

	noise or vibration, explaining the nature and duration of the works. The community relations officer shall also distribute information circulars informing people of the progress of works and any likely periods of significant noise and vibration.
General site noise	The contractor should prepare a Noise and Vibration Management Plan (NVMP) which will deal specifically with on-site activities in a strategic manner to remove or reduce significant noise and vibration impacts associated with the construction works.
Construction noise	The contractor shall ensure that when work is undertaken on the rising floors that an acoustic synthetic barrier shall be employed along the external facade to minimise noise transmission to the surrounding environment.
Generators	Generators should be located as far as possible from sensitive boundaries especially the residential buildings.
Concrete breaking	Concrete breaking is one of the activities forecast to have the highest potential noise impact. During concrete breaking, the activity shall be screened with localised temporary barriers in order to break line of sight to the sensitive receptors. This may give up to a 10 dB reduction in noise levels which would ensure compliance with the required limits even when other activities are underway.
Foundation Works	Although CFA Piling is virtually vibration free and is the lowest noise level technique for piling routinely available, there are associated activities with potential to cause disturbance. The cutting of steel for the piles will give rise to significant noise levels when carried out in close proximity to residential receptors. It is therefore proposed that this activity shall be carried out at locations removed from the boundary of the site wherever possible to minimise noise impact. Where this is not feasible, an acoustic shroud / barrier shall be employed to minimise noise impact.
Monitoring	<p>It is proposed to undertake vibration monitoring when the demolition works are underway and during the installation of piles. Although CFA piling is virtually vibration free, it is proposed that monitoring shall be undertaken to ensure that there is (a) no nuisance as a result of this activity, and / or (b) no structural damage to nearby protected structures.</p> <p>Noise monitoring will also be undertaken throughout the construction phase in accordance with Dublin City Council Good Practice Guide as follows. Carry out regular on site observation monitoring and checks/audits to ensure that Best Practicable Means (BPM) is being used at all times. Such checks shall include;</p> <ul style="list-style-type: none"> <li>• Hours of work</li> <li>• Presence of mitigation measures</li> <li>• Number and type of plant</li> <li>• Construction methods</li> </ul>

	Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format.
<b>Operational Phase</b>	
	None proposed.

**17.7 Material Assets: Traffic and Transport**

<b>Character of potential impact</b>	<b>Mitigation measure</b>
<b>Construction Phase</b>	
Reduction of adjacent road junctions' operational performance due to vehicular trips to/from proposed development	Deliveries and material removal trips will be scheduled outside of peak hour periods
	HGV movements to and from the site will be staggered
	Haulage vehicles will be prevented from travelling in convoys of more than two vehicles at any time
	Haulage vehicles will be spaced by a minimum of 250m at all times
Obstruction of adjacent roadways by parked or queuing construction vehicles	All loading and unloading operations will be conducted within the site
	Limited essential parking for construction personnel and visitors will be provided within the site
	Construction personnel will be supported in making use of public transport and/or in cycling, when commuting to site
	Parking restrictions and parking management measures will be implemented on surrounding streets
Fouling of adjacent roadways by construction-related dirt/debris	All loading and unloading operations will be conducted within the site
	A vehicle wheel wash will be installed at the exit from the site
	A road sweeper will be deployed as necessary to keep surrounding streets clean
CMP	All mitigation measures in the Construction Management Plan will be implemented
<b>Operational Phase</b>	

Reduction of adjacent road junctions' operational performance due to vehicular trips to/from proposed development	The development design includes a limited internal car parking provision
	The development design includes a high provision of internal bicycle parking
	A Workplace Travel Plan will be implemented
Workplace Travel Plan	A Travel Plan Coordinator will be appointed to implement the Workplace Travel Plan

**17.8 Material Assets: Water Supply, Drainage and Utilities**

Character of potential impact	Mitigation measure
<b>Construction Phase</b>	
Environmental Management	Temporary discharge utilising the existing or permitted sewerage network will be by agreement with Dublin City Council and Irish Water. All necessary health and safety measures and best practice will be undertaken to ensure the safety and welfare of construction personnel, the public and road users during construction of the foul infrastructure.
Damage to Public System	The contractor will make all necessary arrangements for a temporary water supply in agreement with Irish Water and Dublin City Council. A water meter will be installed to monitor water consumption on the site and to enable early detection of any potential leaks. Inspection and acceptance of connections will be required prior to services being allowed.
Site Management	Good site governance to ensure storm generated on site is disposed into the storm system and foul into the temporary foul system so that no misconnections occur.
ESB	<p>The contractor will engage with ESB to facilitate the installation of the required infrastructure. Site ductwork and sub-stations will be constructed to ESB technical standards and will remain locked and under full control of the ESB once power is provided to the site.</p> <p>Prior to excavation the Contractor will carry out additional site investigation, including camera survey of existing ducts, in order to determine the exact location of the electricity network in close proximity to the works area.</p> <p>All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB Networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines</p>

	Where new services are required, the Contractor will apply to ESB Networks for a connection permit where appropriate and will adhere to their requirements
Gas Network	<p>Prior to any excavation adjacent to gas services the Contractor will carry out additional site investigation to determine the exact location of the gas network in close proximity to the works area. This will ensure that the underground gas network will not be damaged during the construction phase.</p> <p>All works in the vicinity of GNI infrastructure will be carried out in ongoing consultation with GNI and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live gas mains.</p>
Operational Phase	
Foul	The development's proposed internal foul drainage network, when completed, will not be vested to Irish Water. As such, the development's facilities management company will have responsibility for its ongoing maintenance and operation. Any issues going forward will therefore be addressed and mitigated against.
Water Supply	The development's proposed internal potable water supply network, when completed, will not be vested to Irish Water. As such, the development's facilities management company will have responsibility for its ongoing maintenance and operation. Any issues going forward will therefore be addressed and mitigated against.
Reduction in Ringsend WwTP	Ringsend WwTP is currently the subject of upgrade works to ensure its fitness for purpose. The upgrade works will ensure that future capacity for the greater Dublin region is available.

### 17.9 Cultural Heritage & Archaeology

Character of potential impact	Mitigation measure
Construction Phase	
Recorded Monuments DU018-112 and DU018-020528.	Give notice to the Minister for Housing, Local Government and Heritage two months before commencing work at the site.
Operational Phase	
None Proposed	

**NOTE:** All mitigation measures expressed in respect of Archaeology are subject to the approval of The Department of Culture, Heritage and the Gaeltacht and the relevant local authorities. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the Department may issue alternative or additional recommendations.

### 17.10 Cultural Heritage: Architectural Heritage

Character of potential impact	Mitigation measure
<b>Construction Phase</b>	
Visual Impacts	Scaffolding covers will be used to ameliorate the visual impact of scaffolding on the garden, and the impacts of debris and dust been blown from the site.
Visual Impacts	Discrete construction signage and hoarding will be utilised to reduce the visual impact on the garden and the public's enjoyment.
Vibration and Ground Disturbance	Vibration monitoring will be undertaken to mitigate risks to the RHK boundary wall and adjacent protected structures will be implemented. This will be undertaken under the supervision of a conservation architect.
Protection from Damage	Protection measures for the boundary will be put in place prior to the works at the proposed hotel and works to foundations and services. Protection measures will include measures to ensure both debris and machinery do not damage the wall. These measures should be monitored during the work.
<b>Operational Phase</b>	
Noise	The use of the roof terrace should not allow for events to take place which generate excessive noise during times when the gardens are open
Lighting	Lighting at the development will be managed so that light spillage will not detract from the enjoyment of the garden.

### 17.11 Landscape and Visual Assessment

Character of potential impact	Mitigation measure
<b>Construction Phase</b>	
Protecting of existing street trees	Provision of secure hoarding / tree protection measures for existing retained trees.

Materials falling from a height	Use of screening and webbing to prevent materials falling from a height endangering local residents / office staff / visitors.
Site lighting	Directing site lighting away from existing residents / office / retail / creche.
Building phasing	Phasing of development in order that the buildings and surrounding landscape works are completed as soon as possible.
Landscape Contractor selection	Landscape Architect to ensure a competent experienced landscape contractor is appointed to undertake the work
Landscape tender implementation	Landscape Architect to oversee soil preparation, planting and hardworks commissioning to be as specified in the in the Landscape Drawings and Landscape Hardworks and Softwoks specifications.
<b>Operational Phase</b>	
Landscape Maintenance	Given the location of the development and proposed connection into the RHK grounds a comprehensive landscape maintenance scheme is proposed
Landscape Review	Site administration to organise reviews of the hardworks, and softworks and update / repair / replant as required to mitigate against public liability issues which may arise.

**17.12 Monitoring**

Where monitoring is proposed in the foregoing chapters, these requirements have been summarised below.

<b>Character of Potential Impact</b>	<b>Monitoring Proposed</b>
<b>Chapter 6. Biodiversity</b>	
Environmental Officer.	Mitigation as recommended will be monitored by the Environmental Officer working with the main Contractor. A written log of site inspections for environmental issues will be maintained during the entire construction phase and will be available for inspection by relevant third parties.
<b>Chapter 7. Lands, Soil and Geology</b>	
Contaminated Soils	Testing and monitoring of soil and Made ground that will be excavated for any potentially contaminated material to ensure adequate classification and disposal.
Water Movement	Monitoring of the retaining wall using for example, inclinometers and

<b>Character of Potential Impact</b>	<b>Monitoring Proposed</b>
	monitoring of water movements either seepages or through control points.
Movement	Monitoring of neighbouring structures immediate to the development site for the effects of any vibration, movement and settlement arising from the excavation works based on condition surveys carried out by the Contractor prior to the works.
Construction Phase	Monitoring of interrelated impacts such as noise and vibration levels, groundwater levels, dust emissions etc. dealt with in the other chapters in this EIAR. The Contractor will be required to produce an Air Quality and Dust Management Plan including Best Practice Measures to control dust and, in particular, measures to prevent dust nuisance.
Surface Water run off	Testing and monitoring of water and gas during excavation works. It is not envisaged that any large scale groundwater pumping will be required during the construction works, but any run-off on excavated surface will be collected in settlement tanks and tested, before discharging under licence to the public sewer.

### Chapter 8. Water

Construction Phase:	All on site monitor works connected to the proposed project will be under the prepared (and approved by Dublin City Council) construction plans. These plans will clearly outline the safety measures required to ensure that the proposed development is constructed in accordance with current best practice & legislative requirements.
Construction Plans	
Operational Phase	The completed stormwater system will remain under the control of the development's management companies and will not be offered to be taken in charge by the Local Authority. Operational and maintenance requirements will be addressed by the companies' maintenance contractor(s). Issues that may interfere with the stormwater network include blockages and the lack of appropriate jetting and cleaning of gullies, drains and main sewers. The proposed stormwater system will be monitored and maintained by the development's management companies post construction.
Monitoring of stormwater System	

### Chapter 9. Air, Dust & Climatic Factors

Air Quality and Dust Management	The Contractor will be required to produce an Air Quality and Dust Management Plan including Best Practice Measures to control dust and, in particular, measures to prevent dust nuisance. The principal objective of the Air Quality and Dust Management Plan will be to ensure that dust emissions do not cause significant nuisance at receptors near the Proposed development.
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Character of Potential Impact	Monitoring Proposed
	<p>The Air Quality and Dust Management Plan will include a daily inspection programme which will be formulated and implemented in order to ensure that dust control measures are being operated and managed effectively. A dust deposition monitoring programme will be implemented during the Construction Phase in order to verify the continued compliance with relevant standards and limits.</p>
<p><b>Chapter 10. Noise and Vibration</b></p>	
<p>Monitoring</p>	<p>Monitoring of the noise levels at sensitive receptor locations for comparison with limits and background levels during the construction works will be completed and the measurement results will be passed onto the Site Manager and will be used to assist the scheduling of works to ensure that the noise emissions from the various works are kept within the limits.</p>
<p>Noise and Vibration Management Plan</p>	<p>A Noise and Vibration Management Plan (NVMP) which will deal specifically with on-site activities in a strategic manner to remove or reduce significant noise and vibration impacts associated with the construction works. The NVMP will be a live document and should specify the specific noise and vibration monitoring and reporting that will be carried out ensuring that all potential NSRs are covered in the monitoring programme.</p>
<p><b>Chapter 11. Material Assets: Traffic and Transport</b></p>	
<p>Construction Management Plan</p>	<p>The lead contractor appointed for the construction of the development will be required to prepare a site-specific Construction Management Plan (CMP) that shall include a plan for the scheduling and management of construction traffic. This CMP shall outline measures for monitoring the impact of construction traffic on the operation and condition of the surrounding street network, including remedial actions to be taken in the event of construction traffic causing damage to road infrastructure.</p>
<p>Construction Phase Travel</p>	<p>The lead contractor will also be required to monitor the travel habits of construction personnel and to tailor supports for public and shared transport use accordingly. Surrounding streets will be monitored to ensure that no nuisance parking associated with construction activity takes place.</p>
<p>Workplace Travel Plan</p>	<p>A Travel Plan Coordinator shall be responsible for monitoring the travel habits of development occupants and visitors.</p>
<p><b>Chapter 12. Material Assets: Water Supply, Drainage and Utilities</b></p>	
<p>Foul and Potable Water</p>	<p>Ongoing monitoring of the foul and potable water systems to be constructed for the development will be carried out as part of the operational and</p>



<b>Character of Potential Impact</b>	<b>Monitoring Proposed</b>
Infrastructure	maintenance set of procedures for the scheme post construction. This will include inspections to ensure that the systems are operational and fit for purpose.
<b>Chapter 14. Architectural Heritage</b>	
Historic Wall	The historic wall adjacent to the proposed hotel will be monitored for damage during the construction phase.
Vibration Monitoring	Vibration will be monitored as per the measures outlined in Chapter 9 of this report
<b>Chapter 15. Landscape and Visual Assessment</b>	
Landscape Works	Soft landscape works will be monitored to check establishment during the first 12 months post-planting. Plant failure during this defects liability period shall be replaced within the following planting season (i.e. November to March) as necessary.
Aftercare	Aftercare to a high standard of both hard and soft landscape elements throughout the scheme will form part of the annual management/maintenance programme which shall be adopted as part of the scheme.
Trees	Regular monitoring of existing trees on site shall be carried out as necessary to ensure the tree stand is largely maintained. The ongoing monitoring shall identify trees which will require surgery works/potential removal which will be essential for the ongoing duty of care associated with the site. Paving will also require ongoing maintenance with the high level of through pedestrian traffic linking the various parts of the site.