



Carmanhall Road SHD 2022

Preliminary Construction Demolition Waste Management Plan

August 2022

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Comments

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1. Introduction

1.1 Introduction

This Preliminary Construction Demolition Waste Management Plan (CDWMP) has been prepared by Waterman Moylan on behalf of Atlas GP Limited to accompany an SHD planning application for a residential development on a brownfield site at the junction of Carmanhall Road and Blackthorn Road, Sandyford, Dublin 18. See Figure 1.

1.2 Threshold for Construction Waste Management Plan

This Plan has been prepared in compliance with Section 12.9 of the Dun Laoghaire Rathdown County Development Plan 2022 – 2028 which requires that *'applications for developments of 10+ residential units shall include a Construction Waste Management Plan.*

This Preliminary Construction Demolition Waste Management Plan (PCDWMP) is accompanied by a Preliminary Construction Management Plan (PCMP) prepared in compliance with Section 12.9.4 of the DLR County Development Plan 2022 -2028. The final Construction Management Plan will be agreed by way of compliance condition when details such as location of compounds, construction traffic flow etc. are finalised after the appointment of a contractor.

1.3 Guidance for Construction Waste Management Plan

Guidance Notes for Environmental Design and Management of Construction Projects were issued by Dun Laoghaire Rathdown County Council in July 2022. These notes provided guidance on good practice for the preparation of this Plan. In particular, on how the applicants have considered how the design, construction and operation of the proposed development complies with best environmental management practice

1.4 Contents of Plan

This Plan sets out typical arrangements and measures which may be undertaken during the construction phase of the project in order to mitigate and minimise disruption / disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Construction Management Plan on site.

This Preliminary Construction Demolition Waste Management Plan is indicative only and should not be construed as representing the exact method or sequence in which the construction works shall be carried out. As is normal practice, the Main Contractor for the project is responsible for the method in which the demolition and construction works are carried out and to ensure that best practices and all legal obligations, including Local Authority requirements and Health and Safety legislation, are complied with. The Main Contractor is also responsible for the design and installation of all temporary works required to complete the permanent works.

This Preliminary Plan can be used by the Main Contractor to develop their final Construction Waste Management Plan. The Applicants reserve the right to deviate from the contents of this report, while still complying with all relevant Local Authority requirements and legislation.

2. The Site and Surrounding Environs

2.1 Site Location

The subject site is located at Sandyford in south County Dublin at the junction of Carmanhall Road and Blackthorn Road, Sandyford, Dublin 18. It was formerly occupied by Avid Technology.

The adjoining site to the west at the junction of Carmanhall Road and Ravens Rock Road was formerly occupied by Tack Packaging.

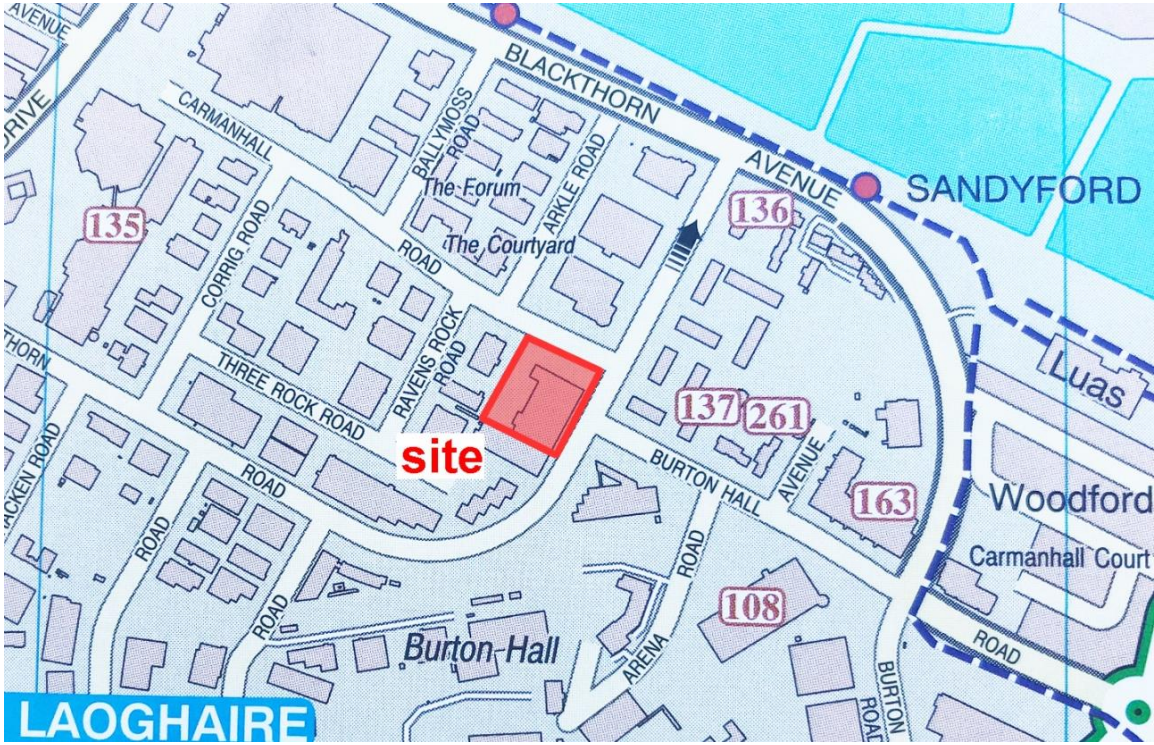


Figure 1 Location Map

2.2 Site Description

The site comprises the former Avid Technology site the junction of Carmanhall Road and Blackthorn Road. The site area is approximately 0.73ha (1.8 acres) and is currently largely hardstanding.

The site falls from southwest to northeast ranging in level from 86.0mOD in the southwest to 84.0 mOD in the northeast. The existing access to the site is from Carmanhall Road.

At the time of writing in August 2022, the site was unoccupied.

The adjoining site to the east at the junction of Carmanhall Road and Blackthorn Road formerly occupied by Tack Packaging extends to 0.57 ha ((1.4 acre).

2.3 Proposed Development

The proposed development will comprise some 334 Build-to-Rent residential units on the former Avid Technology site. See Figure 2.

Car parking with a total of 125 car spaces will be provided at Lower Ground and Basement. Cycle parking with 447 spaces will be provided at Lower Ground Level. Access is proposed from Carmanhall Road and egress to Blackthorn Road. The public realm around the site will incorporate an upgrade of the pedestrian and cycle environment.

The development includes all associated infrastructure to service the development including access junctions, footpaths and cycle paths together with a network of watermains, foul water drains and surface water drains.

A concurrent development with its own Construction Management Plan is also expected to be developed on the former Tack Packaging site to the west. It will comprise 207 Build-to-Rent residential units and 79 car parking spaces at Lower Ground Level and Basement. Access will be from Ravens Rock Road and egress onto Carmanhall Road. See Figure 2.

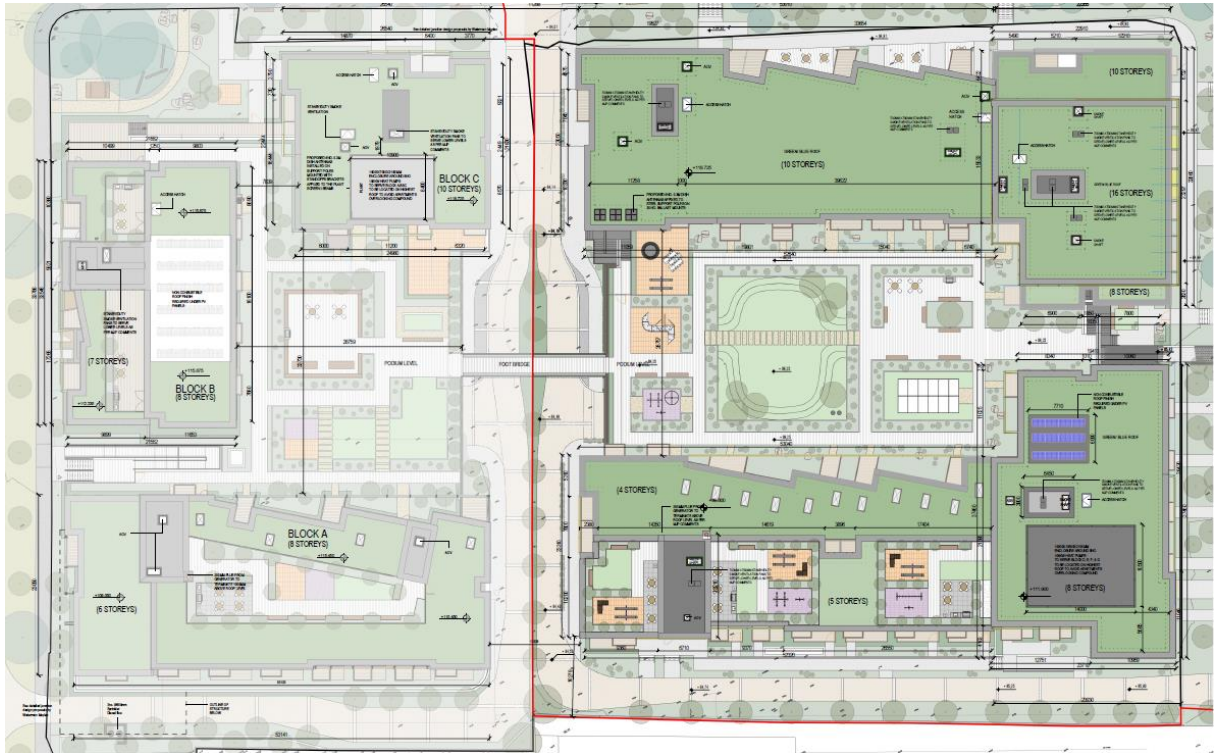


Figure 2 Proposed Site Layout

2.4 Construction Program

At the time of writing in August 2022, it is likely that construction of the proposed development could commence in 2023 for completion in 2026.

2.5 Site Compound

The site compound proposed for the construction of the residential units on the subject site will be located on the northern / eastern boundary of the site.

The compound will provide office accommodation and welfare facilities. Material stores will be located in the same area.

3. General Site Set-Up and Pre-Commencement Measures

Detailed condition surveys (including photographs) may be carried out on certain adjacent / adjoining third party properties prior to any work being carried out on the site. The purpose of the survey(s) would be to record the condition of the properties before the works commence. Copies of these survey reports would be provided to the third-party owners.

A detailed condition survey (including photographs) may be carried out on the roads and footpaths surrounding the site. The purpose of the survey would be to record the condition of the streets and footpaths around the site prior to the works commencing.

A site compound(s) including offices and welfare facilities will be set up by the main contractor in locations to be confirmed.

Prior to any site works commencing, the main contractor will investigate / identify the exact location of, and tag, all existing services and utilities around and through the site with the assistance of the relevant DLRCC technical divisions and utility companies.

Typical pre-commencement working hours for the site would be 07.00 to 19.00 Monday to Friday and 08.00 to 14.00 Saturday. No Sunday or Bank Holiday work will generally be permitted. These working hours are typical.

However, special construction operations may need to be carried out outside these hours in order to minimise disruption to the surrounding area.

4. Construction and Demolition Waste Management

4.1 Policy and Legislation

Construction and demolition waste arising from the construction stage of the development will be managed in accordance with the Waste Management Plan prepared by the applicants in compliance with Section 12.9.7 of the Dun Laoghaire Rathdown County Development Plan 2022 – 2028.

This Waste Management Plan is also in accordance with the following guidance note published by the Department of the Environment, Heritage and Local Government in July 2006: -

- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition (C&D) Projects.

The hierarchy of waste management sets out the guiding principles in order of importance as follows:

1. Reduction of the amount of waste generated by the construction process.
2. Segregation of waste is a key concept that will be implemented during the course of the construction phase of the development to enable ease in re-use and recycling, wherever appropriate.
3. Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals packaging etc.

This framework is the guide by which the waste generated on this project will be managed. The concept ranges from the *'Most favoured to the least favoured options'*, as follows:

- Prevention - This proposes the prevention of generation of waste. This entails an efficient method of management of the construction processes to prevent, where possible, the generation of waste in the first instance.
- Minimisation - Reducing the quantities of waste generated where prevention is not fully possible. Re-use of materials where that may be possible.
- Recycling - There will be some timber waste generated on this project and such material will be segregated so that it can be removed and recycled by licenced operators.
- Energy Recovery - Waste generated will be segregated for licenced operators to utilise this method in keeping with the characteristics of the material in question.
- Disposal - By following the hierarchy noted above we will ensure that any disposal will be minimised and managed in a controlled way.

4.2 Typical Construction Waste

Typical construction waste which will be generated by the development is as follows; -

- General site clearance waste.
- There is no known contaminated soil present on the site but in the event that the contamination is discovered during the course of construction the excavated material will be required to be disposed of in a licensed landfill site.
- Surface water runoff.
- Packaging and waste construction materials generated during the course of the construction activities.

4.3 On-Site Construction Waste Management

It is estimated that all cut and fill operations and any other excavation will be balanced in terms of quantities. All arisings and surplus materials will be disposed of off-site to permitted/licensed facilities, please refer to Section 4.4 below.

All waste concrete and masonry will be stored and if appropriate will be crushed on site and used for site haul roads.

Skips will be provided for the disposal of wood from the site. It is envisaged that the majority of the wood for disposal will come from pallets used for the transport of construction materials.

Other non-hazardous waste generated by the site (packaging and running of site offices) will be collected in separate covered skips. Packaging waste shall be managed in accordance with the Waste Management (Packaging) Regulations 2003.

Any hazardous material encountered will be disposed of in accordance with the Waste Management Act 1996-2005 to a suitably licenced tip.

Waste shall not be disposed of by open burning.

The contractor shall be responsible for the full cost of repair in respect of any damage caused to any adjoining public roadway arising from the construction work and shall make good any such damage forthwith to the satisfaction of Dun Laoghaire Rathdown County Council.

The Purchasing Manager will ensure that materials are ordered so that the quantity delivered, the timing of the delivery and the storage is not conducive to the creation of unnecessary waste.

All waste generated during construction, including surplus excavation material to be taken off-site, shall be only recovered or disposed of at an authorised site which has a current Waste License or Waste Permit in accordance with the Waste Management Acts, 1996 to 2008. This shall not apply to the reuse of excavated material within the applicant's site boundary.

Table 1 Estimated C&D Waste Arisings on Site

C & D Waste Material	Quantity (tonnes)
Clay and stones	<i>40,000 t (23,000m³). Some minor quantum of these arisings may be used as fill and landscaping on the site, but the majority will be disposed off-site</i>
Concrete	<i>Minimum anticipated – typically 1-5%*. Arisings may be crushed and used as site haul roads / working platforms</i>
Masonry	<i>Minimum anticipated - typically 3-4%*. Arisings may be crushed and used as site haul roads / working platforms</i>
Wood	<i>Minimum anticipated - typically 5%*</i>

	<i>To be Completed by C&D Waste Manager</i>
Packaging & Other Waste Materials	<i>To be Completed by C&D Waste Manager</i>
Hazardous Materials	<i>None identified as part of SI except existing asbestos cement watermain.</i>
	<i>To be Completed by C&D Waste Manager</i>
TOTAL ARISINGS OFF-SITE	<i>To be Completed by C&D Waste Manager</i>

*Based on standard construction industry metrics

4.4 Off-Site Waste Management Licensing/Permitting

All waste materials (where necessary, after in-situ reuse and recycling options have been fully considered) will be disposed of off-site, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. It is the responsibility of the Main Contractor to ensure that any company to whom waste is transferred is legally permitted to do so and that the facility they bring the waste to is licensed to handle that type of waste as outlined in the Waste Management Acts 1996-2005. The Waste Collection Permit Register, in accordance with the Waste Management (Collection Permit) Regulations 2001 will be consulted to ensure that waste carriers hold the appropriate permit.

The relevant waste collection permits and waste licences will be provided by the Main Contractor.

An inspection of the site will be made by the Main Contractor for hazardous substances, gas cylinders and the like. If such substances are encountered during the course of construction, then works must be halted. The project supervisor for construction stage (PSCS) and the responsible Statutory Authority will be informed immediately.

The Main Contractor will prepare a detailed inventory of construction based hazardous waste generated, such as tars, adhesives, sealants and other dangerous substances, and these will be kept segregated from other non-hazardous waste to prevent possible contamination. Arrangements will be made for such substances for disposal in a safe manner to an authorized disposal site or by means acceptable to the relevant Authority.

The Main Contractor will ensure that the excavation works are carried out in accordance with best standard practice and excavation materials are well segregated to minimize any potential cross-contamination.

The Main Contractor will carry out appropriate environmental chemistry testing in order to determine the waste classification of the soils that are to be excavated and that will include Waste Acceptance Criteria testing. The test regime will be agreed with the receiving landfill operator and the testing will be carried out by an accredited laboratory.

Should excavation materials be assessed to be hazardous, the Main Contractor will carry out pretreatment of the waste soils to a methodology that is agreed with the receiving landfill operator and in accordance with Environmental Protection Agency guidance.

The Main Contractor will be encouraged to reuse and recycle any waste materials as far as is reasonably practicable.

In respect of any liquid disposal including underground water, The Main Contractor will carry out appropriate environmental chemistry testing in order to determine whether the liquid is contaminated or not. The test regime will be agreed with the receiving disposal facility and the testing will be carried out by an accredited laboratory.

The Main Contractor will ensure that surface and ground waters are adequately protected from contamination by waste temporarily stored on development prior to disposal.

The Main Contractor will manage and carry out the works in accordance with best environmental practice and in accordance with the requirements of Local Authority, EPA and all requirements as specified in this document.

4.5 Appointment of C&D Waste Manager

The Main Contractor will appoint a C&D Waste Manager. The C&D Waste Manager will have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase.

Copies of the Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given instructions on how to comply with the Waste Management Plan. Posters will be designed to reinforce the key messages within the Waste Management Plan and will be displayed prominently for the benefit of site staff.

4.6 C&D Record Keeping

It is the duty of the C&D Waste Manager to ensure that necessary licenses have been obtained as needed. Each consignment of C&D waste taken from the site will be subject to documentation which will conform with the table below along with Transportation Dockets to ensure full traceability of the material to its final destination. These records shall be stored at the Contractor's Head Office with an up to date hard copy available at the Contractor's Site Office for inspection by the Client, DLRCC, EPA as appropriate.

Table 2 Details of Materials Taken from Site

Detail	Particulars
Project of Origin	Residential Development at Carmanhall Road
Material being Transported	<i>To be completed by C&D Waste Manager</i>
Quantity of Material	<i>To be completed by C&D Waste Manager</i>
Date of Material Movement	<i>To be completed by C&D Waste Manager</i>

Name of Carrier	<i>To be completed by C&D Waste Manager</i>
Destination of Material	<i>To be completed by C&D Waste Manager</i>
Proposed Use	<i>To be completed by C&D Waste Manager</i>

4.7 Topsoil

In the case of topsoil, careful planning and on-site storage can ensure that this resource is reused on-site as much as possible. Any surplus of soil not reused on site can be sold. However, topsoil is quite sensitive and can be rendered useless if not stored and cared for properly.

- It is important that topsoil is kept completely separate from all other construction waste as any cross-contamination of the topsoil can render it useless for reuse.
- It is important to ensure that topsoil is protected from all kinds of vehicle damage and kept away from site-track, delivery vehicle turning areas and site plant and vehicle storage areas.

If topsoil is stored in piles of greater than two metres in height the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site.

Records of topsoil storage, movements and transfer from site will be kept by the C&D Waste Manager.

4.8 Earthworks – Cut and Fill Policy

Earthworks for road and structure foundation forms a major part of the quantity of waste that will be generated by the construction phase of this project.

In order to optimise the impact of the generation of surplus material due to excavation the following principles has been considered during the detail design and construction phase: -

- The quantity of excavated materials to be removed from or imported in to the site has been reduced by establishing levels of the proposed buildings which optimise the volume of cut and fill.
- Unsuitable sub-soils generated by excavations on site will be reviewed for reuse as landscaping or non-engineering fills on adjoining or other construction sites within the region.
- Careful separation of builder's rubble packaging and contaminated waste from re-usable material will result in the minimisation of the disposal of material to landfill.

5. Management of Waste Streams

Within the proposed development, the following measures are proposed to ensure effective management of construction waste, to maximise recycling of construction waste and to minimise the environmental impact of construction waste.

- On-site segregation of all waste materials into appropriate categories.
- All waste material to be stored in skips or other suitable receptacles in a designated waste storage area on the site.
- Wherever possible, left-over material such as timber cut-offs and/or any suitable demolition materials shall be reused on or off site.
- Uncontaminated excavated material (topsoil, sub-soil) will be reused on site where possible.

5.1 Soil and Topsoil

The development of the subject site will require the stripping of top and sub soils and the excavation of ground to basement level. Given the limited size of the site, it is unlikely that there will be any significant opportunities to reuse excavated materials onsite. As a result, these materials will be required to be removed offsite for appropriate reuse, recovery, recycling or disposal where no reuse options are available.

5.2 Contaminated Soil

Soils not suitable for re-use or recovery will be removed offsite to appropriately licenced waste disposal facilities.

Soils intended for disposal are required to undergo Waste Classification in accordance with WM3 to determine if soils are hazardous or non-hazardous in nature prior to WAC assessment. The site investigation undertaken by AECOM (2020) did not identify any contaminated materials on the subject site.

Hazardous soils are not anticipated at this site. However, should hazardous soils be identified on site, these soils will be stored separately and covered prior to removal offsite.

Initial asbestos screening of in-situ soils as part of the AECOM (2020) site investigation works has reported no asbestos containing soils at the depth profile examined.

Demolition is also completed over part of the site and no asbestos materials are currently on site (with the exception of the asbestos cement watermain).

Should asbestos or asbestos containing soils be discovered onsite, these materials will be stored separately and covered prior to removal offsite for disposal.

5.3 Bedrock

It is not anticipated that bedrock will be encountered during excavations and site clearance works at the site.

In the event that bedrock is encountered and requires excavation, the material will be tested and its suitability for reuse on-site will be investigated.

If the rock is to be reused on another site as a by-product (and not as a waste), this will need to be done so in accordance with Article 27 of the EC (Waste Directive) Regulations 2011.

5.4 Blocks and Bricks

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the C&D works are expected to be clean, inert material and will be recycled, where possible. Clean concrete will be crushed and reused as a sub base in road construction subject to performance testing.

5.5 Metal

Metals will be segregated into mixed ferrous, stainless steel, copper and cabling etc. where practical and stored in skips. Metal can be highly recyclable and will be sent to one of the numerous companies that will accept these materials

5.6 Timber

Timber that is uncontaminated and free from paints, preservatives, glues etc., will be placed into a dedicated skip and recycled off-site. Clean timber is typically recycled as chipboard.

5.7 Plastics

C&D waste which is not suitable for reuse or recycling, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

5.8 Glass

Any glass materials from windows or other fixtures will be segregated for recycling, where possible

5.9 Plasterboard

Plasterboard from the C&D phases will be segregated from other materials where possible and stored in a separate skip, pending collection for recycling.

5.10 Electrical and Electronic Equipment

Waste electric and electronic equipment will be stored in dedicated covered cages, receptacles or pallets pending collection for recycling off-site.

5.11 Waste from Site Staff

Throughout the construction phase, waste will be generated by construction staff on site. This waste will encompass general refuse, mixed dry recyclables, food wastes and wastes from any onsite portaloos.

This waste will be managed by appropriately licenced and specialised waste contractors. It will be collected and stored separately from the C&D wastes.

5.12 Hazardous Waste

On-site storage of any hazardous wastes produced such as chemicals, oils and/or waste fuels, will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public. Also, to minimise the potential for any environmental impacts.

Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

5.13 Other Waste

Depending on the stage of the construction, the C&D Waste Manager will determine if other waste streams need appropriate segregation. These needs will be periodically reviewed, assessed and evaluated by the C&D Waste Manager in conjunction with the relevant contractors on site

6. Site Security and Hoarding Lines

Hoarding lines and site security will be set up within the development site as required.

Hoarding and security fencing will be required during the construction works and for construction of the new entrance to the site.

This Plan is accompanied by a Preliminary Construction Management Plan (PCMP). Prior to construction commencing on site, a detailed plan will be prepared and submitted by the appointed contractor to DLRCC for approval.

The traffic management section of the CMP to be prepared by the Contractor will identify staging areas, delivery of materials, strategy for large concrete pours, removal of demolition waste, traffic routes etc.

Access gates will be operated by a flagman who will divert incoming / outgoing vehicles / pedestrians and general traffic as necessary via designated construction haul roads.

7. Deliveries and Access

Deliveries and access to the construction site will typically be made via Carmanhall Road along the northern boundary of the site.

In the event that large concrete pours are required which may result in congestion at the entrance to the site, the deliveries will be organised such that concrete trucks will queue at a pre-determined staging point and will then be called in by radio as appropriate to the site, via a pre-determined route and to the required access gate.

Set procedures and designated wash-out areas will be provided. All delivery vehicles will be co-ordinated as required by a flagman on duty at the relevant access point.

All large pours will be carefully co-ordinated with the Roads Department at Dun Laoghaire-Rathdown County Council and local stakeholders.

The Main Contractor will be required to schedule delivery of materials on a daily basis. If necessary, the Main Contractor will be required to provide a secure staging compound for materials on the site.

8. Parking and Storage

A site compound including offices and welfare facilities will be set up by the Main Contractor.

No parking of construction related vehicles will be permitted on the adjoining road network. Limited parking facilities for construction workers will be made available within the site compound during the course of construction.

The Main Contractor will be required to schedule delivery of materials strictly on a daily basis.

The Main Contractor will ensure that surface and ground waters are adequately protected from contamination by stored materials.

During construction the contractor shall provide adequate off carriageway parking facilities for all traffic associated with the proposed development, including delivery and service vehicles/trucks.

Parking along the surrounding roads will not be permitted.

9. Dust and Dirt Control

9.1 Introduction

Nuisance dust emissions from construction activities are a common and well recognised problem. Fine particles from these sources are recognised as a potential significant cause of pollution.

During the construction phase, best available technology not entailing excessive cost shall be employed by the developer to minimise noise from the construction operations and shall comply with the BS 5228:1997 “Noise Control on Construction and Open Sites”

The Main Contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site is adequately controlled and are within acceptable limits. The total dust emission arising from on-site operations associated with the proposed development shall, when measured at the site boundaries, not exceed 350 milligrams per square metre per day, averaged over 30 days.

The Main Contractor shall, if directed by the Planning Authority, monitor and record the total dust emissions arising from all on site operations associated with the proposed development. The necessary number and locations of the monitoring and recording stations for dust deposition shall be in accordance with the requirements of the Planning Authority. The Planning Authority shall be afforded access at all reasonable times in order to inspect, examine and check or to have inspected, examined and checked, all apparatus and equipment used or required to carry out monitoring of dust.

Dust and fine particle generation from construction activities on the site can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming air borne, since suppression is virtually impossible once it has become air borne.

9.2 Mitigation Measures

The following are techniques and methods which are widely used currently throughout the construction industry to control dust and dirt emitting from the site, a number of which may be used in this development.

1. The roads around the site are all surfaced and no dust is anticipated arising from unsealed surfaces.
2. A regime of ‘wet’ road sweeping can be set up to ensure the roads around the immediate site are as clean and free from dirt / dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
3. Footpaths immediately around the site can be cleaned by hand regularly, with damping as necessary.
4. High level walkways and surfaces such as scaffolding can be cleaned regularly using safe ‘wet’ methods, as opposed to dry methods.

5. Vehicle waiting areas or hard standings can be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
6. Vehicle and wheel washing facilities can be provided at site exit(s) where practicable. If necessary, vehicles can be washed down before exiting the site.
7. Netting can be provided to enclose scaffolding in order to mitigate escape of air borne dust from the existing and new buildings.
8. Vehicles and equipment will not emit black smoke from exhaust system, except during ignition at start up.
9. Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
10. Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
11. Internal combustion plant should not be left running unnecessarily.
12. Where possible fixed plant such as generators should be located away from residential areas.
13. The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
14. The transport of dusty materials and aggregates should be carried out using covered / sheeted lorries.
15. Material handling areas should be clean, tidy and free from dust.
16. Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
17. Drop heights for chutes / skips should be kept to a minimum.
18. Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
19. Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
20. Stockpiles where necessary, should be sheeted or watered down.
21. Methods and equipment should be in place for immediate clean-up of spillages of dusty material.
22. No burning of materials, including green waste will be permitted on site.
23. Earthworks and excavations should be kept damp where necessary and where reasonably practicable.
24. Cutting on site should be avoided where possible by using pre-fabrication methods.
25. Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc., which minimise dust emissions and which have the best available dust suppression measures, should be employed.
26. Where scabbling is to be employed, tools should be fitted with dust bags, residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.

27. Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable then ensure areas of work are sealed off and dust extraction systems used.
28. Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from on-site mixing.
29. Prior to commencement, the Main Contractor should identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions. Furthermore, the Main Contractor should prepare environmental risk assessments for all dust generating processes, which are envisaged.
30. The Main Contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
31. All hydrocarbons, chemicals, oils, etc. shall be stored in a dedicated bounded area at least 30m from watercourses and capable of storing 110% of the container/tank capacity.
32. All refuelling shall take place in a designated refuelling area at least 30m from watercourses.
33. The contractor shall ensure adequate supply of spill kits and hydrocarbon absorbent pads are stocked on site.
34. The contractor shall provide to the Local Authority, on completion of works, a comprehensive report detailing the management of all waste streams generated during the construction and commissioning stages of the project. This shall include but not be limited to type of waste streams, amount of each waste stream generated, destination of waste stream (including final destination if applicable), percentage of waste re-used, recycled, recovered and disposed, and prevention and minimisation initiatives undertaken.

10. Ground Water

The excavations for the substructures, drainage pipes, water supply, utilities and foundations are anticipated to impact the ground water in the site.

The contractor shall develop an appropriate dewatering scheme to keep the basement/excavations free from water.

During any discharge of surface water from the basement/excavations, the quality of the water will be improved through the provision of settlement tanks and will be regularly monitored visually for hydrocarbon sheen and suspended solids. Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of Dun Laoghaire-Rathdown County Council before discharge to the surrounding drainage network.

Appropriate discharge licenses will be acquired from Dun Laoghaire-Rathdown County Council in respect of discharges from dewatering operations.

11. Noise Assessment and Control Measures

11.1 Risk Assessment

The Main Contractor will deal with the immediate dangers to hearing etc. associated with high noise levels and the impact of same on construction operatives, by means of risk assessment and mitigation / precautionary measures and equipment, all pursuant to the current health and safety legislation. Current legislation limits, assessment period of 8 hours of one week (noisiest 8 hours likely to experience): -

- Lower Action Value (LAV) – 80 dBA $L_{EX,8}$, 135 dB Peak – Hearing Protection shall be made available and information shall be provided.
- Upper Action Value (UAV) – 85 dBA $L_{EX,8}$, 137 dB Peak – Use of Hearing Protection is mandatory, measures to eliminate the noise as much as possible shall be applied.
- Exposure Limit Value (ELV) – 87 dBA $L_{EX,8}$, 140 dB Peak – Not to be exceeded

Protection by ear plugs/muffs given by their Signal-to-Noise Ratio (SNR) or Noise Reduction Rating (NRR) is typically 20 – 30 db.

Exposure = $L_{EX,8} - (SNR - 10)$

As a guide, if it is difficult to hear a normal conversation at a distance of 2m or a workplace is consistently noisier than a busy street, it is likely that the noise levels in the area are above 80 dBA.

It is not envisaged that any excessively noisy activities will be carried out over extended periods of time during the construction stage. However, due to the nature of the construction works, exposure to noise levels in excess of 80 dBA (Safe Working Limit) may occur occasionally. The Main Contractor will carry out a noise assessment in relation to the proposed works at construction stage. The noise assessment identified the following steps in its analysis: -

1. **Potentially Hazardous Activities:** Use of site machinery and power tools. For example, concrete saws, angle grinders, vibratory plate compactors etc.
2. **Potential Hazards:** Excessive noise
3. **Persons at Risk:** People in the vicinity of the work generating an excessive noise. These persons include employees, contractors and members of the public.
4. **Risk of Exposure to the Potential Hazard:** Temporary or permanent hearing loss.
5. **Risk Assessment before the Implementation of Control Measures:** Medium
6. **Risk Assessment after the Implementation of Control Measures:** Low
7. **Control Measures Implemented by:** Site Manager / Works Supervisor

11.2 Control Measures

The following control measure are to be implemented: -

The Site Manager shall monitor a likelihood of prolonged exposure to excessive noise and commission noise surveying/monitoring programme where necessary.

1. Works Supervisor shall assess risk arising from noise prior to each particular activity taking place and determine appropriate action. The aim shall be to minimise the exposure to excessive noise levels.
2. If it is likely that the noise exposure exceeds Lower Action Value, then hearing protection must be made available.
3. If it is likely that the noise exposure exceeds Upper Action Value, then hearing protection is mandatory to be used. Work Supervisor shall decide on the most suitable hearing protection to be used based on Exposure (see formula above) and worker's personal preference (earmuffs or earplugs).
4. Works Supervisor shall ensure proposed measures are put in place and that their effectiveness and suitability is evaluated on regular bases.
5. Site management shall minimise noise at work by looking for alternative processes and/or working methods, which would make the work quieter and/or exposure times shorter.
6. Site Manager shall liaise with all site contractors in order to effectively control noise exposure.
7. Number of people working near source of the noise shall be minimised.
8. Plant and machinery shall be compliant with current legislation and fitted with silencers where possible.
9. Employees must use hearing protection where its use is made compulsory.
10. Hearing protection zones shall be identified where necessary.
11. Spot checks on appropriate use of hearing protection shall be carried out.
12. Operators of rock breaking machines and workers nearby must wear adequate ear protection.

11.3 Environmental Noise Mitigation Measures

1. The Contractor will adhere to the working hours as set out in the grant of planning permission.
2. All plant to be serviced and maintained in good working order to ensure noise production is kept to a minimum.
3. The Contractor will endeavour to position noise plant where possible away from sensitive receptors and will be mindful of sensitive receptors in arrangement of site set up.
4. Idle plant to be switched off or throttled down to both save energy and reduce noise emissions.
5. All plant operators to be qualified in their specific piece of plant.
6. Compressors and generators will be sited in areas least likely to give rise to nuisance where practicable.

7. In the event that The Contractor get a complaint about noise from a neighbour he will act immediately to remedy the situation.

11.4 Proper Use of Hearing Protection

1. Earmuffs: Workers must make sure that they totally cover their ears, fit tightly and that there are no gaps around the seals. Hair, glasses, jewellery, hats etc. shall not interfere with the seal. Seals and insides of earmuffs shall be kept clean. Workers shall make sure that any headband keeps its tension.
2. Earplugs: Workers shall make sure that they are wearing them properly. They shall practice fitting them and get help if they are having trouble. Hands shall be clean before fitting earplugs. Earplugs must not be shared with other workers.
3. Semi-inserts/caps: Same applies as for earplugs. Worker shall make sure that any headband keeps its tension.

All workers are expected to:

1. Co-operate: Help the Company to do what is needed to protect their hearing. Make sure that they use properly any noise control device and follow any working methods that are put in place.
2. Wear any hearing protection they are given: Make sure that they are wearing it properly. They shall wear it all the time when they are exposed noisy environment (over UAV). Taking it off even for a short while means that the hearing could still be damaged.
3. Maintain their hearing protection so as to preserve its working condition:
4. Report any problems: Report any problems with the hearing protection or effectiveness of the measures to the work supervisor.

12. Proposed Construction Phasing and Programme

A detailed construction programme has not been developed at this stage. However, it is anticipated that the total construction period for the development will be up to 27 months, commencing 2023 with a completion date in 2026.

The proposed development is likely to be constructed in two phases and includes, in broad terms, the following: -

- Site clearance and construction of associated infrastructure including drainage, water supply, utilities and roads.
- Construction and subsequent fitting out of the residential units.

13. Waste Auditing

13.1 Waste records

The C&D Waste Manager shall arrange for full details of all arisings, movements and treatment of construction and demolition waste discards to be recorded during the construction stage of the project.

Each consignment of C&D waste taken from the site will be subject to documentation, which will conform with Table 2 and ensure full traceability of the material to its final destination.

13.2 Waste Audit

Details of the inputs of materials to the construction site and the outputs of wastage arising from the Project will be investigated and recorded in a Waste Audit, which will identify the amount, nature and composition of the waste generated on the site.

The Waste Audit will examine the manner in which the waste is produced and will provide a commentary highlighting how management policies and practices may inherently contribute to the production of construction and demolition waste.

13.3 Waste Audit Report

The measured waste quantities will be used to quantify the costs of management and disposal in a Waste Audit Report, which will also record lessons learned from these experiences which can be applied to future projects.

The total cost of C&D waste management will be measured and will take account of the purchase cost of materials (including imported soil), handling costs, storage costs, transportation costs, revenue from sales, disposal costs etc. Costs will be calculated for the management of a range of C&D waste materials, using the format shown in Table 3.

Final details of quantities and types of C&D Waste arising from the project will be forwarded to the Environmental Protection Agency, Dun Laoghaire Rathdown County Council and NCDWC, with such audits undertaken at frequencies required by the Local Authority and records maintained by the Main Contractor and passed to the Client as part of the handover file..

Table 3 Standard Record Form for Costs of C&D Waste Management

(Sample relates to soil – separate record forms should be compiled for each waste material)

Material	Estimated Quantities and Costs (tonnes and euros).
<u>SOIL</u>	
Quantity of Waste Soil (tonnes)	
Purchase Cost i.e. import costs (€)	
Material Handling Costs (€)	
Material Transportation Costs (€)	
Revenue from Material Sales (€)	
Material Disposal Costs (€)	
Material Treatment Costs (€)	
Total Waste Soil Management Costs (€)	
Unit Waste Soil Management Costs (€)	

UK and Ireland Office Locations

