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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR A PROPOSED A PROPOSED LARGE SCALE STUDENT DEVELOPMENT

GOWAN HOUSE

Report Prepared For

Malclose Limited

Report Prepared By

Chonaill Bradley, Principal Environmental Consultant

Our Reference

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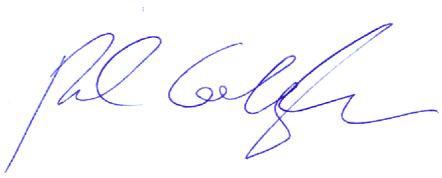
Signature		
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Title	Principal Environmental Consultant	Director
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1.0 INTRODUCTION

This Construction Environmental Management Plan (CEMP) has been prepared by AWN Consulting (AWN) for Malclose Limited. in support of a planning application to Dublin City Council for a student development, at Gowan House, Carriglea Business Park, Naas Road, Dublin 12, D12 RCC4.

This CEMP explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

The CEMP mitigation measures will be implemented to ensure that pollution and nuisances arising from site clearance and construction activities is prevented where possible and managed in accordance with best practice environmental protection.

The CEMP will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the site will be trained in the implementation of the procedures.

The construction Contractor will provide a further detailed CEMP to include any subsequent planning conditions relevant to the proposed development and set out further detail of the overarching vision of how the construction Contractor of the proposed development manage the site in a safe and organised manner.

This CEMP has been prepared to account for activities at the site during the excavation and construction phases of the project.

The main issues that have been considered within this document are as follows;

- Description of works;
- Construction programme and phasing;
- Site logistics;
- Workforce;
- Public relations and community liaison;
- Construction traffic and access; and
- Safety, health and environmental management.

2.0 DESCRIPTION OF THE PROJECT

Malclose Limited intend to apply to Dublin City Council for a 7-year permission for a large-scale residential development principally comprising student accommodation at this 0.962 Ha site at Gowan House, Carriglea Business Park, Naas Road, Dublin 12, D12 RCC4.

Works to upgrade of the access road to the west of the site on an area measuring c. 0.081 Ha are also proposed comprising new surfacing to the carriageway, the provision of inbound and outbound bicycle lanes from the development entrance to the Naas Road, the provision of a controlled pedestrian crossing on the access road at the Naas Road junction, and the provision of a further uncontrolled pedestrian and bicycle crossing linking the subject site with the approved Concorde SHD development (ABP Ref: TA29S.312218) to the west.

On the Naas Road, works are proposed on an area measuring c. 0.086 Ha comprising the realignment and widening of the existing pedestrian footpath along the westbound carriageway of the Naas Road and the provision of linkages from the realigned footpath to the development site, and the provision of new controlled pedestrian crossings

across the eastbound and westbound carriages of the Naas Road and the provision of a new uncontrolled crossing of the Luas tracks.

The development site area and roadworks areas will provide a total application site area of c. 1.13 Ha.

The proposed development will principally consist of: the demolition of the existing two-storey office/warehouse building and outbuilding (5,172 sq m); and the construction of a development in two blocks (Block 1 (eastern block) is part 2 No. storeys to part 15 No. storeys over lower ground floor and basement levels with roof plant over and Block 2 (western block) is part 9 No. storeys to part 11 No. storeys over basement with roof plant over) principally comprising 941 No. Student Accommodation bedspaces (871 No. standards rooms, 47 No. accessible studio rooms and 23 No. studios) with associated facilities, which will be utilised for short-term lets during student holiday periods. The 871No. standard rooms are provided in 123 No. clusters ranging in size from 3 No. bedspaces to 8 No. bedspaces, and all clusters are served by a communal living/kitchen/dining room.

The development also provides: ancillary internal and external communal student amenity spaces and support facilities; cultural and community floor space (1,422 sq m internal and 131 sq m external) principally comprising a digital hub and co-working space with ancillary cafe; a retail unit (250 sq m); public open space; the daylighting of the culverted River Camac through the site; an elevated walkway above the River Camac at ground floor level; a pedestrian bridge link at first floor level between Blocks 1 and 2; vehicular access at the south-western corner; the provision of 7 No. car-parking spaces, 2 No. motorcycle parking spaces and 2 No. set down areas; bicycle stores at ground and lower ground floor levels; visitor cycle parking spaces; bin stores; substations; hard and soft landscaping; green and blue roofs; new telecommunications infrastructure at roof level of Block 1 including antennas and microwave link dishes, 18 No. antennas and 6 No. transmission dishes, together with all associated equipment; boundary treatments; plant; lift overruns; and all associated works above and below ground.

The gross floor area of the development is c. 33,140 sq m comprising c. 30,386 sq m above lower ground and basement level..

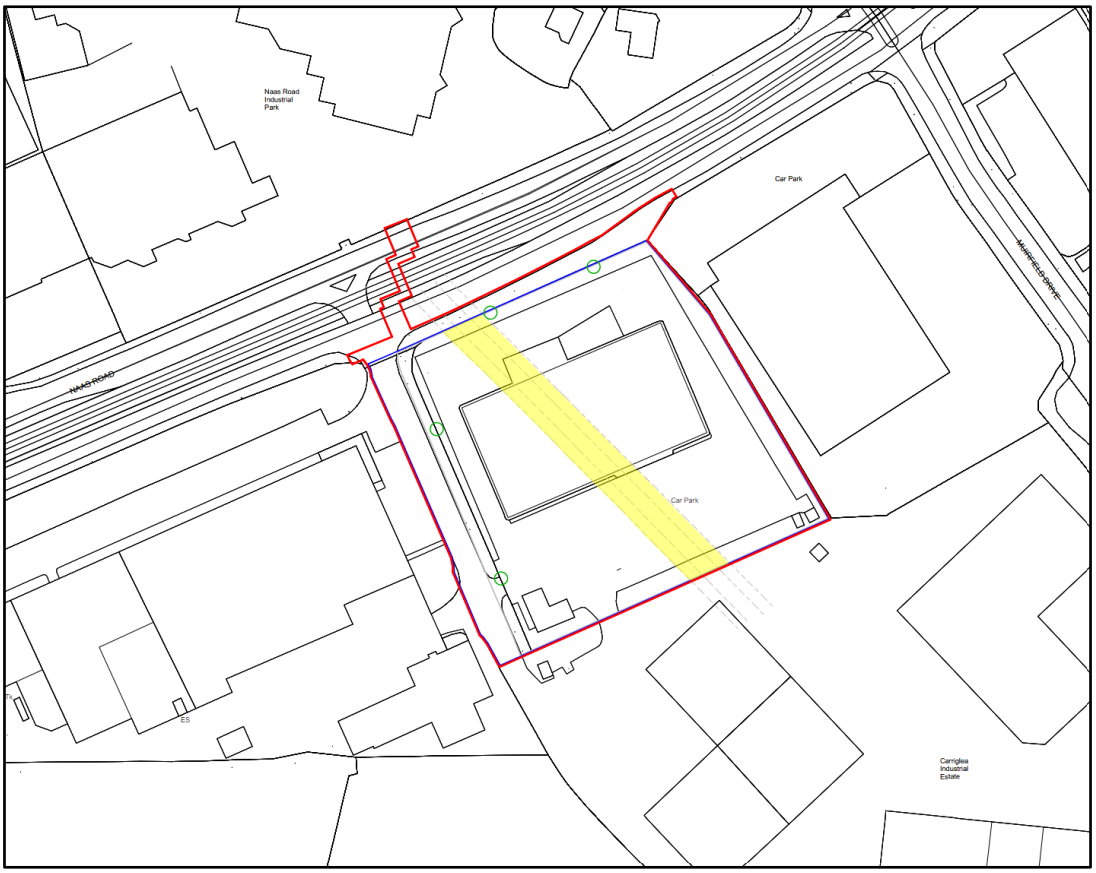


Figure 2.1 Proposed location of site (illustrated by red line boundary)

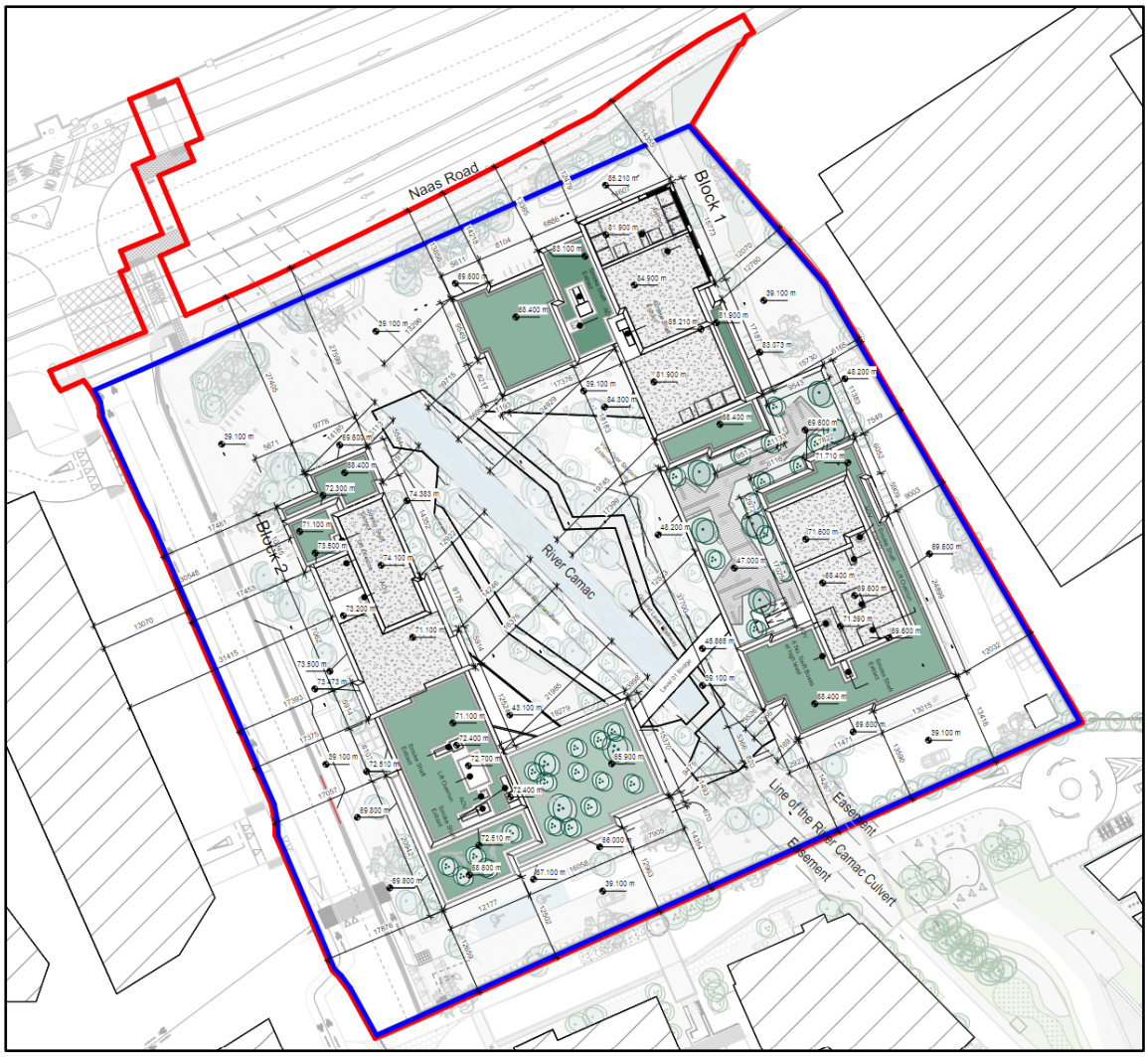


Figure 2.2 Proposed red line boundary.

3.0 CONSTRUCTION PROGRAMME AND PHASING

The construction works associated with the development consist of the following principal elements:

3.1 Demolition Phase

The existing structures on site will be demolished as an enabling works contract prior to the construction of the proposed development. A detailed asbestos survey will be carried prior to the commencement of demolition works.

The demolition shall be in full compliance with BS 6187 *"Demolition in Buildings"* and all measure necessary will be taken to protect the adjoining buildings from damage and persons from injury. Prior to the demolition works the Resource & Waste Management Plan (RWMP) prepared by AWN Consulting (Ref 237501.0134WMR01) will be updated in accordance with the *"'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' in November 2021"* by the appointed Demolition Contractor.

The demolition will commence with the removal of any hazardous materials by an appropriately qualified contractor for disposal at an appropriate licensed waste collection facility. All non-structural items will then be removed segregated for re-use

or re-cycling where possible. The remainder of the building structure will be removed and the culvert daylighted in an approved sequence outlined in a Method Statement prepared by the Demolition Contractor's Structural Engineer.

Prior to the commencement of any demolition works detailed liaisons with the RPT/TII due to the sites adjoining proximity to the Luas Red Line.

3.2 Excavation & Construction Phase

The project will involve the excavation of existing building foundations and preparation for new deeper foundations to be installed. The RWMP prepared for this planning application by AWN Consulting, for the development to will be updated by the main contractor and will be in compliance with the requirements of the *"'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' in November 2021"* published by the EPA and will identify and categorise any waste arising from the development.

The plan will also contain the proposals for the prevention, minimisation, re-use and re-cycling of site generated waste. As part of this plan separate storage areas will be designated on the site for various types of material in order to maximise the re-use and re-cycling potential. Procedures will also be put in place to ensure that all sub-contractors fulfil the requirements of the Waste Management Plan.

The construction programme is intended to commence in Q 3 2024, with a 36 month programme.

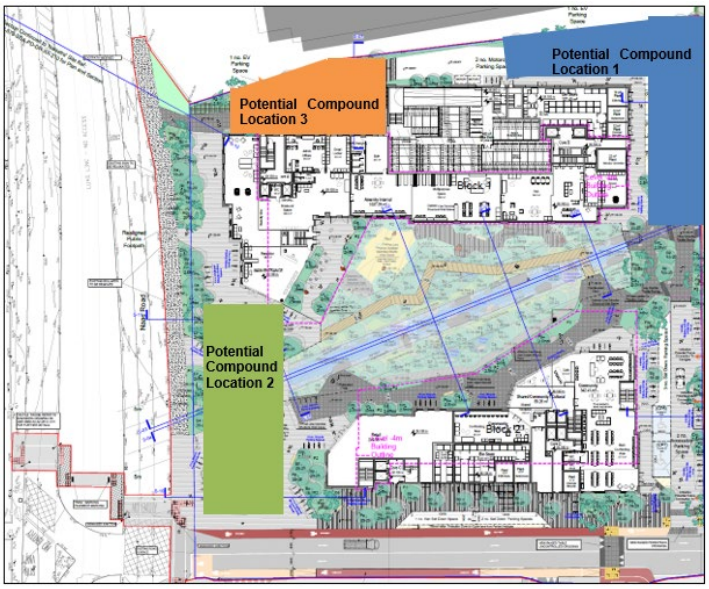


Figure 3.1 Potential site construction compound location

Subject to detailed planning at the construction stage, it is currently envisaged that the construction compound, offices and storage areas will be located at one of the indicated location Figure 3.1 and in Appendix B. While parking for contractors, when required, will occur in one of these areas. It is envisaged that most contractors outside of equipment drop-offs will access the site using public transport.

The construction and demolition works will include:

- Site set up, welfare facilities and compound establishment, decommissioning and movement of site compound and facilities as needed.

- Set up of hoarding around compound and the site boundary.
- Erection of safety signage to all areas and implementation of traffic/pedestrian management plan.

4.0 EXCAVATIONS

4.1 Archaeological and Architectural Heritage

An Architectural Heritage Impact Assessment was undertaken by Historic Building Consultants.

Due to the development site's location in an area of potential archaeological significance, several mitigations will be implemented. The site will undergo pre-construction archaeological test trenching conducted by a qualified archaeologist under proper licensing. The results of this trenching program will be submitted to Dublin City Council, the Heritage and Planning Division of the Department of Housing, Local Government, and Heritage (DHLGH), and the National Museum of Ireland before the main construction commences. Any additional mitigation measures deemed necessary will be preapproved by both the City Archaeologist (Dublin City Council) and the National Monuments Service (DHLGH) to ensure the preservation and protection of any significant archaeological findings on the site.

Should archaeological features or material be uncovered during any phase of construction, ground works will cease immediately and the National Monuments Service of the Department of Housing, Local Government and Heritage will be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken.

4.2 Ground Conditions

Ground Investigation Ireland have undertaken ground investigations and prepared a waste classification report for the proposed development site in July 2023. Further details on existing ground conditions can be found in these documents which have been submitted with the planning application as an appendix to the Basement Impact Assessment prepared by the project engineers Barrot Mahony Civil & Structural Consulting Engineers (BM).

In the event that contaminated material is found on site, this material will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [2] using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* [3], which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.* All asbestos will be taken to a suitably licensed or permitted facility.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify Dublin City Council (DCC) and provide a Hazardous/Contaminated Soil Management Plan, to include estimated tonnages,

description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the authorised waste collector(s).

5.0 SITE LOGISTICS

5.1 Site Safety Compliance

The Contractor shall be responsible for overall management of the site for the duration of the proposed works and will progress their works with reasonable skill, care, diligence and to proactively manage the works in a manner most likely to ensure the safety and welfare of those carrying out construction works.

The Contractor shall comply with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act, The Construction Regulations (SI 291 of 2013), the General Application Regulations (SI 299 of 2007), etc. (and any amendments thereof).

In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage.

5.2 Site Establishment and Security

The first activity to be carried out at the site will be the establishment of site facilities and security. It is anticipated that site establishment works will take approximately four weeks. The site office and welfare facilities will be confirmed in advance of the commencement of site works and agreed with DCC. Figure 3.1 shows the proposed locations of the site compound.

All of the sub-contractors as well as the main contractor and project managers will occupy offices within the construction compounds. The site parking for all staff, contractors and visitors will also be located onsite in the construction compound and can be viewed in figure 3.1. Carpooling and the use of public transport will be encouraged to reduce pressure on parking in the area.

5.3 Consents and Licenses

All statutory consents and licences required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Site notices;
- Construction commencement notices; and
- Licence to connect to existing utilities and mains sewers, where required;

5.4 Services and Utilities

Welfare facilities (canteens, toilets etc.) will be available within the construction compound and this will remain in place for the construction of the proposed development. The offices and site amenities will initially need to have their own power supply, water deliveries and foul water collection until connections are made to the mains networks.

Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required.

The current electricity facilities on the site of the proposed development are supplied by the ESB through a ring network. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor.

Water supply required for welfare facilities, dust suppression and general construction activities will be sourced from the existing public piped supplies running into the site.

Although before connections are established to the water supply it may need to be trucked onto site. As with electrical works, this will be carried out by a suitably qualified contractor. It will be necessary to service the site with a reliable and safe water supply.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site.

5.5 Material Handling and Storage

Key materials will be ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.

Where possible it is proposed to source general construction materials from the Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006 [4]) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape of material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Material will be removed from site regularly to ensure there is minimal need for stockpiling.

5.6 Visitor Management

Visitors will only be allowed to enter the main site compound via the designated pedestrian access gate. Visitors will be required to attend a site-specific induction to allow access to the compound and/or construction site unless being accompanied by an inducted member of the site team.

Visitors will then be taken by an inducted member of the construction team to the required area of the site.

5.7 Site Working Hours

Site development and building works will only be carried out between the hours of 0700 to 1900 Mondays to Fridays inclusive and between 0800 and 1400 hours on Saturdays There will be no construction works carried out on Sundays or public holidays. Deviation from these times will only take place when written approval is granted by DCC in exceptional circumstances.

5.8 Employment and Management Workforce

It is estimated that there will initially be 60 - 80 staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 120 staff and contractors on site per day.

It is anticipated that the key project managers and main contractor representatives will maintain a presence on site for the whole duration of the project and the labour workforce will be determined by the specialist contractors required on site.

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health & Safety card), manual handling training, CIF COVID 19 training and the necessary certificates to operate machinery as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

6.0 CONSTRUCTION TRAFFIC AND SITE ACCESS

The proposed construction vehicle routes for the site will require a traffic management plan to be agreed upon with DCC prior to site workings beginning. A Construction Stage Traffic Plan will be prepared post-planning and in conjunction with the construction and demolition contractors. Advanced warning signs will be placed at sufficient distances to taper off the entry and exit points. Pedestrian marshals will be used as and when required.

Construction traffic access to the site will be via the existing access onto the Un-named Road which connects onto the Naas Road.

The traffic plan will be such that it will minimise the interaction between the construction site and the local area.

Traffic management will be undertaken for the site works in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks [5]
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010) [6]
- Any additional requirements detailed in Design Manual for Urban Roads & Streets (DMURS) [7]

Construction traffic operation would be limited to 0700 to 1900 from Monday to Friday and 0800 to 1400 on Saturday for the off-road construction. These times may vary to facilitate specific site requirements and/or construction activities associated with the site. Any variation will be discussed and agreed in advance with DCC.

It should be noted that construction traffic generated during the Construction Phase tends to be outside of peak hours. All construction activities will be agreed with DCC's Roads Department prior to the commencement of the Construction Phase.

In general, the impact of the construction period will be temporary in nature. HGV vehicle movements per hour during the busiest period of construction works are estimated at a peak of 5 HGVs per hour arriving and leaving, but the exact figure will be confirmed by the contractor.

Approved traffic mitigation measures requested by DCC will be submitted with an updated CEMP as part of compliance, prior to the commencement of works.

6.1 Traffic Queueing

Material deliveries and collections from site will be planned, scheduled and staggered to avoid any unnecessary build-up of construction works related traffic.

Deliveries to site shall be booked in advance using a delivery schedule, so as to prevent lorry congestion on the road networks surrounding the site. Alternative safe routeways shall be established for traffic and pedestrians where existing routeways have to be altered, removed or worked on during the project.

6.2 Luas

Construction on site will follow the requirements set out in the Transport Infrastructure Ireland (TII) Code of Engineering Practice for Works on, Near, or Adjacent the Luas Light Rail System published in 2016. The Code of Practice (CoP) document outlines essential precautions aligned with current legislation and Luas operating protocols. It highlights the processes to follow in applying for, carrying out and completing the works within the proximity of light rail systems. In compliance with the Light Rail (Regulations of Works) Bye-Laws 2004 (S.I. No. 101 of 2004), which governs works in close proximity to LUAS infrastructure, the developer is required to seek a works permit from the LUAS Operator. The works permit aligns with the TII's Code of Engineering Practice for Works on, Near, or Adjacent the Luas Light Rail System.

This report highlights the critical interfaces with the Luas infrastructure and the associated risks. A summary is presented of the control measures to be followed by the contractor during the construction works.

In conjunction with the TII CoP, the following guidance documents were reviewed as part of compiling this report:

- Transport Infrastructure Ireland (TII) Light Rail Environment – Technical Guidelines for Development (PE-PDV-00001) published in 2020.
- ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines published in 2019.
- Transport Infrastructure Ireland (TII) Temporary Safety Measures Inspection (CC-STY-04002) published in 2017.
- Health & Safety Authority (HSA) Construction Site Traffic Management Plan (CSTMP) Guidance published in 2020.
- Health & Safety Authority (HSA) Risk Assessment Method Statement (RAMS) Template published in 2022.

According to the TII CoP, it is mandatory that works access permits must be obtained before commencing any activities that fall under the following conditions:

a) Any works occurring within the Electric Traction System (ETS) as shown in Figure 6.1.
b) Any works occurring within the swept path as shown in Figure 6.1.
c) Any works which may potentially drop objects on the Overhead Conduction System (OCS).
d) Any works causing vibration that may affect the tramway such as demolition or foundation
e) construction works. Any such activities that are outside the swept path must also follow the
f) directions of the relevant local authority.
g) Any trenchless methods of tunnelling beneath the track slab.
h) The movement of any high loads under the OCS.

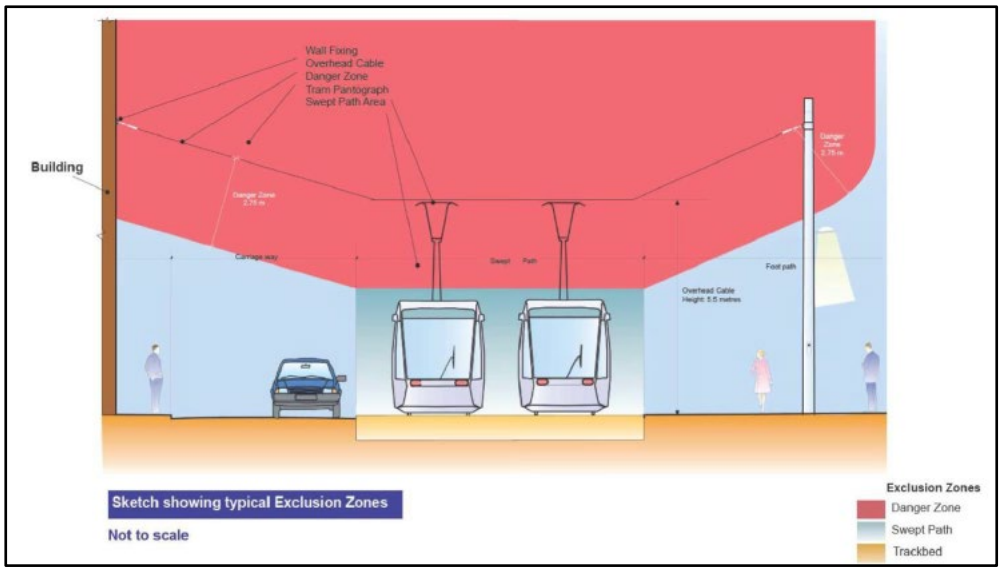


Figure 6.1 Typical exclusion Zones (TII Code of Practice, Appendix 1 Page 19)

Prior to the commencement of any demolition works detailed liaisons with the RPT/TII due to the sites adjoining proximity to the Luas Red Line.

6.3 Site Hoarding and Security Fencing

All areas of construction will be fenced / hoarded off to prevent unauthorized access. This fencing shall remain closed at all times during construction works and closed and locked after construction work hours / break times.

This fencing shall be erected in accordance with good practice and the Construction Regulations 2013. Fencing arrangements shall be reviewed as the life of the project progresses.

7.0 SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

The appointed main contractor will implement a Construction, Health and Safety Plan during the life of the project, which contains health and safety measures covering the below items at a minimum:

- Construction Health & Safety training requirements;
- COVID-19 guidelines;
- Induction procedures;
- Emergency protocols; and
- Details of welfare facilities.

7.1 Construction Lighting

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required (works on roadways and power floating floors as examples). Where possible and without jeopardising site safety lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. These lights will be pointed down at a 45-degree angle and away from sensitive receptors where possible.

7.2 Air Quality

This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the measures set out below have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:

- Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004) [8];
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) [9];
- The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996) [10]; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) [11].

7.2.1 DCC Requirements

Further dust mitigation measures in line with the DCC Guidance Notes "Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition (2022) can be found in Appendix A of the CEMP. All DCC qualifying requirements will be observed.

7.2.2 Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:

- The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details;
- It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;
- It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein;
- At all times, the procedures put in place will be strictly monitored and assessed.

Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The following procedure will be implemented:

- The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.
- The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.
- After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m^2/day in accordance with the relevant standards.
- Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.

A limit value of 350 mg/m^2/day will be used in comparison with recorded values.

7.2.3 Dust Control Measures

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

Excavation

During periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust, however any excavations are expected to be internal in nature;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

The movement of trucks containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

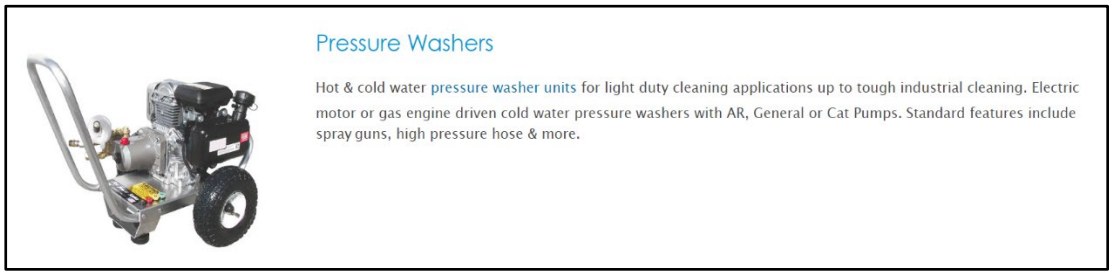
Stockpiling

The location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust.

Site Traffic on Public Roads

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



Insert 7.1 Example of Proposed wheel cleaning equipment example

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate, and an example of the washing equipment can be seen in insert 7.1 ; and
- Road sweepers will be employed to clean the site access route as required.

General

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.

7.3 Ecology

The key strategies to be undertaken to minimise impact on the local flora and fauna during demolition and construction are as follows:

- A project ecologist will be appointed and consulted in relation to all onsite works;
- All demolition works methodologies will have prior approval of a project ecologist. A pre-construction inspection will be carried out for nesting herring gull if demolition works are proposed during bird nesting season (March-October). If nesting herring gull are found NPWS will be informed, appropriate licences obtained and conditions carried out to the satisfaction of NPWS, prior to demolition works taking place;
- Pre Construction survey for bats. If bats are found roosting on site a derogation licence will be required from the NPWS prior to construction;

- All onsite drainage network connections will be blanked off and sealed at the first phase of the construction works;
- There will be no entry of solids or petrochemicals to the drainage network during the works;
- Local drainage connections, gullies and watercourses will be protected from dust, silt and surface water throughout the works;
- All demolition works will comply with current legislative requirements and best practice;
- Taking measures to limit the working area during the construction phase will reduce the impacts of the development on adjacent areas. The construction area will be clearly delimited by the site boundary and machinery should operate only within this allocated site area;
- All re-fuelling of plant, equipment and vehicles will be carried out at the construction site boundary. All fuels, chemicals, liquid and solid waste will be stored in areas bunded in accordance with established best practice guidelines at the construction compound also; and Provision of spill kits;
- Provision of a water and sediment management plan, providing for means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local water courses or drains; and
- The measures outlined in Section 7.6 will ensure that silt run-off and potential flooding risks are minimised which will protect any ecological receptors associated with the site.
- Construction lighting will be designed so as to be sensitive to the potential presence of bats and should adhere to the following guidance:
    - Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers (Bat Conservation Trust, 2010) [13];
    - Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011) [14];
    - Bats and Artificial Lighting in the UK – Bats and the Built Environment Series. Guidance Note 08/18 (Bat Conservation Trust UK, 2018) [15].

7.4 Noise and Vibration

7.4.1 Noise Criteria

Noise impacts arising from construction activities have the potential to cause annoyance or nuisance to local residents and businesses in the area.

Appropriate criteria relating to permissible construction noise levels for this development are taken from British Standard BS 5228 – 1: 2009 +A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise. The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on exiting ambient noise levels in the absence of construction noise.

In accordance with the standard, ambient measured noise levels representative of noise sensitive locations should be rounded to the nearest 5 dB and construction noise limits are then set according to the category definitions above. This then sets a threshold noise value that, if exceeded at this location, indicates a potential significant noise impact is associated with the construction activities depending on context. The approach is summarised in Table 7.1.

Table 7.1: *Threshold of Potential Significant Effect at Dwellings (BS5228-1)*

Assessment Category and Threshold Value Period	**Threshold Value (dB)**		
	Category A A)	**Category B B)**	**Category C C)**
Night Time (23:00-07:00)	45	50	55
Evenings and Weekends D)	55	60	65
Daytime (07:00-19:00) and Saturdays (07:00 – 13:00)	65	70	75

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

D) 19:00–23:00 weekdays, 13:00–23:00 Saturdays and 07:00–23:00 Sundays.

7.4.2 Vibration Criteria

Vibration criteria are taken from BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites- Vibration. This document sets the following vibration limits for transient vibration. For buildings or structures that are structurally unsound, lower vibration magnitudes will apply, typically 50% of those for structurally sound buildings. Protected or historic buildings are not automatically assumed to be more vulnerable to vibration unless they have existing structural defects. The recommend transient vibration thresholds from BS5228-2 for the avoidance of cosmetic damage to light and heavy framed buildings are summarised in Table 7.2.

Table 7.2: *Transient Vibration threshold values for buildings*

Type of Building	**Peak component particle velocity in frequency range of predominant pulse** Note 1	
	4 Hz to 15 Hz	**15 Hz and above**
Reinforced or framed structures. Industrial and heavy commercial buildings	50mm/s	
Unreinforced or light framed structures. Residential or light commercial buildings.	15 mm/s at 4 Hz Note 2 increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Values referred to are at the base of the building.

Note 2: At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

7.4.3 General Noise and Vibration Mitigation

Best practice noise and vibration control measures will be employed by the contractor during the construction phase in order to control noise and vibration impacts at the nearest noise sensitive locations. All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. This includes guidance on several aspects of construction site mitigation measures, including, but not limited to:

- Selection of quiet plant;
- Noise control at source;
- Screening, and;
- Liaison with the Public

The following key forms of noise control for the site are set out below:

- Site compounds will be located away from noise sensitive boundaries within the site constraints;
- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant should be switched off when not in use and not left idling.
- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system and avoid idling of engines when not in use.
- For percussive tools, a number of noise control measures include fitting a muffler or sound reducing equipment to the breaker ‘tool’ and ensure any leaks in the air lines are sealed. Erection of localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- The use of a high quality construction site hoarding will be included around all noise sensitive boundaries.
- For all materials handling, ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.

Liaison with the Public

The designated environmental liaison officer will be appointed to site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the liaison officer. In addition, where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Any noise complaints related to activities at the site will be logged and investigated and, where required, measures taken to ameliorate the source of the noise complaint.

Monitoring

During the construction phase, spot check noise monitoring may be required where the construction noise thresholds have the potential to be exceeded at noise sensitive locations. The monitoring shall be carried out by the contractor and used to inform the requirement for any control measures on site to reduce construction noise levels.

Noise monitoring will be conducted in accordance with the International Standard ISO 1996-2:2017 - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels (ISO 2017).

Where required, or requested by the local authority, unattended external noise monitoring will be undertaken at locations on the site boundary closest to sensitive locations. It is considered that it will be appropriate to amend the monitoring program and location as the works progress. Accordingly, monitors may be added, removed or relocated as necessary.

The noise monitoring terminals should provide the following at minimum:

- Logging at hourly intervals; and
- Remote access for information download.

Where required (i.e. where there is potential for exceedance of the vibration thresholds for buildings in Table 7.2), or requested by the local authority, vibration monitoring will be installed at the site boundary to monitor Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: *Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures* [16].

The mounting of the transducer to the vibrating structure will need to comply with BS EN ISO 5348: 1998: *Mechanical vibration and shock – Mechanical mounting of accelerometers* [17]. In summary, the following ideal mounting conditions apply:

- The transducer and its mountings should be as rigid as possible;
- The mounting surfaces should be as clean and flat as possible;
- Simple symmetric mountings are best, and;
- The mass of the mounting should be small in comparison to that of the structure under test.

7.4.4 DCC Requirements

Further noise and vibration mitigation measures in line with the DCC Guidance Notes “Air Quality Monitoring and Noise Control Unit’s Good Practice Guide for Construction and Demolition (2022) can be found in appendix A of the CEMP. All DCC qualifying requirements will be observed.

7.5 Resource and Waste Management

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific RWMP has been prepared by AWN Consulting and will be employed to ensure sustainable and effective waste management throughout the excavation and construction phases of the project.

Adherence to the RWMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the *Waste Management Act 1996* as amended [19], and associated Regulations, the *Litter Pollution Act of 1997* as amended [20], the *Eastern-Midlands Region Waste Management Plan 2015 – 2021* [21] and *the* Draft National Waste Management Plan for a Circular Economy (NWMPCE) (2023) [22], and that it will achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Concrete, bricks, tiles and ceramics;
- Wood, glass and plastics;
- Metals;
- Gypsum-based construction material;
- Paper and cardboard;
- Mixed construction and demolition (C&D) waste;
- Chemicals (solvents, paints, adhesives, detergents etc.); and

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

7.5.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the RWMP):

- Materials will be ordered on an ‘as needed’ basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site;
- A waste tracking log will be established;
- Sub-contractors will be responsible for similarly managing their wastes; and
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

7.5.2 Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development.

Waste materials generated will be segregated at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin Region that provide this service.

The site Resource Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

7.5.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the construction phase of the project. Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

7.5.4 Responsibility

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licensed or permitted waste facility in compliance with the relevant Regulations as outlined in the RWMP.

The contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in implementing the measures under the RWMP and in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste stream will be provided to DCC, along with waste collection permit numbers.

7.6 Surface Water Management

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All run-off will be prevented from directly entering into any water courses.

No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry.

The following measures will be put in place during the construction phase to ensure protection of surface waterbodies. Construction works are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects:

- Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532); and
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016).
- Environmental Good Practice on Site (3rd edition) (C692).

7.6.1 Pollution Control

Management of Suspended solids in run-off

Any temporary storage of spoil, hardcore, crushed concrete or similar material will be stored as far as possible from any surface water drains and also stored in receptacles

where possible. In order to minimise the risk of contamination, the stockpiled material will be removed off-site as soon as possible. Surface water drain gratings in areas near or close to where stockpiles are located will be covered by appropriate durable polyurethane covers or similar.

There can be no direct pumping of silty water from the works to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement areas, silt busters etc.

Concrete Run-off

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.

Accidental Spills and Leaks

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately bunded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from surface water drains.

Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.

The following mitigation measures will be taken at the construction site in order to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible;
- Where mobile fuel bowsers are used the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers must carry a spill kit;
    - Operatives must have spill response training; and
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

Monitoring

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 10m from surface water receptors and existing drains. A regular log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

7.6.2 Daylighting the River Carmac

During the process of daylighting the river Camac, several mitigations will be employed. To create a new central river channel, sandbags will be placed on both sides of the culvert, and protective sheeting will be installed over the top of the river channel. To facilitate the demolition phase, a temporary working platform with

handrails will also be installed. These measures are intended to ensure the safe and controlled restoration of the river while minimizing potential risks and environmental impacts.

Further detail on proposed construction methodology can be found in the Basement Impact Assessment produce by BM and included as part of this submission.

The general procedure of works for the daylighting of the culvert are as follow:

- Excavating to uncover the current Camac culvert. To ensure the stability of the surrounding ground, a sloping gradient with a ratio of 1:2 will be implemented, commencing from a point 5 meters away from the culvert's front face.
- Retaining walls will be constructed on both sides of the culvert.
- Demolition of the existing culvert lid.
- Excavating and creating sloped ground at the land boundaries to reach the necessary formation levels. The sloped ground serves as a temporary work system to counter soil surcharge.
- Installation of contiguous piled wall along a portion of the south-eastern boundaries. The 450mm Ø contiguous piled wall is designed to cantilever in the temporary condition.

8.0 SUMMARY

This CEMP sets out the overall management strategy for the excavation and construction works for the proposed development. The CEMP aims to ensure the management of construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required.

The CEMP will be reviewed regularly and will be updated by the construction contractor to account for any subsequent planning conditions issued, any updated guidance released and circumstantial changes at the site as the development progresses.

The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed so as to minimise potential impacts.

9.0 REFERENCES

1. Environmental Protection Agency (EPA) *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021).*
2. Environmental Protection Agency (EPA), *Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015)
3. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
4. British Standards Institution (BSI), *BS EN 1992-3:2006 Eurocode 2: Design of concrete structures. Liquid retaining and containment structures*. (2006).
5. Department of Transport, *Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks* (2010).
6. Department of Transport, *Guidance for the Control and Management of Traffic at Road Works* (2010).
7. Department of Transport, Tourism and Sport and Department of Housing, Planning and Local Government, Design Manual for Urban Roads and Streets (2019).
8. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
9. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
10. The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996).
11. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
12. USEPA, *Fugitive Dust Technical Information Document for the Best Available Control Measures* (1997).
13. Bat Conservation Trust, *Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers* (2010).
14. Institute of Lighting Professionals, *Guidance Notes for the Reduction of Obtrusive Light GN01* (2011).
15. Bat Conservation Trust UK, *Bats and Lighting in the UK – Bats and the Built Environment* Series (2018).
16. British Standards Institution (BSI), *BS 5228-2:2009 +A1 2014 Code of practice for noise and vibration control on construction and open sites. Vibration* (2014).
17. British Standards Institution (BSI), *BS ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures* (2010).
18. British Standards Institution (BSI), *BS EN ISO 5348: 1998: Mechanical vibration and shock – Mechanical mounting of accelerometers* (1998).
19. *Waste Management Act 1996* (No. 10 of 1996) as amended, including sub-ordinate and associated legislation.
20. *Litter Pollution Act 1997* (No. 12 of 1997) as amended
21. Eastern Midlands Waste Region, *Eastern-Midlands Region Waste Management Plan 2015 – 2021* (2015).
22. Regional Waste Management Planning Offices, *Draft The National Waste Management Plan for a Circular Economy (June 2023).*

APPENDIX A – DCC RISK ASSESSMENT & MITIGATION REQUIREMENTS

All mitigation considerations that are required based on the results of the DCC risk assessment will be implemented as required. The DCC risk assessment will regularly be reviewed as part of the life cycle of the CEMP and changing conditions on site.

Locality

Identify those who may be affected by noise, including particularly sensitive locations (hospitals/schools) and determine ambient noise levels (noise maps or noise monitoring)

	Low	Medium	High
Expected duration of work			
Less than 6 months			
6 months to 12 months			
Over 12 months			✓
Proximity of nearest sensitive receptors			
Greater than 50 metres from site	✓		
Between 25m and 50m			
Less than 25 metres			
Hospital or school within 100 metres			
Day time ambient noise levels			
High ambient noise levels (>65dB(A))	✓		
Medium ambient noise levels (55-65dB(A)			
Low ambient noise levels (<55dB(A)			
Working Hours			
7am – 6pm Mon-Fri; 8am-1pm Sat			
Some extended evening or weekend work		✓	
Some night time working, including likelihood of concrete power floating at night			
SUBTOTAL A			

Work Information

The column in total risk assessment with the most ticks indicates the risk category that should be employed for the site.

	Low	Medium	High
Location of works			
Majority within existing building			
Majority External			✓
External Demolition			
Limited to two weeks			
Between 2 weeks and 3 months		✓	
Over three months			
Ground Works			
Basement level planned			
Non-percussive methods only			
Percussive methods for less than 3 months		✓	
Percussive methods for more than 3 months			
Piling			
Limited to one week			
Bored Piling Only			
Impact or vibratory piling			
Vibration generating activities			
Limited to less than 1 week			
Between 1 week and 1 month			
Greater than 1 month			
SUBTOTAL B			

	Low	Medium	High
Risk Assessment A			
Risk Assessment B			
Total			

General Site Considerations

All Sites

- All site staff will be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.
- Material and plant loading and unloading will only take place during normal working hours unless the requirement for extended hours is for traffic management (i.e. road closure) or health and reasons (application will be made to DCC a minimum of 4 days prior to proposed works)
- No materials will be burned on site
- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers will be covered during transit on and off site.
- The site will be dampened down as necessary to minimise windblown dust when necessary or during periods of dry weather. Where dust is likely to be a persistent problem a water spray system e.g. (IBC tanks fitted with hoses) will be put in place from the commencement of the works where required.
- Dust suppression equipment will be used when point source emissions are likely.
- The use of road sweeper and/or hand held dust vacuums will be used as required to wash external site perimeter to include pavements.

Medium and High-Risk Sites

- Good Quality site hoarding will be erected to maximise the reduction in noise levels
- The contact details of the contractor and site manager will be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work
- The site entrance shall be located to minimise disturbance to noise sensitive receptors
- Internal haul routes shall be maintained and steep gradients will be avoided where possible
- The use of rubber linings in chutes, dumpers and hoppers to reduce impact noise where possible
- The opening and shutting of gates will be minimised through good coordination of deliveries and vehicle movements
- Adequate dust/debris screening will be put in place at the site boundary to contain and minimise the amount of windblown dust. This will be maintained in good condition at all times.
- The entry and exit points to the site will be constructed of hard standing which will be regularly dampened to minimise dust emissions.

Plant

All Sites

- Each item of plant and equipment will comply with the noise limits quoted in the relevant European Commission Directive 2000/14/EC
- All plant and equipment will be fitted with appropriate mufflers or silencers of the type recommended by the manufacturer or relevant expert
- All plant and equipment will only be used for the tasks for which it has been designed
- all plant and equipment will be shut down in intermittent use in the intervening periods between work or throttled down to a minimum
- All movable plant will be located away from noise sensitive receptors where possible

Medium and High-Risk Sites

- All plant will be powered by mains electricity where possible rather than generators

- Screening, using existing features or structures will be maxmised and the employ of partial or full enclosures for plant will be installed where practical.

Vehicle Activity

All Sites

- All vehicle movements (on site) will occur within normal working hours where possible. Other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons.

Medium and High-Risk Sites

- All deliveries and vehicle movements will be planned where is practical so that vehicles are not waiting or queuing on the public roads. If unavoidable engines will be turned off.
- The site layout will be planned to ensure that reversing is kept to a minimum
- Where reversing is required, the use of broadband reverse sirens, where it is safe to do so will disengage and the use banksmen will be implemented.
- Where possible the use of rubber/neoprene or similar non-metal lining material matting will be used to line the inside of material transportation vehicles to avoid first drop high noise levels.
- Wheel washing or wheel cleaning facilities will be used on vehicles prior to exiting the site shall take place to ensure that adjoining roads are kept clean of dirt and debris. Regular washing of adjoining streets will also be carried out by the developer, as required by mechanical road sweepers.

Demolition Phase

All Sites

- If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities will be kept to a low level noise activity unless absolutely unavoidable).

Medium and High-Risk Sites

- The use of acoustic screening will be employed when required; this will include planning the demolition sequence to utilise screening afforded by buildings to be demolished where is practical.
- The use low impact demolition methods such as non-percussive plant will be utilised where practicable.
- The transfer of noise and vibration from demolition activities to adjoining occupied buildings will be avoided through cutting any vibration transmission path or by structural separation of buildings where practical.

High-Risk Sites

- Rotary drills and ‘bursters’ activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material will be utilised where practical.
- The removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site will be considered where possible.

Groundworks and Piling Phase

Medium and High-Risk Sites

- The following hierarchy of groundwork/piling methods will be used if ground conditions, design and safety allows:
    - pressed in methods, e.g., hydraulic jacking
    - Auger/bored piling
    - Diaphragm walling
    - Vibratory piling or vibro-replacement
    - Driven Piling or dynamic consolidation
- The location and layout of the piling plant will be designed to minimise potential noise impact of generators and motors
- Where impact piling is the only option a non-metallic dolly between the hammer and driving helmet or enclose the hammer and helmet with an acoustic shroud will be utilised where practical.
- Concrete pour sizes and pump locations will be considered as part of operations. The start of concrete pours will be undertaken as early as possible to avoid overruns.
- Where obstructions are encountered, work will be stopped and a review undertaken to ensure that work methods that minimise noise are used.
- When using an auger piling rig, dislodgement of material from the auger by rotating it back and forth will be avoided where possible. The use alternate methods, where safe to do so will be implemented.
- Pile caps will be prepared using methods which minimise the use of breakers, e.g., use hydraulic splitters to crack the top of the pile when plausible.

Monitoring

All Sites

- Appropriate dust suppression will be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways

Medium and High-Risk Sites

- Pre-existing levels of ambient noise will be established by baseline monitoring or use of the noise maps.
- Working methods, processes and procedures will be appraised and reviewed on a regular basis to ensure continuous development of Best Practice Methodology (BPM)
- The ‘ABC’ Method detailed in Paragraph E.3.2 of BS 5228-1:2009 will be used to determine acceptable noise levels for day, evening and nighttime work.
- Vibration levels will be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value residents will be warned and an explanation given.
- Street and footpath cleaning will be undertaken during the demolition and ground works phase to minimise dust emissions as required.
- The following air quality monitoring procedures will be applied:
    - Continuous real time particulate (i.e. PM10 and PM2.5) monitoring along the site boundary will be undertaken during any demolition, ground works or during a construction phase which Dublin City Council deems necessary. The location of particulate monitors will be agreed with DCC prior to installation. The results of the monitoring will be made available to DCC on request in an agreed format.

- Dust deposition monitoring will be undertaken using a methodology agreed in advance with DCC.

High-Risk Sites

- Regular on-site observation monitoring and checks/audits will be undertaken to ensure that BPM is being used at all times. Such checks will include;
  - Hours of work
  - Presence of mitigation measures
  - Number and type of plant
  - Construction methods

  Site reviews will be recorded and made available for inspection
- The Monitoring of 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, when requested by DCC.

  To comply with this the following will take place.

  The monitoring locations for existing sites as agreed with officers of Dublin City Council must remain in situ. If additional monitoring is required this will be provided and the new locations will be agreed with Dublin City Council. For all new sites the monitoring locations must be agreed with Dublin City Council. The results of the monitoring must be forwarded to officers of the Air Quality Monitoring and Noise Control Unit every two weeks in the following format:
  - The construction noise level as defined in British Standard 5228 and the peak particle velocity readings for the hours of operation of the site will be provided. This will include the construction noise level for any overtime period worked outside of normal working hours. A report will be provided detailing and discussing the noise and vibration levels over the reporting period. If a breach is recorded the follow up action that took place to prevent any further breaches will be included in the report.
- This information will be provided in electronic format if results are required owing to complaints. The results will be provided as soon as possible by the contractor to Dublin City Council upon request.

Communication and Liaison

Medium and High-Risk Sites

- A Community Liaison Plan will be developed by the developer in consultation with local residents/businesses and a single point of contact nominated to engage with Dublin City Council and the residents/businesses and to handle complaints and communication of site information if requested by DCC. A copy of this plan will be sent to Dublin City Council Planning Department as a matter of urgency in the case of sites where development has already commenced and 14 days in advance of commencement of works for any other site
- Contact details for the site manager and liaison officer will be displayed on the site hoarding
- All staff will be briefed on the complaints procedure and the mitigation requirement and their responsibilities to register and escalate complaints received.
- Regular updates at appropriate intervals to all identified affected neighbours/ businesses via a newsletter and the posting of relevant information on the site hoarding. The information will be made available via email, including weekly noise monitoring reports if requested by identified affected neighbours/ businesses

High-Risk Sites

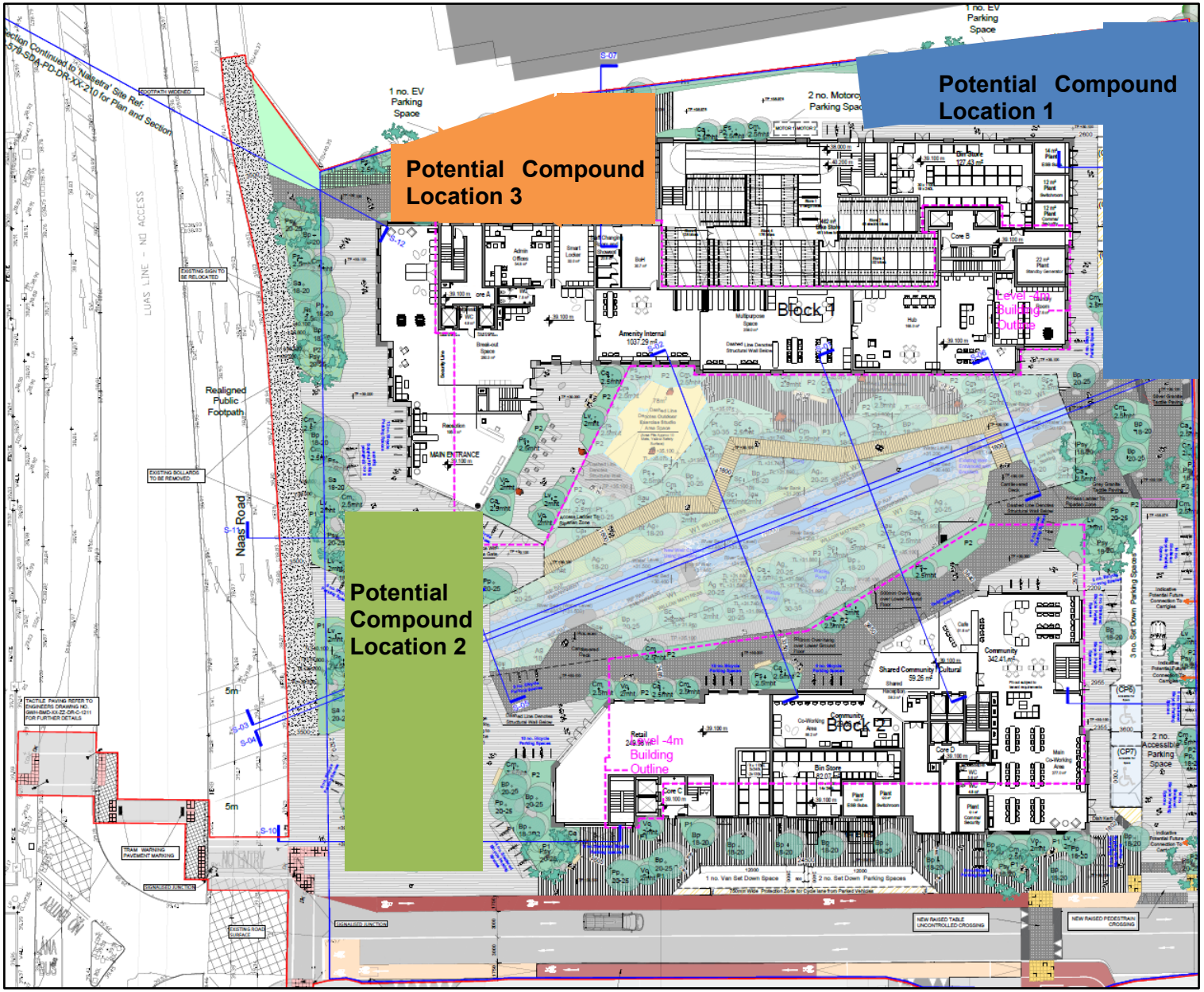
- Regular community liaison meetings at appropriate intervals including prior to commencement of the project will be arranged as required.
- Contact with neighboring construction sites will be undertaken as required to ensure activities are coordinated to minimise any potential cumulative issues.

Extension of Working Hours – In Exceptional Circumstances

All Sites

- At least 4 days' notice will be given to Dublin City Council Planning Department when applying for extensions to normal working hours. Out of hours work will not be undertaken unless permission to do so has been granted.
- The applicant will demonstrate in writing that the works required cannot be carried out during normal working hours. The documentation sent in will be accompanied by a detailed engineering or/and traffic management or/and safety case as to why the works are required outside normal hours. Power floating after 6pm is the only activity that will be undertaken during the extensions where they relate to required large concrete pours. All reasonable and appropriate measures to minimise noise associated with these works will be put in place and no works other than those approved will be carried out during extended working hours. The Developer/there agent will give the times and dates of the proposed work, and the mitigation measures that are to be used to minimise noise/disturbance.
- The identified affected neighbours/ businesses will be advised about the requirement for and duration of any permitted works outside of normal working hours, and associated environmental mitigation measures being put in place during the course of the extended works, following receipt of approval from DCC.
- All complaints will be referred directly to the site liaison person and a reply will be issued to the complaint within 3 hours of receipt of the complaint when possible.
- A log of all complaints and a summary of how they were dealt with will be kept and be made available to DCC, as required.

APPENDIX B – PROPOSED LOCATIONS FOR SITE COMPOUND


Potential Compound Location 1
Potential Compound Location 3
Potential Compound Location 2
Block 1
Block 2
Naas Road
Realigned Public Footpath
MAIN ENTRANCE
Level -4m Building Outline
1 no. EV Parking Space
2 no. Motorcycle Parking Spaces
NEW RAISED TABLE UNCONTROLLED CROSSING
NEW RAISED PEDESTRIAN CROSSING
2 no. Accessible Parking Space
3 no. Set Down Parking Spaces