledged that that preservation in-situ is the preferred method for the conservation of archaeological remains. With regards to AA1-5, it is not possible to preserve the remains in-situ due to the ground disturbance required for the development, including the construction of buildings and infrastructure. Therefore, AA1-5 will be preserved by record prior to the commencement of construction. This will be carried out under licence to the National Monuments Service of the DoHLGH.

All topsoil stripping within the proposed development area will be subject to archaeological monitoring during construction. This will be carried out by a suitably qualified archaeologist. If any features of archaeological significance are identified, consultation with the National Monuments Service of the DoHLGH will be required in order to determine whether preservation by record or in-situ is the most appropriate manner in which to proceed.

Cultural Heritage

During the course of monitoring topsoil stripping, the site of the townland boundaries crossing the development area, will be recorded as part of the overall monitoring exercise.

Architectural Heritage

No mitigation is required.

18.13.2 Operational Phase Mitigation

No mitigation is required for the archaeological, architectural, or cultural heritage resource at operational phase.

18.13.3 Monitoring

The mitigation measures detailed above would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted impacts and the effectiveness of the mitigation measures.