

## 16.0 MITIGATION AND MONITORING MEASURES

### 16.1 Introduction

Golder Associates Ireland Ltd (Golder) have been commissioned to prepare this Environmental Impact Assessment Report (EIAR) on behalf of Atlas GP Ltd, as developer of the proposed Carmanhall Road Strategic Housing Development (SHD; hereafter the 'Proposed Development'). The Proposed Development and is located at the former Avid Technology International site on Carmanhall Road, Sandyford Industrial Estate, Dublin 18, (the 'Site' / 'Application Site').

The purpose of this chapter is to collate the mitigation and monitoring measures identified in the EIAR that are considered necessary to protect the environment prior to, and during, the construction and operation phases of the Proposed Development.

The design of the Proposed Development takes environmental constraints and considerations into account, with embedded mitigation a fundamental component of the design that enables many potential environmental impacts to be avoided entirely. Where environmental impacts cannot be avoided by embedded mitigation, additional mitigation and monitoring measures have been recommended in the EIAR. These are collated and presented in this chapter.

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

#### 16.1.1 Project Description

The Proposed Development will comprise of:

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

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

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

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

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

## 16.2 Mitigation Measures

Mitigation measures and environmental commitments have been identified as general requirements that will help to avoid, reduce or offset potential impacts and these are relevant to a number of the environmental aspects addressed in the EIAR. These general environmental mitigation measures are described in Table 16.1.

Specific mitigation measures described within the EIAR technical assessments are provided in Table 16.2 to Table 16.13 below.

The timing of the implementation of the mitigation measures is indicated within the tables as:

**Construction Phase:** During the physical works to construct the Proposed Development, including all site preparation and enabling works; and

**Operational Phase:** During the ongoing occupation of the Proposed Development. The operational phase has no determined end date as it is assumed the Proposed Development will be occupied indefinitely.

**Table 16.1: General Environmental Mitigation Requirements**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
GM1	<p>The appointed Main Contractor will finalise and implement the Construction Management Plan (CMP). A preliminary Construction Management Plan (pCMP) has been prepared for the Proposed Development, to outline the general activities required for the construction of the Proposed Development. The pCMP sets out the typical arrangements and measures to be employed during construction and will ultimately evolve into the finalised CMP prepared by the appointed Main Contractor.</p>	Construction Phase
GM2	<p>The appointed Main Contractor will implement, review and amend (as required) the Construction Environmental Management Plan (CEMP) for the Site. The purpose of the CEMP is to:</p> <ul style="list-style-type: none"> <li>■ Minimise the environmental impact of the construction phase of the development through the incorporation of the planning consent’s mitigating principles;</li> <li>■ Ensure compliance with environmental legislation during this phase;</li> <li>■ Identify relevant environmental risks and their management during construction;</li> <li>■ Provide a system of continuous improvement in environmental performance for the construction activities;</li> <li>■ Identify the environmental management responsibility structure.</li> </ul> <p>The CEMP is required to be approved by The Board. The CEMP contains all the mitigation measures and plans identified in the EIAR, which are summarised in this chapter.</p> <p>The appointed Main Contractor shall incorporate all the conditions set out in the planning approval into the CEMP and implement these on-site.</p> <p>The CEMP sets out all the intended methods to manage potential environmental impacts from the construction of the Proposed Development. Other key elements will include:</p> <ul style="list-style-type: none"> <li>■ The appointment of an on-site Environmental Officer for the construction period of the Proposed Development;</li> <li>■ Incorporation of all environmental commitments, including purpose and objective;</li> <li>■ Incorporation of procedures to record any environmental incidents on site and procedures for implementing appropriate corrective and preventative measures;</li> <li>■ Incorporation of procedures for staff environmental awareness;</li> <li>■ Incorporation of environmental monitoring procedures;</li> <li>■ Incorporation of a system of audit and review.</li> </ul>	Construction Phase

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	The CEMP is a live document and will be reviewed on a regular basis and updated accordingly by the appointed Main Contractor, in particular the document shall be reviewed on receipt of planning approval in accordance with the relevant planning conditions.	
GM3	The appointed Main Contractor shall ensure that the approved CEMP is fully implemented during the construction phase, to prevent or reduce the impacts identified in the impact assessment. This includes maintaining and implementing all relevant management plans specified in the EIAR.	Construction Phase
GM4	The appointed Property Management Company will be responsible for ensuring that all embedded mitigation and relevant operational management plans required by the EIAR are appropriately maintained.	Operational Phase
GM5	<p>The Property Management Company will:</p> <ul style="list-style-type: none"> <li>■ Provide a system of continuous improvement in environmental performance for the operation of the Proposed Development;</li> <li>and</li> <li>■ Identify the environmental management responsibility structure for the management of the Proposed Development.</li> </ul>	Operational Phase
	<b>NOTE: Any further general environmental mitigation measures within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.2: Specific Environmental Mitigation Requirements – Population and Human Health**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
PHH1	To mitigate potential temporary community disturbance during construction, the final Construction Management Plan (CMP) and Construction Environmental Management Plan (CEMP) will be implemented in full.	Construction Phase
PHH2	To mitigate potential impacts to human health of the surrounding receptors the final Construction Management Plan (CMP) and Construction Environmental Management Plan (CEMP) will be implemented in full.	Construction Phase
PHH3	Access to the construction site will be restricted to authorised personnel only. Hoarding and fencing will be erected along boundaries as appropriate.	Construction Phase
PHH4	The health and safety considerations and hazards present during the construction phase will be managed by the appointed Main Contractor and their nominated 'Project Supervisor Construction Stage' (PSCS). The PSCS role will remain in place at the site from the beginning of works until the project has been completed.	Construction Phase
PHH5	The appointed Main Contractor will develop a site health and safety management plan to protect personnel working on the site and other members of the public who may be affected by the construction works.	Construction Phase
PHH6	The appointed Main Contractor will implement a Construction Traffic Management Plan to manage instances where construction traffic may affect local road users	Construction Phase
PHH7	As appropriate the PSCS will document a specific COVID-19 plan in line with the Construction Industry Federation and Health and Safety Authority advice, and in consultation with the Client.	Construction Phase
PHH8	The PSCS, in consultation with other contractors, will appoint a COVID-19 Compliance Officer, as necessary.	Construction Phase
PHH9	The Management Company will ensure that the operation of the Proposed Development is carried out in accordance with the provisions of the 'Estate and Common Area Management Strategy' report (Aramark, 2021); including all operational maintenance of items such as the building's waste services, utilities, health and safety, water, fire protective equipment and measures and security	Operational Phase
	<b>NOTE: Any further mitigation measures related to Population and Human Health detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.3: Specific Environmental Mitigation Requirements – Ecology and Biodiversity**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
EB1	To prevent any pollution incidents that might potentially cause deterioration of the aquatic environment it is proposed that a series of best practice measures are introduced throughout the construction works, in accordance with CIRIA's guideline documents C532 (CIRIA, 2001) and C741 (CIRIA, 2015), and Enterprise Ireland's best practice guidance for oil and hydrocarbon storage (BPGCS005).	Construction Phase
EB2	Dangerous substances such as oils and fuels will be stored at all times in a bunded area.	Construction Phase
EB3	Only clean water will be allowed to enter public surface water sewers.	Construction Phase
EB4	Where necessary, silt traps will be used to remove sediment and solid matter prior to discharge to surface water sewers.	Construction Phase
EB5	Site personnel will be trained in the importance of pollution prevention.	Construction Phase
EB6	Trees (offsite) which are to be retained will be protected in accordance with best practice guidance (BS5837).	Construction Phase
EB7	Removal of any trees will be done outside of the bird nesting season on a precautionary basis. The nesting season is considered to be between March and August inclusive. If trees are required to be felled within the nesting season a suitably qualified ecologist will first check to ensure that the trees do not support nests. In the unlikely event that nests are discovered and in use the trees will not be permitted to be felled until the young have fledged.	Construction Phase
EB8	The lighting strategy will be carried out in accordance with the IN2 (2021) Site Lighting Report.	Construction and Operational Phases
EB9	Landscaping works will be carried out according to the proposals identified in the Proposed Development's Landscape Design Statement (NMP, 2021)	Construction and Operational Phases
EB10	In advance of Site works invasive plant species surveys will be undertaken at the Site to adopt a precautionary approach. Measures will be implemented throughout the construction works to safeguard against the spread of any invasive non-native species (such as Japanese knotweed or cotoneaster). The Main Contractor will ensure that all materials imported or exported from the Site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the Site.	Construction Phase
	<b>NOTE: Any further mitigation measures related to Ecology and Biodiversity detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.4: Specific Environmental Mitigation Requirements – Land, Soils and Geology**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
LSG1	If evidence of previously unidentified potential contamination (either visual or olfactory) is identified during construction works, construction good practice and management procedures will be followed that may include investigation and assessment works	Construction Phase
LSG2	Any sludge collected from wheel wash equipment used during construction will be tested and disposed of to an appropriate waste disposal facility. No used water or settled solids will be disposed of to land without prior consent of the EPA.	Construction Phase
	<b>NOTE: Any further mitigation measures related to Land, Soils and Geology detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.5: Specific Environmental Mitigation Requirements – Water**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
W1	A pre-construction water feature survey to obtain current information on any potential non recorded local water users and the source of their water (note that given the urban location it is considered highly unlikely that there are any non-recorded water users). If such users are identified, an assessment to be made of how/if the Proposed Development (including construction activities) could affect these water users. This CEMP will be updated to include any further mitigation that may be required if impacts are predicted (although it is considered highly likely that existing mitigation measures will be sufficient)..	Construction Phase
W2	If evidence of previously unidentified potential contamination (either visual or olfactory) is identified during construction works, construction good practice and management procedures will be followed that may include investigation and assessment works.	Construction Phase
W3	Any sludge collected from wheel wash equipment used during construction will be tested and disposed of to an appropriate waste disposal facility. No used water or settled solids will be disposed of to land or water without prior consent. Should any discharges to ground or surface water be proposed during construction, the relevant responsible authority will be consulted to determine if the discharges require authorisation. Local authorities are responsible for the issuing of effluent discharge licences for effluents discharged to waters, and Irish Water are responsible for effluent discharges to sewers. If authorisation is required, the discharger will make the relevant application(s). Discharges will be monitored as per the licence/consent, and appropriate treatment will be undertaken so that discharges meet the relevant environmental standards.	Construction Phase
W4	Any piling activities will be undertaken using good practice methods that reduce the potential for creating new pathways between the surface and sub-surface, particularly to groundwater within the bedrock aquifer.	Construction Phase
	<b>NOTE: Any further mitigation measures related to Water detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases



**Table 16.6: Specific Environmental Mitigation Requirements – Air Quality**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
AQ1	Air Quality mitigation during the construction phase will be managed in accordance with the CEMP to ensure that relevant thresholds are in accordance with consented levels.	Construction Phase
AQ2	<p><b>Communication</b></p> <p>The Main Contractor will develop a stakeholder communications plan which will include community engagement before the construction work commences at the Site.</p> <p>The name and contact details of person(s) accountable for the management of the Site will be displayed on the Site boundary so that they can be contacted regarding environmental nuisances.</p> <p>The Main Contractor will develop and implement a Dust Mitigation Plan (DMP) appropriate to the level of anticipated dust risk and detailing mitigation measures during construction activities. Measure to be incorporated into the plan will include:</p>	Construction Phase
AQ3	<p><b>Site Management</b></p> <p>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken;</p> <p>Make the complaints log available to DLR, as required;</p> <p>Record any exceptional incidents that cause dust and/or air emissions, either on-or off-site, and the action taken to resolve the situation.</p>	Construction Phase
AQ4	<p><b>Monitoring</b></p> <p>Undertake daily on and offsite inspection, where receptors are nearby, to monitor dust, record inspection results and make the log available to DLR, as required. This could include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the boundary, with cleaning to be provided if necessary.</p> <p>Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to DLR, as required;</p>	Construction Phase

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	<p>Increase the frequency of site inspections by the Environmental Officer / Coordinator 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;</p> <p>If required by the DMP, agree any dust deposition monitoring locations with DLR and show these locations on a site plan. As required, where possible commence baseline monitoring at least three months before work commences. There are a number of methods to measure dust deposition but only the German TA Luft Air Quality Standards (TA Luft, 1986) specify a method of measuring dust deposition – the Bergerhoff Method (German Standard VDI 2119, 1972) – with dust nuisance. On this basis, a dust deposition limit value of 350 mg/m<sup>2</sup>/day is applied (when averaged over a 30-day period).</p>	
AQ5	<p><b>Preparing and Maintaining the Site</b></p> <p>Plan site layout so that machinery and dust causing activities including stockpiling are located away from receptors, as far as is possible;</p> <p>Erect solid screens or barriers around dusty activities or the site boundary which are at least as high as any stockpiles on site;</p> <p>Fully enclose site or specific operations, where possible, when there is a high potential for dust production;</p> <p>Avoid site runoff of water or mud;</p> <p>Keep site fencing, barriers and scaffolding clean using wet methods;</p> <p>Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on-site;</p> <p>Cover or fence stockpiles to prevent wind shipping;</p>	Construction Phase
AQ6	<p><b>Operating Vehicle / Machinery and Sustainable Travel</b></p> <p>Ensure all vehicles switch off engines when stationary – no idling vehicles;</p> <p>Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable;</p> <p>Impose and signpost a maximum speed limit of 25 kph on surfaced and 15 kph on unsurfaced haul roads and work areas;</p>	Construction Phase
AQ7	<p><b>Construction Activities</b></p>	Construction Phase

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	<p>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;</p> <p>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;</p> <p>Use enclosed chutes and conveyors and covered skips;</p> <p>Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;</p> <p>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;</p> <p>Avoid scabbling (roughening of concrete surfaces);</p> <p>Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;</p> <p>Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery;</p> <p>For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust;</p>	
AQ8	<p><b>Earthworks</b></p> <p>Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;</p> <p>Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable;</p> <p>Only remove surface cover in small areas during work and not all at once, if possible;</p>	Construction Phase
AQ9	<p><b>Trackout</b></p> <p>Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site;</p>	Construction Phase

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	<p>Avoid dry sweeping of large areas;</p> <p>Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;</p> <p>Record all inspections of haul routes and any subsequent action in a site logbook; and</p> <p>Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).</p>	
	<p><b>NOTE: Any further mitigation measures related to Air Quality detailed within authorisation or consents to be included in this section and adhered to.</b></p>	Construction and Operational Phases

**Table 16.7: Specific Environmental Mitigation Requirements – Climate**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	The mitigation in respect of Climate effects is wholly embedded in the design of the development that has been assessed. Therefore, no additional climate mitigation is required to be undertaken.	
	<b>NOTE: Any further mitigation measures related to Climate detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.8: Specific Environmental Mitigation Requirements – Noise**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
N1	<p>Noise mitigation during the construction phase will be managed in accordance with the CEMP to ensure that noise levels are in accordance with BS5228.</p> <p>The baseline derived (refer to Chapter 9 of the EIAR) threshold noise levels for off-site NSRs are as follows:</p> <ul style="list-style-type: none"> <li>■ Weekday daytimes (07:00 – 19:00) and Saturday mornings (07:00 – 13:00): 65 dBL<sub>Aeq,1hr</sub></li> <li>■ Evenings (19:00 – 23:00) and weekends (13:00-23:00 Saturday, 07:00 – 23:00 Sundays): 55 dBL<sub>Aeq,1hr</sub></li> <li>■ Night-time (23:00 – 07:00): 45 dBL<sub>Aeq,1hr</sub></li> </ul>	Construction Phase
N2	<p>Following the completion of a detailed construction programme by the appointed Main Contractor, and once any requirements for out-of-hours activities have been identified, the Main Contractor will conduct a detailed noise prediction for these activities in order to determine any specific mitigation measures required such that the noise thresholds are met at NSRs. These measures will then be updated in the Site's CEMP.</p>	Construction Phase
	<p><b>NOTE: Any further mitigation measures related to Noise detailed within authorisation or consents to be included in this section and adhered to.</b></p>	Construction and Operational Phases

**Table 16.9: Specific Environmental Mitigation Requirements – Cultural Heritage**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
CH1	To mitigate for the potential presence of undiscovered archaeological remains within the Site, the initial soil stripping works, prior to excavation of the foundations and basement, will be completed under licensed archaeological supervision ('watching brief'). If features, such as the potential field boundary, are identified, the supervising archaeologist should hand excavate and, if appropriate, sample a portion of the feature (if suitable materials are discovered).	Construction
	<b>NOTE: Any further mitigation measures related to Cultural Heritage detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.10: Specific Environmental Mitigation Requirements – Wind**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
WMC1	The implementation of tree landscaping along the main roads, public spaces and pedestrian paths of the Proposed Development has been planned and will mitigate slight funnelling effects; these will be maintained during the operation of the Proposed Development.	Operational Phase
WMC2	Wind velocities on roof terraces are below critical values for safety, however some slightly higher velocities will still occur for some directions, only in some areas of the terraces and often corresponding to the edges. Mitigation measures with balustrade, planters and trees have been included in the design and will be maintained during the operation of the Proposed Development.	Operational Phase
	<b>NOTE: Any further mitigation measures related to Wind and Microclimate detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases



**Table 16.11: Specific Environmental Mitigation Requirements – Landscape and Visual**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
	The mitigation in respect of Landscape / Townscape and Visual effects is wholly embedded in the design of the development that has been assessed. Therefore, no additional landscape and visual mitigation is required to be undertaken.	
	<b>NOTE: Any further mitigation measures related to Landscape and Visual Impacts detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.12: Specific Environmental Mitigation Requirements – Material Assets**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
MA1	A site-specific Construction Management Plan and associated Construction Environmental Management Plan will be developed, and implemented prior to the commencement of works, and implemented and updated throughout the construction phase of the Proposed Development.	Construction Phase
MA2	Efficiencies in water usage will be identified and incorporated into the construction phase of the Proposed Development.	Construction Phase
MA3	Pre-construction consultation and authorisation will be undertaken and achieved for all of the relevant infrastructure connections.	Construction Phase
MA4	Any works required to material assets on or around the Site will be carried out in conjunction with the relevant provider to ensure minimal disruption to existing users.	Construction and Operational Phases
MA5	Any works required to material assets on or around the Site will be carried out strictly in accordance with the relevant provider's Code of Practices.	Construction and Operational Phases
MA6	SuDS features will be maintained appropriately throughout the operational phase of the Proposed Development by the relevant management body.	Operational Phase
	<b>NOTE: Any further mitigation measures related to Material Assets detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

**Table 16.13: Specific Environmental Mitigation Requirements – Major Accidents and Disasters**

Mitigation No.	Description of Mitigation Measure / Environmental Commitments	Stage of Proposed Development
AD1	Fire rated walls, doors and floors, and other fire protection and suppression measures will be maintained in line with manufacturers requirements and by a suitably qualified contractor.	Operational Phase
AD4	Facilities to assist the Fire Brigade including fire-fighting shafts, fire mains, and external fire hydrants will be maintained appropriately a suitably qualified contractor.	Operational Phase
AD5	The CEMP, CMP and Health and Safety Management Plan (including Emergency Response Plan) will be implemented and adhered to.	Construction Phase
AD6	The Evacuation Strategy will be documented in the Residents' Guide and will be distributed to all residents. Appropriate safe passage and exit signage will be installed throughout the Proposed Development and Fire Action Notices will be displayed in high traffic areas.	Operation Phase
AD7	<p>Fire Prevention Equipment will be maintained by the Management Company following recommendations of an independent survey. The fire alarm panel will be maintained and serviced in accordance with manufacturer guidelines. Dry and wet risers will be maintained in accordance with manufacturer guidelines. The Proposed Development's sprinkler system will be maintained by a suitably qualified professional and also serviced in accordance with manufacturer guidelines.</p> <p>The Management Company will use an independent Fire Risk Assessor to undertake comprehensive Risk Assessment.</p>	Operation Phase
	<b>NOTE: Any further mitigation measures related to Major Risks and Accidents detailed within authorisation or consents to be included in this section and adhered to.</b>	Construction and Operational Phases

## 16.3 Monitoring

Monitoring measures have been identified that will be used to check that the particular phases of the Proposed Development conform to the predictions made as part of the EIAR process.

The monitoring will take place after the consent is granted for the Proposed Development and will provide assurance that aspects of the design and management are functioning as intended and therefore not generating significant effects.

### Population and Human Health

Monitoring for the protection of population and human health during the construction phase will be agreed with the Dún Laoghaire-Rathdown County Council (DLRCC) Environmental Health Officer and updated within the CEMP prior to commencement of works on the Site. Methods, locations and duration of monitoring will be agreed in this process.

Further monitoring in respect to construction site health and safety during the construction stage will be dependent on the specific site practices and tasks being carried out. These measures will be addressed as appropriate in the appointed Main Contractor's CMP and their construction health and safety plan.

During the operational phase the Property Management Company will be responsible for ongoing maintenance and monitoring within the Proposed Development. This will include, but is not limited to, the regular monitoring of site-specific risk assessments and method statements, fire safety features and strategies and water systems (including updating the site's Legionella Risk Assessment and water testing).

### Ecology and Biodiversity

Monitoring related to ecology and biodiversity focuses on the landscaping proposals for the Site. These landscaping proposals include management tasks that will be monitored to ensure successful establishment.

The Principal Contractor for the construction of the Proposed Development will ensure that all materials imported or exported from the Site are not contaminated and monitoring will also take place post-construction to ensure that invasive species do not colonise the Site.

### Soils and Geology

No monitoring requirement is foreseen to maintain and protect the conditions of the land, soil and geology. Any monitoring associated with licences or permits will be detailed within the licences or permit documentation.

Monitoring measures required as part of the off-site disposal of any contaminated soils (if identified) will be addressed separately in the Construction and Demolition Waste Management Plan (CDWMP). Any such measures will be devised and directed by suitably qualified persons appointed by the developer or Main Contractor.

### Water

No monitoring is required to maintain and protect the conditions of the water environment. Any monitoring associated with licences or permits will be detailed within the licences or permit documentation.

### Air Quality and Climate

During the construction phase the Main Contractor will undertake daily on and offsite inspection, where receptors are nearby, to monitor dust, record inspection results and make the log available to Dún Laoghaire Rathdown County Council, as required. This could include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of the boundary, with cleaning to be provided if necessary.

Following the completion of a detailed construction programme the appointed Main Contractor will incorporate a Dust Management Plan (DMP) into their updated CEMP. The Main Contractor will carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority if requested.

The Main Contractor will 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.

The Main Contractor, if required by the DMP, will agree any dust deposition monitoring locations and measures with the Dún Laoghaire Rathdown County Council Environmental Health Officer; and if required, where possible commence baseline monitoring at least three months before work commences. There are a number of methods to measure dust deposition but only the German TA Luft Air Quality Standards (TA Luft, 1986) specify a method of measuring dust deposition – the Bergerhoff Method (German Standard VDI 2119, 1972) – with dust nuisance. On this basis, a dust deposition limit value of 350 mg/m<sup>2</sup>/day is applied (when averaged over a 30-day period).

There is no monitoring proposed for the operational phase of the Proposed Development as impacts to air quality are predicted to be not significant.

No monitoring is required as a result of potential climate change effects on air quality, noise, water resources, flood risk, groundwater, ecology and biodiversity, or other environmental topics.

## Noise and Vibration

Noise monitoring will be undertaken by the contractor during the construction phase of the Proposed Development to assess compliance with the construction noise criteria.

The method and duration of monitoring will be agreed with the DLR Environmental Health Officer prior to commencement of works on site, however, an example schedule is as follows:

- Quarterly monitoring for up to 4 hours per monitoring location. The monitoring locations will be agreed with the DLR Environmental Health Officer prior to commencement of the survey and will be representative of the closest noise-sensitive properties;
- Additional monitoring will be undertaken in the event of a complaint, at a location representative of the complainant's property; and
- Additional monitoring during out-of-hours works. Should potentially noisy out-of-hours works be required, noise levels will be predicted at noise-sensitive receptors in accordance with BS5228 in advance of the works being undertaken. Where predicted levels exceed the relevant threshold level appropriate mitigation will be specified, and monitoring will be undertaken to confirm that threshold levels are being met. Should noise levels due to the works be determined by monitoring to meet the threshold level, monitoring may be discontinued for the duration of a specific activity, unless a complaint is received.

Monitoring will be undertaken by an appropriately-qualified person, using equipment which meets the minimum requirements provided in BS5228. Construction activities are not anticipated to generate significant off-site vibration, and no receptors with high sensitivity have been identified within close proximity to the Proposed Development, therefore monitoring of vibration during the construction phase is not proposed.

## Cultural Heritage

To mitigate for the potential presence of undiscovered archaeological remains within the Site, the initial soil stripping works, prior to excavation of the foundations and basement, will be completed under licensed archaeological supervision ('watching brief'). If features, such as the potential field boundary, are identified, the

supervising archaeologist should hand excavate and, if appropriate, sample a portion of the feature (if suitable materials are discovered).

Beyond the proposed watching brief, no long-term or on-going monitoring for cultural heritage is proposed.

### **Traffic and Transport**

Since there are no significant effects anticipated, no monitoring has been proposed with respect to effects from construction or operational traffic associated with the Proposed Development.

### **Wind**

There is no requirement to monitor wind impact during the construction phase as the designated amenity areas will not be in use during this phase of the project.

The Proposed Development has been designed to conform to acceptable Lawson Criteria for Comfort and Distress in accordance with the Wind Beaufort Scale and therefore no monitoring is proposed for the operational phase of the Proposed Development.

### **Landscape and Visual**

As there is no specific landscape and visual mitigation proposed, there is no requirement for ongoing maintenance, management or monitoring. Landscape treatments proposed for amenity rather than mitigation purposes in this instance will be the subject of a standard contractor defects and liability period as well as an ongoing maintenance regime.

### **Material Assets**

Construction phase mitigation measures in the Main Contractor's CMP and CEMP have been proposed to ensure that significant negative effects on material assets will be avoided, prevented or reduced during the construction of the Proposed Development. As such, no monitoring measures are proposed during the construction phase, and monitoring is also not required during the operational phase.