15 April 2025

Report

Draft Construction Management Plan (rev 6)

Proposed Large Residential Development (LRD), Sarsfield Road Cork City

Land Development Agency (LDA)

securing right **outcomes**

LOCATION	BLOCKS	LEVELS	DISP.	REPORT NO. | REV
SARSFILED ROAD, CORK CITY	MULTI-BLOCK AND TOWNHOUSES	ALL	PSDP	DRAFT CMP-DCON-RPT-001-06

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Rev	Originator	Approved	Date
0	John Kilkenny	Diarmuid Condon	11th December 2024
1	Diarmuid Condon	Diarmuid Condon	20th December 2024
2	Diarmuid Condon	Diarmuid Condon	14th January 2025
3	Diarmuid Condon	Diarmuid Condon	16th January 2025
4	Diarmuid Condon	Diarmuid Condon	22nd January 2025
5 (post LR & ESB review)	Diarmuid Condon	Diarmuid Condon	24th March 2025
6 (final review)		Diarmuid Condon	15th April 2025

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1 Executive summary

The following Draft Construction Management Plan document has been prepared to support the overall planning application for the proposed development of the brownfield site at Farrandahadore More, on the Sarsfield Road, Wilton in Cork City. This Plan seeks to demonstrate how works can be delivered in a logistic, sensible and safe sequence. This methodology will be required to be interrogated and developed upon by and submitted to the planning authority by the contractor prior to commencing works.

The development team's indicative construction programme summarises the scale of construction activities that are necessary to undertake a development of this size coupled with the logistical implications of the works and their effect on the adjacent local communities and utility provider service continuity. In line with the overall development strategic programme, and prior to any enabling or main build works, the contractor will be required to develop a detailed programme for each special work element | works package. Chief among the challenges of the development is the introduction of construction activities significant in scale and volume that are or will be bordered on western and eastern boundaries by residential & retail centre properties, ESB Networks Infrastructure and Operations, religious order church grounds, a graveyard, existing wayleaves and public roadways.

A construction development of this scale has been planned to be as least disruptive as possible. The project team are seeking to endeavour to protect the right of all affected stakeholders in continuing their daily lives with limited or undue interruption (as far as reasonably practicable) that maybe caused by noise or dust or to be inconvenienced by the construction operations and traffic movements. The project team's similar like previous project experience offers a high degree of confidence in prioritising disruption minimisation.

This plan outlines a strategy for servicing the construction works with personnel and materials, accommodation and welfare facilities, removal of waste, vertical transportation of materials and personnel, security considerations and programme and logistics challenges for the Scheme whilst being mindful of the constraints within and around the development's environs. This document presents:

- A construction programme sequence supported by projected construction methodologies | techniques that will be adopted by the contractor during the construction of various blocks and houses that make up the LRD;
- A summary of foreseeable potential impacts by construction works and alleviation factors; and
- A structure | proforma boilerplate for the contractor's Construction Management Plan for works commencing on site.

As the ultimate controlling mind for the works, Land Development Agency through their Designated Community Liaison Officer (DCLO) and Project Managers (Mitchell McDermott Project Management) will take the lead in ensuring that there are suitable and sufficient systems in place that promote good health and safety coordination and communication between all project stakeholders and contractor(s).

1.1 Development description

The Land Development Agency (LDA) intends to apply to Cork City Council for a 7-year Planning Permission for a Large-Scale Residential Development (LRD) at this site, with a total application site area of c. 2.61 ha, on undeveloped lands adjoining the ESB Networks DAC Office, at Farrandahadore More, Sarsfield Road, Wilton, Cork City.

The development will provide 348 no. residential units, including 296 no. cost rental apartments, 16 no. 2 no. storey affordable for sale townhouses and 36 no. social housing apartments, and a c. 156 sq. m childcare facility, with associated staff and servicing areas and all associated development. The site is bounded to the south by the ESB Wilton Offices and Depot, to the east by the Sarsfield Road, to the west by Cardinal Court and to the north by the St. Joseph's SMA Wilton Parish Centre. The development, with a total gross floor area of approximately c. 30,494 sq. m, will consist of:

- 16 no. 2 no. storey, 3-bedroom townhouses and 332 no. apartment units (152 no. 1-bedroom apartments, 168 no. 2-bedroom apartments, 12 no. 3-bedroom apartments) arranged in 3 no. Apartment blocks. The easternmost block is 6 no. storeys in height (c. 5,912 Sq m). The central block (c. 11,790 sq. m) ranges in height from 5-6 no. storeys in height, including parking at ground floor podium level, with the c. 156 sq. m childcare facility also provided at ground floor level. The westernmost block (c. 10,969 sq. m) is proposed to range from 5 - 6 no. storeys in height, including parking at ground floor podium level);
- The proposed development also provides public (c. 3,545 sq. m) and communal (c. 1,487 sq. m) open space, including provision of podium gardens in the central and western apartment blocks. Provision is made in the landscaping proposals for potential future pedestrian connections that would facilitate permeability through the site to adjoining lands to the western boundary, subject to agreement with those parties and/or Cork City Council, as appropriate;
- The proposed vehicular, cycle and pedestrian access into the development is via a reconfigured shared access with the ESB facility to the southeast, via a controlled junction on Sarsfield Road. This reconfiguration includes changes to the existing boundary treatments and gates to the ESB site, relocation of security barriers and an existing prefabricated security kiosk (c. 9 sq. m) within the ESB site. The existing gated vehicular entrance to the site on the eastern boundary to Sarsfield Road will be reconfigured to provide cycle and pedestrian only access. Pedestrian access is also to be provided to the north-eastern and south-eastern boundaries via Sarsfield Road; and
- In addition, the proposed development includes bin stores; 148 no. car parking spaces; 503 no. bicycle parking spaces including 3 no. covered shelters; internal roads and pathways; hard and soft landscaping; outdoor play areas; plant; boundary treatments including retaining walls along the northern boundary; the repair and replacement of some existing boundary treatments; gates; signage; the provision of new drainage and watermains infrastructure and any required pipe diversion works; SUDS measures including green roof provision; below-ground attenuation structures; the decommissioning of an existing underground tank to the east of the site; changes in level; services provision and related ducting and cabling; electric vehicle charging points; 3 no. ESB substations; generator compound; photovoltaic panels; public realm works including lighting and all site development and excavation works above and below ground.

1.1.1 Historical site information

The complex is located on grounds of an existing and live ESB Networks facility. The site is located c.4km to the south-west of the historic core of Cork. The development will require an enablement works stage prior to new build construction works. The land involved is a 2.61-hectare brownfield site, next to the Wilton Shopping Centre and near existing residential neighbourhoods including Cardinal Court and Wilton Court. The development location is just over 4km from Cork city centre. It is convenient to the South Ring Road and within short walking or cycling distance of Cork University Hospital, Munster Technological University, schools, shops and other local services.

1.2 Project setting

The development's design considers working within typical planning constraints in developing a strong vision for Cork's newest mixed-use residential project. The site masterplan seeks to provide a viable and simple strategy for the alignment of new roads, repurposing of the existing ESB Networks entrance, the integration of new blocks with pedestrian | travel connectivity having been prioritised as part of the project design. The following strategic setting issues have been recognised within the design solution:

- Location – the site is located approximately 4km south-west of Cork city centre south of the River Lee and Lee Road and adjacent to the Wilton Shopping Centre on Sarsfield Road. The property's main entrance is to the east end of the site from Sarsfield Road which is easily accessible from the city via N41 or the N22;
- Adjoining owners – the site is close to both Wilton Shopping Centre and St Joseph's Roman Catholic Church and assorted properties. The area to the north is dominated by Wilton Shopping Centre surrounded by large external car parks. Lands further north and to the west are primarily in religious use (church, graveyard, convent, outhouses etc). The proximity of the ESB Networks Infrastructure and Operations to the immediate south presents a consideration constraint, which will require appropriate consideration at all times by the contractor;
- Site specific constraints – the development site has specific constraints relating to existing neighbouring ESB Networks Infrastructure and Operations, landscape preservation zone, significant sub-station, underground service presence, steeply sloping site sections, possible tree protection site levels, invasive species presence, asbestos containing materials presence, other biohazard risks etc.; and

- Local surrounding infrastructure – local infrastructure surrounds will be fully operational during the construction period with an absolute priority to maintain safe roadway use for pedestrians and vehicles.

2 Introduction

2.1 Glossary of terms

Term	Definition
DCMP	Draft Construction Management Plan
CEMP	Construction Environmental Management Plan
R&WMP	Resource & Waste Management Plan (formerly R&WMP)
CCC	Cork City Council
DCLO	Designated Community Liaison Officer - LDA
CLO	Community Liaison Officer (Contractor Appointee)
CLP	Community Liaison Plan

2.2 Definitions

- *"Construction Management Plan"* is the overall planning, coordination, and control document for the Scheme Development from construction commencement to completion. The pre-commencement Construction Management Plan prepared by the contractor must meet the requirements placed upon the LDA to produce a safe, functionally, and financially viable project;
- *"Project"* refers to the design and construction of the LRD scheme. This LRD is a critically important residential undertaking, involving considerable expense and significant socio-economic impact;
- *"Site"* means the lands and other places works are to be executed or places provided by the LDA for the purposes of the contract; and
- *"Works area"* relates to specific pieces of ground planned for a specific construction activity. Work areas will be defined by a red boundary line; within this defined area, the contractor is responsible for the safe delivery of works and site security.

2.3 Waiver

Whilst DCON Safety Consultants Limited took care in verifying the content of this document, it does not assume any legal liability for its accuracy or completeness. The information is supplied for information only and under no circumstance can DCON Safety Consultants or the LDA be held liable for any cost arising from inaccuracies or omissions about the content of this document. DCON Safety Consultants is not responsible for any errors or omissions, or for the results obtained from the use of this information by contractors.

3 Aim and objective of Draft Construction Management Plan (DCMP)

3.1 Aim

- The DCMP has been prepared for planned Planning Application submission in Q1 2025;
- The DCMP Plan has been prepared to seek to impart the over-arching vision of the LDA that works can be delivered safely and without risk. As Client, the LDA seeks to ensure that all works are planned & managed in a safe organised manner, undertaken, and coordinated by a competent contractor while obtaining the necessary confidences of all project stakeholders. The LDA are wholly committed to establishing and supporting all necessary aims and objectives to meet this vision; and
- The LDA are dedicated to observing a high level of health, safety, & environmental standard and good practice compliance throughout the construction stage of the development. This dedication is shared amongst all project partners and is a prerequisite outcome for the contractor.

3.2 Objective

- The DCMP will be provided to each tendering contractor detailing the specific requirements of their Construction Management Plan. The DCMP sets out the quantum of minimum information needed for the contractor's Construction Management Plan;
- The underlying objective of the DCMP is to inform the contractor of obligatory minimum standards of behaviours demanded to ensure that compliance with (envisaged) Planning Conditions and Environmental Regulations are met. Supplementary sub-objectives include but not limited to:
  - Limiting disruption to ESB Infrastructure and Operations;
  - A safe workplace is established, regularly assessed for adequacy, and maintained for all persons directed associated with or affected by works;
  - Instilling positive & proactive attitudes, managing risk, and requiring courteous and respectful behaviour of every organisation working on the development is a required norm;
  - Limit where possible disruption to surrounding roadway infrastructure, utility provider services, bordering property enjoyment, members of the public etc.;
  - Limit where possible disruption to neighbouring Wilton Court estate, Wilton Shopping Centre, St Joseph's Church, and other nearby property owners with measures to alleviate impacts required to secure constant access to all properties in the area;
  - Work practices are tailored to suit necessary arrangements to safeguard access means to neighbouring properties;
  - Construction activities are planned and executed to maximise the effectiveness, efficiency, sustainability & value-for-money of such works as they progress without impeding where possible live utility services, roadways etc.; and
  - The LDA baseline health and safety requirements are clearly defined and shared with the contractor when preparing their Construction Management Plan and in detailing the safe delivery of their works.

4 Project particulars

4.1 Client appointment requirements

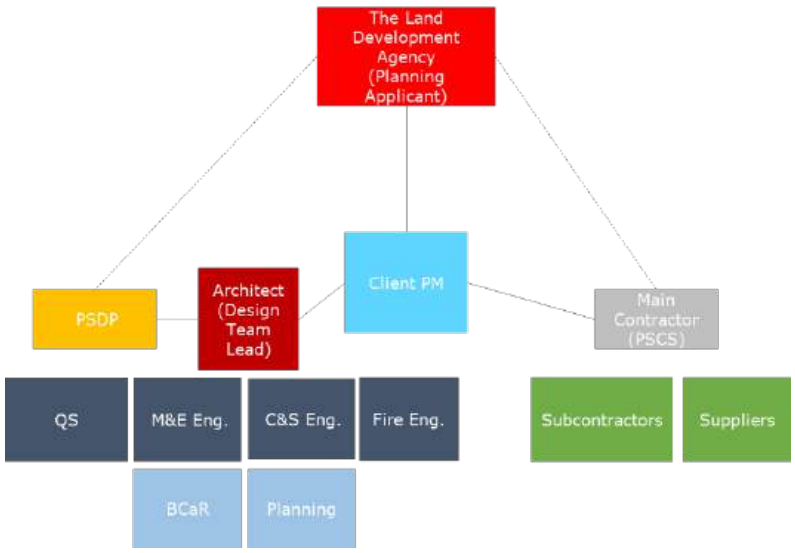
The LDA as Client is required under Section 17(1) of the Safety, Health and Welfare at Work Act, 2005 to appoint competent person or persons for the purpose of ensuring as far as is reasonably practicable, that the project –

- Is designed and is capable of being constructed to be safe and without risk to health;
- Is constructed to be safe and without risk to health;
- Can be maintained safely and without risk to health during subsequent use; and
- Complies in all respects, as appropriate, with the relevant statutory provisions. The appointments under section 17 of the 2005 Act will generally mirror the requirement to appoint a competent PSCS and the duties in section 17(1) are in addition to the duties in the Construction Regulations 2013.

The contractor will be appointed as Main Contractor and Project Supervisor for the Construction Stage and will be given possession of the site.

5 Project parties

The organogram below sets out the respective parties' roles on Development:



6 Development health & safety requirements

6.1 Client strategic health & safety drivers

The LDA have a controlling influence on how the overall programme of works will be managed which brings with its certain responsibilities with respect to health and safety. Where a contractor has been given possession of a works or block area, this area will form their respective site. The LDA will seek assurance and evidence to ensure each parties' compliance with regard to planning conditions | health & safety regulation and current good practice standards | statutory instruments will be in place for the works.

The LDA will seek to ensure that there is good communication and coordination between those operating alongside, adjacent or in other areas of the works through the contractor's

Community Liaison Plan and oversight | management by the Community Liaison Officer (contractor appointee). The LDA in planning, procuring and implementing the safe delivery of the development recognise the complexity and scale of the development and the inputs necessary to deliver it. Equally it understands the necessity of:

- Continued support from project stakeholders including but not limited to local residents, neighbouring property owners, ESB, CCC, NTA, TII etc.;
- Committed support from the contractor and their supply chain to comply with their commitments within this DCMP to seek to achieve a 0.00 Accident Frequency Rate on the project;
- Clear definition and allocation | delegation of roles and responsibilities to the parties best able to manage the task;
- Effective explanation of environmental strategies for the safe planning and execution of works. Regular coordination meetings with but not limited to local residents, business owners and CCC (if required) will be carried out in compliance with the Community Liaison Plan (refer also to Section 9.8); and
- Procurement and management of a contractor competent to progress & complete the works on behalf of the LDA willing to proactively engage in a collaborative manner to advance the project to the benefit of every stakeholder.

6.2 Contractor requirement: considerate contractor behaviours

It will be a condition of working on the development that the contractor develops their delivery methodology around the following headings:

6.2.1 Care about appearance

- Constructors must ensure sites appear professional and professionally managed;
- Ensuring that the external appearance of sites enhances the image of the industry;
- Being organised, clean and tidy;
- Enhancing the appearance of facilities, stored materials, vehicles and plant; and
- Raising the image of the workforce by their appearance.

6.2.2 Respect the community

- Constructors must have regard to the principles and requirements set out in the Community Liaison Plan (Section 9.8) for ensuring the timely and effective communications with all affected parties, with provision of accurate, relevant and regular information of works proposed and being undertaken;
- Informing, respecting and showing courtesy to those affected by the work;
- Minimising the impact of deliveries, parking and work on the public highway;
- Contributing to and supporting the local community and economy; and
- Working to create a positive and enduring impression and promoting the Considerate Contractors Scheme Code.

6.2.3 Protect the environment

- Constructors must protect and enhance the environment;
- Identifying, managing and promoting environmental issues;
- Seeking sustainable solutions, and minimising waste, the carbon footprint and resources;

- Minimising the impact of vibration, and air, light and noise pollution; and
- Protecting the ecology, the landscape, wildlife, vegetation, water courses and nearby River Lee.

6.2.4 Secure everyone's safety

- Constructors must attain the highest levels of safety performance to ensure a 0.00 Accident and Incident Frequency Rate;
- Having systems that care for the safety of the public, visitors and the workforce;
- Minimising security risks to neighbours;
- Having initiatives for continuous safety improvement; and
- Embedding attitudes and behaviours that enhance safety performance.

6.2.5 Value their workforce

- Constructors must provide a supportive and caring working environment;
- Providing a workplace where everyone is respected, treated fairly, encouraged and supported;
- Identifying personal development needs and promoting training;
- Caring for the health and wellbeing of the workforce; and
- Providing and maintaining high standards of welfare

6.3 Particular risks

Particular Risks	Yes	No
Burial under earth falls	✓	
Engulfment in swampland		✓
Falling from a height	✓	
Work which puts persons at risk from chemical or biological substances constituting a particular danger to the safety and health of such persons or involving a legal requirement for health monitoring ▪ Asbestos containing material (ACM) – Presumed until proven not present	✓	
Work with ionising radiation requiring the designation of controlled or supervised areas as defined in Article 20 of Directive 80/836/Euratom – Presence of masts on ESB site area: ▪ Non-ionising radiation (NIR) is the term used to describe the part of the electromagnetic spectrum covering two main regions, namely optical radiation (ultraviolet (UV), visible and infrared) and electromagnetic fields (EMFs) (power frequencies, microwaves and radio frequencies) ▪ At typical telecommunication frequencies, absorption of RF energy leads to heating of body tissue or may lead to unearthed conducting bodies becoming charged. The heating effect is most pronounced, and most hazardous, when the wavelength tends to correspond with the physical dimensions of body structures. Touching large, unearthed conducting structures exposed to EMFs may lead to RF shocks or burns.		✓

▪ On telecommunication masts, the sources of the EMF hazard are transmitting antennae; there is no EMF hazard at receivers. However, a wide variety of antenna types exist so it is difficult to determine whether an antenna is a transmitter or a receiver or both and whether it is transmitting at any particular time. ▪ Levels of absorption of RF energy are dependent on the transmission frequency and the field strength. Field strength is dependent on distance from the source		
Work near high voltage power lines ▪ There are medium - high voltage cables located on the site. All work in the vicinity of the overhead and underground power lines will be in accordance with the HSA/ESB Code of Practice for Avoiding Danger from overhead and under-ground lines. All craning and similar high-reach plant used onsite will be planned in advance and operated in accordance with Part 8 of the Code of Practice for Avoiding Danger from Overhead Electricity Lines. Equipment will be orientated so any failure will be directed away from the hazard zone (e.g. crane set up, so boom is orientated facing away from the hazard zone). Any work with the potential to encroach on the exclusion zone, be it advertent (e.g. crane operator slews boom too far) or inadvertent (e.g. excavator operator suffers heart attack and slumps over the controls), will only be conducted with prior consultation with the utility owner (ESB Networks).	✓	
Work exposing persons at work to the risk of drowning (water in excavations)	✓	
Work on wells, underground earthwork and tunnels		✓
Work carried out by divers at work having a system of air supply		✓
Work carried out in a caisson with a compressed air atmosphere		✓
Work involving the use of explosives		✓
Work involving the assembly or dismantling of heavy prefabricated components (structural members | infill walls | floors | stairs | glazing units | flues | water tanks | stacks | plant & equipment etc.)	✓	
Any other work, which may involve 'Particular' risk e.g. ▪ Adjacency of site to occupied properties and public amenities; ▪ Adjacency of site to live critical ESB Networks Infrastructure and Operations; ▪ TC use: the Works Contractor must coordinate the design of appropriate anticollision device selection to ensure that all TCs can be calibrated to beware of each other. Appointed competent persons are to coordinate, together to ensure all overhead lifting is planned so as to be undertaken safely and without risk. Risk assessments must be conducted by the Works Contractor to determine the potential major accidents and hazards present as a result of using lifting equipment on the site (wind maps, proximity hazards to ESB	✓	

infrastructure, IAA flight paths, spillage, overload etc.). Notice to be given to the IAA of crane plans by Works Contractor; ▪ Line of sight for construction vehicle movements accessing | exiting site via Sarsfield Road; ▪ Historical antisocial behaviour on site; ▪ Potential for presence of discarded sharps (needles); ▪ Temporary work design elements e.g. boundary retention (in selected locations) | secondary and temporary permanent works stability measures e.g. bracing | hoarding | scaffolding | floor propping | hoist propping | traffic management | site establishment, agreed protection of ESB Networks Infrastructure and Operations and associated earthing (as directed by ESB CoW) etc. ▪ Animal waste, decaying litter or pests may be found onsite - Breathing in dust from dried bird droppings can cause psittacosis and contact through broken skin with rat urine can lead to Weil's disease (leptospirosis). Droppings should not be removed by using high pressure water. This can cause dust from the droppings to get into the air where it could be breathed in. However, generally wetting down the work area is advised. Containing the work area with plastic sheeting should also be considered. If appropriate, a P3 or FFP3 mask will be used. Overalls will be worn and replaced when they are soiled. Workers who may be susceptible to an infection should not be directly involved in the removal of droppings. High standards of personal hygiene by provision and use of adequate Welfare facilities are essential for controlling these risks; ▪ Site works adjoining | adjacent to occupied properties creating a constant interface risk; ▪ Manual handling – generally; ▪ Working at height – generally and roof work; ▪ Dust creation (silica and other hazardous chemical exposure); ▪ Construction vehicle movements onsite and entering | leaving site (limited line of sight available on to Sarsfield Road); ▪ Working around the live services; and ▪ Reversing vehicles		

6.4 Contractor requirement: safe work cycle

The concept of a safe working cycle is a type of management tool that can be used to solve difficulties in different aspects of the management systems.

6.4.1 Safe working cycle

A safe working cycle is the combination of construction quality and construction safety. It stresses that through the safety policy and objectives, as well as the formulation of a safety management system, the company management can change the traditional enforcement on safety measures into a cooperative and coordinated method of dealing with safety issues. This cycle clearly indicates the responsibilities of different workers. It places particular emphasis on the leadership of the frontline management at construction sites, e.g. project leaders and foremen.

The cycle encourages mutual trust between supervisors and workers at the construction sites and facilitates direct communication. The aim of the safe working cycle is to integrate quality

and safety aspects of construction so that adequate considerations have been taken for each aspect to achieve a cost-effective construction project.

The safe working cycles are classified into daily, weekly and monthly basis. The period is determined by the importance, and urgency of the construction activities. Daily cycle is comparatively thorough and detailed. The coverage of weekly and monthly procedures is more broadly.

6.4.2 Daily safe working cycle

The daily safe working cycle basically includes eight items. These items are arranged according to the daily schedule of the project and can be shown on a time chart. This means that each person can carry out their responsibilities according to the schedule. The contractor must set the working hours of each item according to its own conditions and the characteristics of the project.

6.4.2.1 Morning safety meeting (delivered by all subcontractors to their employees)

The morning safety meeting is the first step of the daily safe working cycle. It includes:

- The announcement of important matters (such as project development/special activities, special safety information, etc.); and
- Inspection on personal protective equipment and dressing.

Benefits

- Gives workers time to prepare themselves psychologically for work and pay special attention to the safety rules and the working environment of the work sites; and reminds them that they must check on their outfits and personal protective equipment;
- Promotes team spirit and cooperation; and
- Provides an opportunity to convey safety message and raises workers' vigilance.

Contractor points to note

- The person-in-charge of the morning safety meeting must have a thorough understanding of conditions at the site, be well informed of the safety inspection results and the content of the process safety discussions for the previous day;
- The meeting must not exceed the time limit of 15 to 20 minutes;
- Ensure that the morning safety meetings do not fall into a tedious routine;
- Morning safety meeting on Monday may focus on major safety issues for that specific week. It can be implemented together with the monthly safety meeting;
- Considering the differences in the nature of different projects or corporate cultures, morning safety meeting can be divided into several stages and implemented at various time periods or changed into afternoon meeting in case not all workers can attend. The meeting can be postponed with a 24hrs notice, in order to fit into the working schedule for specific activities; and
- Records of attendance of the subcontractor workers are required to be kept encouraging more workers to participate through process safety discussions and safety committee meetings.

6.4.2.2 Hazard Identification Activity

Hazard Identification Activity is the second step in the Daily Safe Working Cycle. Team leaders or Foremen lead team members to identify the hazards in the day's work and make the workers aware of the degree of risks and measures for precaution. Records of these awareness sessions are to be kept.

Benefits

- The participation of front-line workers reduces resistance to the implementation through recognition and acceptance of the safety measures by front-line workers themselves;
- Team spirit can be enhanced (though the discussion at the working place) as part of practical safety training;
- The safe working circle can be reinforced, and the safety consciousness increased;
- It encourages the participation of individuals so as to make each one singularly and individually responsible;
- It deepens the understanding of the working process;
- It facilitates the contact between the contractor and other subcontractors in order to reduce possible adverse impact on efficiency and prevent accidents that may be induced by lack of communication and misunderstanding;
- To manage the project properly so as to prevent accidents; and
- To enhance discipline (to wear safety equipment and proper clothing).

Contractor points to note

- The content of the Process Safety Discussion for the previous day and the information announced at the morning safety meeting will be helpful in initiating follow-up actions for the Hazard Identification Activity;
- Foremen must be familiar with the procedures for the project, pre-arrange the work, set up guidelines for workers to follow, and try to understand the personalities for each worker;
- Foremen must encourage workers to participate in the Hazard Identification Activity and make them aware of the importance of safe working;
- Frequency of such activities – depending on the complexity of work, one additional Hazard Identification Activity can be held before the start of work in the afternoon. Depending on the arrangement of the work, it can be carried out on the previous day. – In case of any change in the working procedure, one special meeting may become necessary;
- In the Morning Safety Meeting, the safety requirements are only mentioned in broad lines; relevant safety instructions must be explained in detail during the Hazard Identification Activity;
- Foremen must be well prepared on the previous day in order to fulfil their responsibilities for supervision. They must, based on the working guidance of the recorded | minuted Process Safety Discussion from the previous day, lay out the process of the work, provide guidance, make work arrangements, and carry out other duties such as training, inspections, reports as well as discussions;
- Work guidance includes:
  - objectives of the work, implementation methods, procedures, goals, necessity and importance thereof;

- construction area, passage layout, methods and the routes for transporting construction materials;
- working hours and sequence;
- allocation of responsibilities for workers and personnel arrangements (appropriate assignment);
- coordination with other trade people on site;
- the use of construction materials;
- machinery, transporting equipment, tools, protective devices;
- highly hazardous situations at work;
- reporting channels; and
- general summary on working process upon completion of the project;

- Making a summary after collecting workers' comments on the following:
  - safety critical area; and
  - examples of the previous accidents in the same line of work.
- Workers (including plant operators) must participate in the Hazard Identification Activity; and
- Personnel from the contractor must participate as much as possible.

6.4.2.3 Prior-to-work Inspection

A Prior-to-work Inspection is essential and must take place immediately after the Hazard Identification Activity. Before the start of work and the usage of equipment, all the tools, equipment, machineries and materials must be in safe and proper condition.

Benefits

- Tools and equipment must be in good working condition bring about better efficiency and help reduce accidents;
- To identify problems before the start of work and rectify them and have prevent the problems from getting worse and thereby reduce losses; and
- Compliance with laws and regulations to avoid lawsuits.

Contractor points to note

- Record of the inspection results of materials, equipment and machineries to be kept;
- Carry out all the mandatory and other planned inspections;
- Inspect the conditions of construction sites and the environment daily;
- Make safety inspections on selected key areas, rectify problems discovered and stop work wherever appropriate;
- Report results to the responsible persons after safety inspection. If necessary, the project manager of the contractor and the safety officer must also sign on the inspection reports and monitor the programme of connective actions;
- Regardless of the ownership of materials, equipment and machineries, the principal contractors must ensure that they are used only after proper inspection;

- Inspections must be performed before the tools and equipment are moved to the sites; and
- If the inspection is done in places of high risk, the person must follow the Safety Procedures defined.

6.4.2.4 Guidance & Supervision at Work

Guidance and Supervision at Work is another aspect of safety monitoring. It mainly falls within the responsibilities of contractor project leaders. This includes keeping track of implementation of the safety measures from the Hazard Identification Activity, checking the compliance and addressing problems that may occur during its implementation.

Benefits

- Understanding the project progress and its characteristics facilitates communication with and acceptance by the workers;
- Project leaders can solve problems directly;
- Timely check on the compliance with safety instructions and procedures; and
- Coordinating all kinds of activities.

6.4.2.5 Safety Inspection

The safety inspection carried out by senior management at construction sites serves both as supervision, and assurance for the safe operator of daily work. Senior management can quickly solve any safety problems that may affect the progress of work.

Benefits

- It demonstrates the company's commitments to safety;
- It enables senior management to understand site safety problem and solve them;
- It promotes cooperation among subcontractors to solve problems; and
- It can be used to assess the performance of subcontractors.

Contractor points to note

- Special attention must be paid to these high-risk activities mentioned in previous day's Process Safety Discussion;
- The project manager/general foreman must set an example, communicate with the workers and listen to their opinions while doing the Safety Inspection; and
- The Safety Inspection must not be cancelled without a solid reason. The job can be assigned to some representatives instead when necessary.

6.4.2.6 Process Safety Discussion

Process Safety Discussion provides an opportunity for communication and cooperation in solving problems. Solutions are sought for problems identified during the day before these problems worsen or persist.

Benefits

- Confirm the progress of the day's work and decide on the procedures of next process, including coordination of different activities, with an aim to solving problems quickly and enhancing efficiency; and

- Assign next day's work, with safety directions and measures to subcontractor.

Contractor points to note

- The Discussion must focus on site safety. Time must not be wasted on unrelated issues;
- Subcontractors can put forward topics for review during the meeting;
- The summaries of the Process Safety Discussion must be announced at the Morning Safety Meeting the next morning; and
- Project managers, general foremen and safety officers must make a full preparation of the safety materials for the Discussion.

6.4.2.7 Tidying as you go

This step is designed to ensure that all the equipment, tools, instruments and environment of the workplace are tidied up after a day's work, in preparation for the next day's work. This process consists of more than a general cleaning. All required materials and tools are classified and stowed accordingly before the end of a day's work.

Benefits

- Tidying up materials, equipment and tools help reduce accidents;
- Efficiency is enhanced; and
- After-work tidying up assists to maintain a safe environment when workers return to work the next day.

Contractor points to note

- Workers must understand the benefits of good housekeeping practices. It is more than just discarding rubbish;
- Person-in-charge of the site must allocate sufficient space for stowing materials/ wastes;
- Since the workplace may pose a threat to safety & Health before tidying up, the tidying up crew must collect, store/discard wastes, especially hazardous materials and those with toxic property according to the safety instructions;
- Proper labels must be affixed on containers for dangerous substance.

6.4.2.8 Final Check after Work

Daily Safe Working Cycle ends with Final Check after Work. The final check is to ensure that no accident will occur at construction sites after work, be it fire, flooding, scaffoldings collapse, theft, or trespassing, in order to prevent loss and affect members of the public.

Benefits

- Prevention of accidents and energy conservation;
- Assessment on workers' performances in housekeeping; and
- Compliance with laws and regulations.

Contractor points to note

- Special check on workplaces and their vicinity to high-risk works is a priority;

- Watch out for people who may enter the construction sites through unlocked gates or external hoarding boards;
- Under harsh weather, double-check the drainage systems to see if they are blocked, if the scaffoldings are stable, and if the materials are stored in the right place. Make sure safeguards are in place against storm and rain; and
- Maintain supervision over those who are working overtime and ensure that they are aware of emergency procedures. Supervisors must be aware of:
  - agreed finishing times and emergency procedures as per the approved notification for emergency works; and or
  - an extension of work times if needed and permitted (refer to the CLP in Section 9.8).

6.4.3 Weekly safe working cycle

Weekly Safe Working Cycle aims at making an interim review of the performance in the past week and deciding for the future. It consists of 3 steps as follows:

1. Inspection & Check;
2. Process Safety Discussion; and
3. Weekly Tidying Up

6.4.3.1 Weekly Safety Inspections and Weekly Check Up

The contractor and sub-contractors must jointly carry out a weekly inspection. They can therefore strengthen their cooperation and work on eliminating the safety problems found during inspection and define their respective responsibilities on-the-spot.

This will provide information for the management in their self-appraisal and underline the commitment of the management. The contractor and sub-contractors (competent persons) also need to inspect their own machines, electrical installation and scaffolding on site on a weekly basis to ensure the sound operation of such equipment and facilities.

Benefits

Weekly inspection must:

- Promote communication between the contractor and sub-contractors and clarify each party's responsibilities; and
- Underline the commitment of senior management.

Weekly check-up must:

- Spot problems as early as possible before they get worse; and
- Conform to relevant laws and regulations.

Contractor points to note

- The contractor must ensure all sub-contractors participate; and
- If the project manager is unable to attend, a representative can be appointed. The manager must nevertheless be kept up to date with the inspection results to demonstrate his | her interest.

6.4.3.2 Weekly Process Safety Discussion

The weekly Process Safety Discussion must promote the communication between people at various levels and sub-contractors, summarising the safety performances in the last week and planning for construction work for following week.

Benefits

- To promote communication and help sub-contractors improve their work; and
- To create opportunities for bringing problems to attention and for an early remedy.

Contractor points to note

- The contractor project manager or his | her representative must chair the meeting, and all participants are encouraged to express their views at the meeting; and
- The minutes on the Weekly Process Safety Discussions must be distributed as soon as possible so as to take follow-up actions.

6.4.3.3 Weekly Tidying Up

This step is to thoroughly tidy up the site to prepare for work the following week.

Benefits

- To create a safe working environment;
- To reduce accidents caused by at risk conditions;
- To ensure required materials are ready for use;
- To keep the site in good working order and discipline; and
- To improve efficiency.

Contractor points to note

- Avoid over or under work in the tidying up. The objective is to meet the standard set by the client;
- Machinery must be cleaned according to relevant safety instructions;
- The tidying up results must be evaluated as a measure of motivation;
- Ensure no place is left out; and
- Senior management's involvement ensures a more persuasive outcome.

6.4.4 Monthly safe working cycle

Monthly Safe Working Cycle is to review the site performance and progress, to improve the workers' safety awareness through training and reward schemes, and to recognize their commitment and cooperation. Monthly Safe Working Cycle must include the following:

6.4.4.1 Monthly Inspection

Monthly Inspection aims at improving the management of machines, equipment, tools and materials. It must be carried out in line with relevant rules and regulations.

Benefits

- Regular in-depth inspections on machines and equipment serve to identify problems at the early stage; and
- Keeping the machines and equipment in constant serviceable condition will also improve the productivity and quality.

Contractor points to note

- The checking schedule and procedure is worked out in advance;
- Assistance from services companies (as required); and
- Plant | equipment to be checked include pile drivers, cranes, earth-moving equipment, heavy-duty transportation plants, pressure vessels, welding/cutting kits, portable and fixed electrical installations, etc.

6.4.4.2 Monthly Safety Training

Through Monthly Safety Training, workers can reinforce the concept and awareness of safety, sharpen necessary skills, gain relevant knowledge and foster a correct attitude. Examining the causal root of accidents | incidents | near misses, the same or similar events can be avoided.

Benefits

- Through safety training, workers will continue to master the safety skills and knowledge required on the development and foster positive attitude on safety.
- Safety training underlines the importance senior management attaches to workers' safety and health.
- Safety training is a legislative requirement.

Contractor points to note

- The training courses must meet the workers' needs;
- The objective and methods of training must be determined;
- Training programmes must be implemented according to plan;
- The effectiveness of training must be evaluated.
- The improvement actions required must be done after evaluation.
- The training must be of appropriate duration and must not be too long.

6.4.4.3 Monthly Safety Meeting

Monthly Safety Meeting must be held together with the Daily Morning Safety Meetings and include, in addition to the routine issues of morning meetings, the safety promotion activities to improve the workers' sense of safety awareness and to present awards.

Benefits

- Other than benefits of Daily Morning Safety Meeting, the Monthly Safety Meeting can also boost the morale workers.

Contractor points to note

- Safety promotion must be designed to foster the safety culture of the client;

- Safety awards must be fair in commending those individuals, groups with good safety performance;
- Safety promotion must have well-defined topics and objectives; and
- Senior management must enthusiastically support the safety promotional activities.

6.4.4.4 Safety Committee Meeting

Monthly Safety Committee Meetings aim at strengthening communication among concerned persons on site, eliminating any misunderstandings or lack of coordination at work, reviewing the past safety records and planning for the coming month. As a result, the workers' safety awareness can be improved, and accident reduction can be achieved.

Benefits

- The communication among workers of different trades is strengthened, their work better coordinated, and accidents avoided; and
- As members of the Safety Committee come from various trades, safety measures formulated at the meeting must be more practical and acceptable to them.

Contractor points to note

- The contractor project manager must chair the Safety Committee with the site safety officer acting as secretary of the Committee;
- The following issues will be discussed at the meeting:
  - weekly and monthly construction progress;
  - safety measures on special tasks;
  - coordination on different types of work; and
  - client instructions.
- Discussion on the progress, special tasks and work cooperation could ensure safety at work;
- Sub-contractors must raise any problems concerning their work and the coordination with other parties before and after work commencement. RAMS must be in place after this discussion;
- Before the meeting, the agenda must be studied, and any other relevant issues must be added;
- Each Safety Committee member must fully understand all the issues discussed during the meeting;
- The meeting minutes must be distributed within 48hrs of meeting or as soon as possible, so that every worker will be informed of the meeting and their comments on the meeting can be collected; and
- The meeting must progress with the right pace & must not drag on too long.

7 Design (preconstruction and construction) stages

7.1 Preconstruction stage

7.1.1 Required surveys

Several surveys are required to be undertaken to inform design development. These include a site investigation borehole survey, topographical survey, invasive species survey and asbestos survey. Prior to works commencing on any site, further surveys may be carried out as deemed necessary:

- GPR survey;
- Tree survey;
- Dilapidation survey of surrounding roadways and site borders;
- Building services survey; and
- CCTV survey of all existing drainage services both traversing and adjacent to the site.

7.2 Construction stage

7.2.1 Temporary work designs

The contractor and their supply chain will be obliged to manage, plan and carry out elements of temporary works design. The contractor must consider all works which may affect the interface with adjoining property owners and members of the public. All temporary works design and management shall be carried out in accordance with the Safety, Health and Welfare at work (Construction) Regulations, 2013 to 2020 and relevant Approved Codes of Practice. The contractor must adopt the process and forms as found in Appendix 2 of the HSA Publication *'Approved Code of Practice - The Safety, Health and Welfare at Work (Construction) Regulations, 2013'*. No temporary work works are permitted to commence without a Temporary Works Design Certificate being signed off by the Temporary Works Designer, Permanent Works Designer and PSDP. Proposed temporary work items include:

- Temporary haul road;
- Site security controls;
- Protection of ESB infrastructure;
- Temporary traffic management;
- Excavation propping;
- Piling mats;
- Falsework | formwork;
- Back propping;
- Mortar silo placement;
- Concrete placing boom;
- Rebar cages;
- Shaft and riser platforms;
- Crane bases (tower | mobile | self-erecting equipment);
- Working access (vertical movements);
- Cantilever platforms (as required);

- Excavation material removal and stock piling;
- Temporary welfare services (water, foul and power);
- Hanging anchors;
- Construction waste disposal;
- Contaminated | hazardous material removal;
- Gantries;
- Temporary stability of permanent works;
- Conservation monitoring and reporting;
- Restrictions on construction traffic movements, noise, dust, vibration and working hours
- Temporary service provisions for works and site compound facility;
- Tie in of new services to existing;
- Non-proprietary working access platforms;
- Crane bases (tower | mobile | self-erecting equipment);
- Designed working access means (vertical movements);
- Temporary welfare services (water, foul and power) on site;
- Roadway underpinning as maybe necessary during site works;
- Site cabin stacking;
- Site project signage if not branded on hoarding; and
- Hoarding creation (various types if altering in place taken in charge hoarding).

8 Summary construction methodology

There is a need to ensure that local residents, wildlife and utility provider infrastructure are protected from undue disturbance during staged construction. This DCMP seeks to ensure that the contractor is informed of and that they undertake their contract works using good | best practice and thereby reducing their impact on local communities. ESB Network Infrastructure will remain operational during works. Interface arrangements with ESB Networks will be agreed by the LDA for tender preliminaries inclusion and commencement on site. The detailed construction phasing plan is dependent on additional controls during construction, contractor appointment, market and other considerations. The overall delivery programme has been estimated on the basis that a single contractor will complete the construction of the development.

8.1 Sequence of proposed works (subject to change)

- Completion of any follow-on surveys by contractor;
- Photographic survey of development site boundaries;
- Installation of required nuisance monitors (as required) to nearest sensitive receptor locations;
- Site set up;
- Hoarding works segregating development site from ESB Networks area;
- Invasive species management works (as required);

- Hazardous material removal works in site areas deemed (as required);
- Enablement works (in consultation and with presence of Utility Provider CoW) facilitating the rerouting of determined underground services, provision of new ESB pedestrian routes, associated car parking and emergency access provision;
- Provision of a boundary wall which will necessitate the removal of the trees on the southern boundary;
- Reduce dig, substructure excavation works (cut and fill activities reflecting site levels and ability to reuse fill material as capable);
- Residential block construction;
- Town house construction; and
- Associated site, ancillary and road works;

The site will be set up with access and egress points from Sarsfield Road. Construction traffic will be generated for the duration of these works on site, with levels of vehicles movements varying throughout the construction period depending on the agreed construction programme. The construction traffic management plan estimates peak truck movements of 36 in/out per day to remove all of this material over a period of circa 3mths and concludes that the peak level of traffic generated by construction will be small and significantly less than that generated by the completed development. The first construction activity on the development will be the enabling works. These works are intended to provide a robust and appropriately high site perimeter hoarding around the site.

The project team are seeking to endeavour to protect the right of all affected stakeholders in continuing their daily lives with limited or undue interruption as far as reasonably practicable that may be caused by construction operations. There are several constraints and requirements which have been carefully considered by the project team throughout the design process. It is proposed that the entire construction period (across a single-phase programme) would take place over an assessed timeline to ensure safe construction. Remaining infrastructure and roads works will be completed (i.e. final service connections, paving, drainage etc.) in coordination with the contractor's construction programme.

8.2 Indicative construction methodology

The following indicative methodology has been drafted on the basis of initial pre-planning design inputs. Specific methodologies of work will be defined pre-commencement of works developed by the contractor in their Construction Management Plan.

8.2.1 Preparatory and contract works

- Photographic survey of development site boundaries;
- Site cabin delivery and placement;
- Completion of all outstanding required surveys;
- Tree protection establishment (as required);
- Invasive species treatment works (as required);
- Contractor temporary service installations i.e. power to be provided by a generator;
- Construction of appropriate designed hoarding to neighbouring properties;
- Construction of a boundary wall necessitating the removal of the trees on the southern boundary;

- Installation of CCTV coverage or other agreed security means; and
- Set up of required noise | dust | vibration monitoring stations | receptors in predetermined areas closest to sensitive locations as defined by the grant of planning.

8.2.2 Temporary electrical service provision

- Contractor to determine load needs for site;
- Builder's supply main board to be installed in an appropriate determined location agreed between the M&E designer, contractor and temporary works electrician;
- Main board envisaged to feed:
  - site security and lighting requirements;
  - cranes (subject to capacity availability); and
  - all storage area requirements.
- Electrical power distribution throughout each new structure shall be made available, so as to allow the safe working; and
- Site-wide contractor supply and distribution will be agreed with the ESB.

8.2.3 Asbestos remediation-removal works (as discovered)

- Licenced asbestos containing material removal in adherence with agreed works phasing plan;
- Non-licenced asbestos containing material removal in adherence with agreed works phasing plan; and
- Reoccupation certification will be provided for all areas prior to soft strip works being undertaken.

8.2.4 Excavation works | muck away

Bulk dig to formation level of entire site area to depths agreed as part of design process. Works include the safe removal of all soil, exiting attenuation tanks and granite | rock. The contractor shall:

- Remove all spoil to approved licenced facilities;
- Only use competent and licences hauliers;
- Ensure, that all spoil is certified inert or otherwise controlled by a competent engineer;
- Carry out all works in accordance with Approved Codes of Practice; and
- Inform the HSA, CCC, and relevant Utility Provider on the discovery of any below ground materials containing hazardous materials e.g., watermain pipe, contaminated ground etc.

8.2.5 Substructure construction

Substructure works i.e. groundworks | formwork | rising concrete elements | attenuation and drainage etc. will be completed in a sequential series allowing the structural slabs to be formed, constructed | poured consecutively. Where possible, an overlap of substructure works will be sought to achieve so and maximise supply chain efficiencies for the contractor.

8.2.6 Residential construction (apartment blocks)

- Cores are central to each block footprint. For the upper-level slabs to be completed, the core must be cast to that level. To minimise program impact, zones will be created to each basement or podium slab level to allow it to be cast without the core being complete to that

level. The use of e.g., propriety vertical wall formwork systems that is self-climbing to cast the core may be used;

- The core system will be supported by a tower crane for lifting of materials, an Alimak or alterative means to get men and tools to the system, and its own satellite concrete placing boom to place concrete;
- Lobby slabs, header beams and stairs will follow the core walls and will be cast as soon as practical to maintain structural stability of the core walls and provide access to cast the core slabs. When the last vertical wall elements are cast, the jump form will be removed in a strategic sequence and manner for safety reasons and to allow the lift motor rooms to be cast as early as possible to get builders lifts operating.
- Structure trades and works will be supported by tower cranes for lifting of materials, formwork hoists to lift recycled formwork, Alimaks or alterative means to transport operatives and materials to the decks, satellite placing booms to place concrete, propriety perimeter edge screens to provide fall protection to operatives;
- The façade will be erected as soon as practical to commence waterproofing floors so that finishes and fit out can commence. The roof embellishments will commence when the structure is complete. These works will not be able to be completed until all plant has been lifted into the plant rooms and the façade has been installed to this level to complete the water tightness of the fabric;
- When slabs are cast and the formwork is stripped, the services will commence to be installed. These works will commence within the building but will not be completed till the façade to that level is complete. The façade provides edge protection for the men working near the edge and provides weatherproofing for equipment that is water sensitive. The works will be organised in several passes, with what we term "rough in of services" being the first pass which is all services that can be installed before the façade is installed to that level;
- Finishes are normally commenced in earnest when the façade is installed to that floor. The services will be scheduled to be completed enough to allow finishes to commence in our programming. Plant, equipment and materials will be lifted to the floors via several means depending on what stage the building is at. The means will be tower cranes, Alimaks or builders lift. Builders' lifts will be used for "clean trades" such as services fit off, carpets, ceiling tiles and fit out, to minimise damage to the lifts. Materials that will be hoisted via the Alimaks or Builders lifts will be unloaded in the loading dock to save congestion to the material handling areas; and
- When the fabric of the tower is complete, and the tower cranes have been removed, the gantries will also be removed. This will allow the external works to be commenced and completed in a timely manner. The works will also include restoring any areas that have been affected by the construction of the project. As some of the external works will be to footpaths and roads to mesh them in with the new building, some footpath and lane closures will be required. These will be coordinated with CCC.

8.2.7 Residential construction (town houses)

- Construction of the foundation basement slab and permanent retaining wall structures;
- Construction of rising elements to ground floor and construction of ground floor slab;
- Similar sequence of construction of rising elements and upper floors;
- Construction of roof and associated ancillaries;
- First fix will commence at each level behind structure. This will be followed by the second fix and the final connections;

- Initial installation of stud work when areas are clear, and floor is weather tight;
- Installation of equipment and associated connection to services;
- Completion of finishes; and
- The final commissioning period will commence during internal home fit-out.

9 Construction access

9.1.1 Alternative arrangements for pedestrians | vehicles in case of any roadway closure

Aware of the complexity of logistical challenges faced by such large-scale construction work, the LDA want to prevent traffic congestion due to construction works and negative impacts on the neighbourhood environment in the surroundings of the construction area. It is a condition of works that:

- Maintenance of access to local roadways and footways is secured. The works involve significant works to upgrade the site entrance; and
- Should a need arise to provide temporary pedestrian | vehicle access outside the hoarding line, a detailed temporary Traffic Management Plan will be developed in compliance with the requirements of the Department of Transport Chapter 8 Temporary Traffic Measures and Signs for Roadworks Manual. This plan will be required to be approved by CCC Roads Department prior to implementation with appropriate forward notice (in compliance with the CLP) shared with all 3rd party stakeholders.

All necessary controls will be agreed with CCC Traffic Section pre commencement of project works.

9.1.2 Construction access principles (generally)

- Protection of neighbours and members of the public from site activities;
- Public roadways are kept clear always;
- Construction traffic will be limited to certain routes and times of day, with the aim of keeping disruption to existing traffic and residents to a minimum. To minimise disruption to the local areas, construction traffic volumes will be managed through the following measures:
  - during peak morning and evening hours, ancillary, maintenance and other site vehicular movements will be discouraged;
  - daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid site queues;
  - access to all neighbouring surrounds will be maintained through all stages of construction;
  - only minimum essential site staff parking will be provided. In parallel with this, parking restrictions and management measures on adjacent streets/residential areas will be reviewed and implemented as necessary in agreement with the local residents and CCC to avoid any site parking overspill issues; and
  - the contractor will be required to promote travel by sustainable modes of transport.
- It is proposed that the Contractor will use the site's existing independent vehicular access off the Sarsfield Road (separate to, and north of the existing ESB Network junction);
- Delivery of materials shall under supervision to avoid contact with persons. Deliveries shall be programmed to avoid high trafficked times minimising congestion and conflict with other deliveries;

- The site construction access strategy must prioritise the:
  - increase the efficiency of construction works;
  - decrease the disruption of the local transport system from construction works traffic;
  - appropriate hoarding | screening | crash barriers of areas where public and vehicle travel interface will be provided and managed; and
  - all the above will be required as part of the contractor's Construction Management Plan which needs to be agreed with CCC before commencement of construction in line.

9.2 Logistics | construction site access strategy

A construction compound will be included on site and may move as construction progresses. The contractor, when appointed, may identify other (or additional) locations within the site area. It is anticipated that the majority of construction vehicles accessing the sites will come from the Sarsfield Road.

9.2.1 Site access

Vehicle movements will be managed through the construction stage by the contractor competent dedicated logistic team on the ground. Regardless of location, the contractor is obliged to ensure that their site can run with maximum safety, efficiency while causing the least disruption to the adjoining residents and roadway users.

9.2.2 Abnormal load deliveries

Public safety, driver health & welfare, and delivering on good risk management practices are the cornerstones of transport safety. All identified abnormal loads require public agency engagement e.g. An Garda Síochána, CCC Roads etc. The safety of other road users is paramount, and much thought and effort go into logistics planning and permitting for the movement of these large loads. The contractor when planning such movements must adhere to the notice and engagement requirements of the CLP set out in Section 9.8. All necessary controls will be agreed with CCC Traffic Section pre commencement of project works.

9.2.2.1 Movement of abnormal loads

- Road Traffic (Permits for Specialised Vehicles) Regulations 2009, S.I. No. 147 of 2009, and Road Traffic (Specialised Vehicle Permits) (Amendment) Regulations 2010, S.I. 461 of 2010, introduce a streamline permit system and list of Designated Routes to be administered by An Garda Síochána for the movement of loads not exceeding 27.40m in length and 4.30 metres in width on the major inter-urban routes;
- Vehicles and loads exceeding the 4.65m national height limit are not covered under this scheme and require a Local Authority Permit instead;
- Abnormal loads must adhere to the maximum weight limits set down by Road Traffic (Construction and Use of Vehicles) Regulations 2003, S.I. 5 of 2003 and the maximum height limit set down in Road Traffic (Construction and Use of Vehicles) (Amendment) Regulations 2008, S.I.366 of 2008; and
- A *"Permit for Specialised Vehicles"* form when signed by the Garda Síochána grants permission to move abnormal loads as defined under the above Regulations, on inter-urban routes specified in the Schedule of Designated Roads. Any deviations from the Schedule of Designated Roads in above Regulations require independent authorisation from the Local Authority concerned and/or the Minister for Transport.

9.2.3 Traffic management coordinator

The contractor is required to appoint a competent Traffic Management Coordinator (TMC) who will be responsible for the design coordination of these access points and all other temporary traffic safety and management matters for the construction stage. The TMC is required to ensure that all traffic management requirements set out in the Traffic Impact Assessment are adhered to. Specific site contractor traffic management plans must at a minimum include:

- No temporary | drop off parking on approach access public routes. No unloading or blockages of access routes. Such vehicles will be immediately directed to move;
- The contractor must carry out an auto-track analysis to ensure that adequate turning space is available on their site. The auto-track must demonstrate how construction vehicles will go in and out of the site; and
- The contractor must seek to eliminate where possible the necessity for reversing of any construction or supply chain vehicle onsite.

9.3 Site set up and management

The site must have a well-planned construction compound layout. All temporary facilities and utilities must be designed to:

- Increase productivity and safety;
- Reduce area(s) needed for temporary construction; and
- Maximise utilisation.

9.3.1 Compound notes

- The contractor will ensure that their compound set up accounts for appropriate spatial provision for waste management segregation, logistical deliveries and day to day contractor car parking; and
- Proposed compounds are indicative - the contractor will be required to propose and confirm their compound layout in their Construction Management Plan.

9.3.2 Compound location (indicative)

9.3.3 Site set up

When beginning each new site, the contractor's construction activity experts will use their expertise to think through the issues associated with the running of the project, the staged activities that will occur during the project life cycle are assessed and they use their understanding to establish the compound, walkways, roadways, facilities and welfare items and ensure they are clearly established and marked at the earliest stage to clarify to all visitors that this is an organised, efficient, tidy and safe site. Key hazards must be identified and where possible *"designed"* out of the site, for example keeping pedestrians away from site traffic. The site must be easily understood using clear site maps depicting a layout that delivers the safest workplace possible. The site set up has the compound at its heart, pedestrian and vehicle routes as the arteries and while set up cannot deal with exclusion zones as they will vary on a day-to-day basis, the set up can deliver a safe "skeleton" site and pop-up work zones and exclusion zones are introduced as appropriate to isolate hazardous activity.

9.3.4 Way finding & orientation

On arrival on site a first time visitor, operative or delivery driver must know where they are, where they are going, where they cannot go and where other items are located. The site must be visibly well ordered and well-drawn site plans used to convey the order on site to all visitors in a clear and simple way. It is about quickly understanding the site and clarifying basic behaviour. Where are the safe routes? Where are the key hazards? Where is the welfare?

sample directional gateway signage

9.3.5 Vehicle and pedestrian segregation

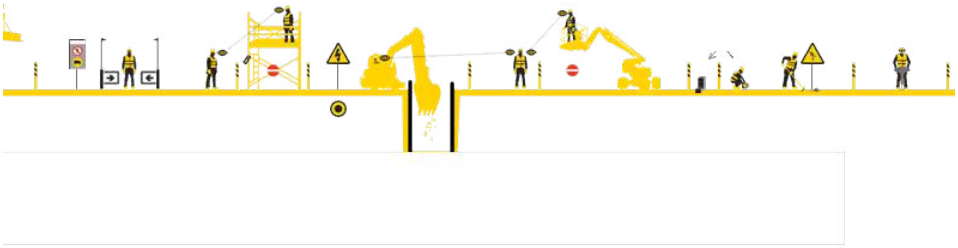
Pedestrians and vehicles must be able to circulate safely in the workplace; the construction activity must plan segregation and routes well. The temporary nature of a construction site, it is changing layouts and the frequency with which operatives change and are therefore unfamiliar with their workplace are 3 important factors that add to the risk. The contractor must focus their efforts on planning and delivering a site where drivers and pedestrians are segregated and provided with safe routes to work zones. The objective is that personnel can see at a glance where then can | cannot go.

9.4 Hoarding

The overarching consideration in all elements of the site set-up will be to reasonably endeavour to ensure the works can be undertaken in a safe manner for members of the public and the contractor and their staff. The contractor will take in charge the established robust hoarding that considers wind, and people loads in such an open site plane, around the proposed site perimeter. Hoarding will either be timber or palisade panels (boundaries with neighbouring commercial, critical utility infrastructure, other properties) ranging in height from 2.40m to 3.00m at various locations. Hoarding may be embellished with artwork and or graphics which would be appropriate for the development. Hoarding will be supplemented in sensitive areas during certain construction activities to alleviate against noise impacts as required. The alignment of the hoarding will remain constant in the round for site works. The hoarding line may be dynamic and subject to amendment to meet the requirements and constraints of the site including any specific requirements of the neighbouring ESB site.

9.4.1 Notes on hoarding

- Hoarding lines must be inspected daily by the contractor;
- Inspection records must be retained on site for regular CCC review;
- Hoarding limits site access to controlled access points;
- Hoarding must protect those outside the site from hazards within;
- Hoarding must protect those inside the site from outside activity;
- Branded hoarding must identify ownership of the site area;
- Hoarding locates must identify the site/work-zone for visitors;
- Hoarding must be used to direct behaviour before arrival on site.



sample safety line on hoarding for e.g. enabling works | ground works

9.5 Site security

Critical national infrastructure is present on the neighbouring ESB Networks site. All site security controls considered by the works contractor are to be in line with National and EU requirements. The contractor will be responsible for the security of their site for the duration of their works. The contractor will be required to at a minimum:

- Maintain site hoarding to each boundary with adequate controlled access and egress points;
- Maintain site security staff always;
- Install access security in the form of turnstiles and gates fitted with anti-swing fixtures;
- Reasonably endeavour to ensure restricted access is maintained to the works;
- Operate a site induction process for all site staff;
- CCTV arrangements or alternative to be provided;
- An appropriate controlled access control system to be installed at security access for site personnel (refer to Section 9.5.1);
- Provision of adequate warning signs to site perimeter and along the streets approaching the site to inform the public of danger & no trespassing onto site;
- Anti-climb measures | protection to be erected around access towers etc.;
- Ensure all staff have current Safe Pass and Construction Skills Cards;

- Monitor and record all deliveries to site and all materials | waste taken off site for disposal to appropriate licensed facility; and
- A fire watch system regime will be implemented with appointed competent fire watch supervisors tasked to inspect the site prior to the end of each working day | shift. All staff will be made fully aware of their individual responsibilities about security and will undertake their work in line with current service guidelines. All staff and operatives will be fully inducted into the security, health and safety and logistic requirements on site.

9.5.1 Site security systems

Suitable security measured will be put into place by the contractor including but not limited to Net-watch during the project to cover all elements of the site internally and externally. 24hour security measures will also be put in place when required, particularly at the latter stages of the construction programme where the building equipment and finishing cycles are in place.

On possession of the site, the contractor will proceed to ensure the security of the site is achieved by direction of all personnel and deliveries to the site compound. Once established, access into and out of the site compound will be through a turnstile system and or other controlled system.

9.5.2 Craneage

It is proposed that the site will require the use of a number of cranes, to provide the necessary site lifting coverage. Lifting appliances will be required for the moving of building materials around the site.

9.5.2.1 Craneage coordination

- The requirement for crane notifications to IAA and Cork Airport before construction;
- Mitigation measures for bird strike hazards (refer to p15, paragraphs 9.1 and 9.3 of Aeronautical Assessment Report in Appendices); and
- Desirability of "cut off" fittings in any external lighting due to proximity of the site to the helipad in Cork University Hospital (CUH) to the north. (refer to p15, paragraph 9.2 of Aeronautical Assessment Report in Appendices).

9.5.3 Storage of materials on site

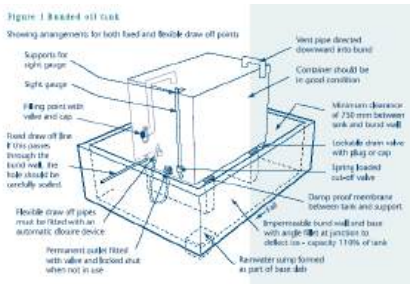
Any materials stored on site must be done so in a safe manner. Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater.

All necessary controls will be agreed with CCC Pollution Section pre commencement of project works.

9.5.3.1 Bund tank needs

Oil is the commonest water pollutant. These guidelines are intended to help reduce pollution caused by inadequate storage of oil in fixed tank installations.

- Location - Safety, security, access and maintenance needs must be considered when storing oil. Tanks must be positioned, or other steps taken, to minimise the risk of damage by impact. Oil must not be stored in significant risk locations (i.e. within 10m metres of a watercourse or 50m of a borehole);



- General requirements - Oil must be stored in a tank of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in ordinary use. It is recommended that tanks with a design life (with proper maintenance) of 20 years are used;
- Tank specification - Storage tanks must be type tested to a recognised standard and produced to that standard under a quality assurance system complying with BS EN ISO 9001:2000 or BS EN 9002:1994. Steel tanks must comply with BS 799: Part 5 and must be protected against corrosion.

  Steel tank drain valves must be used to prevent frost damage. There is no British Standard for prefabricated steel tank systems. However, the Oil Firing Technical Association for the Petroleum Industry (OFTEC) have developed a standard for steel tanks, OFS T200 which does include these;
- Polyethylene tanks and tank systems must comply with OFS T100. Compliance with standards for construction and manufacture does not guarantee compliance with storage regulations;
- Tank installation and marking - It is recommended that tanks are installed by technicians registered with a professional scheme, such as that operated by OFTEC. The tank must be marked with the product type and tank capacity; and
- Tank decommissioning - Before a tank is taken out of use or removed, it must be fully drained. This work must be undertaken by suitably qualified technicians and hot work must never be carried out until the tank has been degassed and the appropriate certificate issued.

9.5.3.2 Secondary containment

Secondary containment must prevent oil escaping to the environment in the event of leakage from the tank or ancillary equipment. All tanks and their ancillary equipment must be situated within an oil-tight secondary containment system such as a bund. The potential escape of oil beyond the bund area by jetting must be considered. The risk of this can be minimised by:

- keeping the primary container as low as possible;
- increasing the height of the bund wall; and
- building the bund as far away from the tank as possible

For steel tanks in open bunds, a minimum distance of 750mm between the tank and the bund wall and 600mm between the tank and the base is recommended to allow access for external inspection.

9.5.4 Removal of materials from site

The removal of materials from the site will primarily be undertaken during substructure construction stages of the development. The removal or addition of materials to facilitate are typically the most intensive periods for material movement off site. Each of these elements of work will need to be managed effectively to reasonably endeavour to ensure that is no queuing

of trucks on the public roadway. All trucks will be expected to have a built-on tarpaulin that will cover the transported material as it is being brought to or hauled off site.

9.5.5 Water supply

The contractor will require a water source for the duration of the works. Water will be required for:

- Contractor welfare facilities;
- Vehicle wheel wash | automated spray booths (use of recycled water);
- Dust suppression;
- Curing of concrete in warm weather; and
- Cleaning of formwork etc.

The contractor must apply to Irish Water for a temporary connection for water supply and/or wastewater.

9.5.6 Timing of construction travel movements to obviate queuing on public roadways

- Working hours are determined and conditioned by the Grant of Permission. Working hours are envisaged to be 07:00 – 18:00 Monday to Friday and 08:00 – 13:00 on Saturday. Works that may be excessive in noise sensitive locations will be risk assessed and scheduled to take place between defined times in consultation with residents where at all possible;
- It is recognised that there may be circumstances where the restriction on hours of work cannot be adhered to e.g. concrete pours, power floating works etc. In these circumstances the contractor will be required to provide written agreement with CCC before any works start outside normal hours;
    - where out of hours works are noise sensitive, such exceptional events will only be permitted to be undertaken when all other alternatives have been considered and exhausted. Any night-time operations in particular will comply with good measures to alleviate impacts practices as specified by British Standards or similar; and
    - all such works above will be preceded by written approval from CCC, showing evidence of consultative communications with local residents and businesses.
- Deliveries will be sequenced *'just in time'* to ensure that their arrival and departures time are outside peak interface periods with residents and businesses;
- Deliveries are not permitted to queue on public roadways. They may hold | temporarily wait in designated non-public areas before 07:00 Monday to Friday with their engines turned off;
- Operatives may access their site prior to 07:00 but are not permitted to operate construction machinery before 07:00 Monday to Friday and 08:00 on Saturday; and
- No significant work will commence onsite before 07:00 during the week. On site | holding vehicles must ensure that their engines are turned off before 07:00 Monday to Friday and 08:00 on Saturday.

All necessary controls will be agreed with CCC Traffic Section pre commencement of project works.

9.6 Construction and demolition waste management

The LDA is committed to ensuring the highest standard of recycling on site in terms of materials arising from the Scheme Development. The contractor will be having regard to Circular WPR 07/06 - Best Practice Guidelines on the Preparation of Waste Management Plans

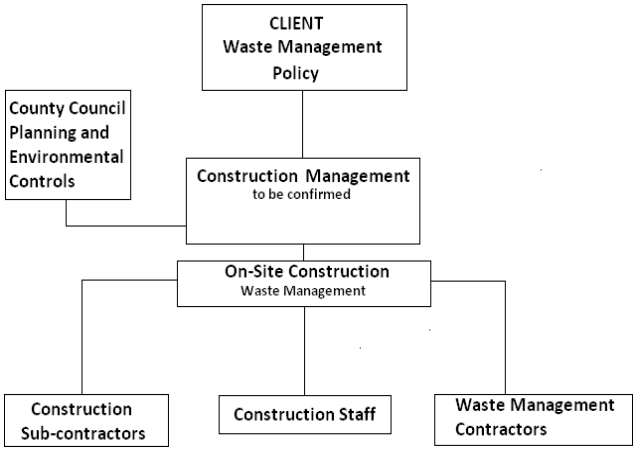
for Construction and Demolition Projects, published by the DECLG, submitted to the Planning Authority for written agreement. An Environmental Representative from the contractor will be required to be nominated responsible for all waste management in their own operations. In this way, it is possible to identify where the greatest material wastage occurs with a view to implementing better waste management. A site-specific Resource & Waste Management Plan will be prepared by the contractor and submitted to CCC demonstrating specific controls that will be employed to adhere to the requirements of this condition.

9.6.1 Excavations

Based on the proposed site levels, ground material at the northeast corner for the east and middle blocks will need to be excavated. Along the south and west sides of the site will require fill material to make up the ground level. Excavations will facilitate the formation to basement levels, car park ramp access, modifications to existing services and to facilitate construction of new services. It is estimated that a total volume of cut (17,136 m^3 excavated material) noting a small volume (circa 6,000m^3) of material capable of being reused on site. The ITLP prepared draft construction traffic management plan estimates peak truck movements of 30nr in and out per day (60nr. movements per day) to remove all of this material over a period of circa 3months and concludes that the peak level of traffic generated by construction will be small and significantly less than that generated by the completed development.

Stock piling with agreement post future planning permission will only occur within the site (red line) in agreement with CCC. It is noted that the contractor will ultimately be responsible for securing agreements for acceptance of surplus materials that are required to be sent to licensed facilities in compliance with the requirements of the CEMP and their site-specific Resource & Waste Management Plan.

9.6.2 Waste management structure organogram



9.6.3 Resource & Waste Management Plan requirements

The R&WMP must detail the intended practice for the management of waste arising from the construction and demolition processes and in particular the management of hazardous waste and recyclable materials. In particular the Plan shall specifically address but not limited to the following points:

- Overall waste management
  - Analysis of waste arising | material surpluses'

- Specific Waste Management objectives of the Project including waste minimisation and the potential to reuse, and process materials generated on site in the construction phase;
- Methods proposed for Prevention, Reuse and Recycling;
- Waste Handling Procedures;
- Waste Disposal Procedures, including tracking of waste to final destination;
- Waste auditing; and
- Record keeping of receiving site | other gate receipts will be inspected by CCC regularly.

- Waste compound
  - Details of the provision of a dedicated and secure compound, containing bins and skips into which all waste generated by construction site activities will be placed;
  - Responsibility for provision of signage and verbal instruction to ensure proper housekeeping and segregation of construction waste materials; and
  - Responsibility for identification of Permitted Waste Contractors who shall be employed to collect and dispose of waste arising from the construction works.
- Waste reuse and recycling management
  - Identification of potential for Reuse of Inert Wastes; and
  - Proposed management measures.
- Hazardous waste
- Identification and management of any Hazardous Wastes likely to arise during the construction process; and
- In the event that hazardous soil, or historically deposited hazardous waste is encountered during the work, the contractor must notify CCC Environmental Enforcement Section and provide a Hazardous/Contaminated Soil Management Plan. Immediate segregation of suspected hazardous | contaminated material is required for necessary inspection | testing. The contractor will be required to provide the following information to CCC:
  - estimated tonnages of waste;
  - description of location where waste was found;
  - proposed destination for authorised disposal/treatment; and
  - information on the authorised waste collector(s).

9.6.4 Predicted impacts of the proposed development (construction phase)

Significant volumes of waste materials will be generated during the construction of the proposed development. However careful management of these, including segregation at source, will help to ensure maximum recycling, reuse and recovery is achieved, in accordance with current local national waste targets. It is expected however that a certain amount of waste will still need to be disposed of to landfill. Assuming appropriate facilities are provided, environmental impacts (e.g. litter, contamination of soil or water etc.) arising from waste storage are expected to be minimal. Particular attention must be given to the appropriate management of excavation waste containing contaminated or hazardous materials by the contractor. The use of suitably licenced waste contractors will seek to ensure compliance with relevant legal requirements and appropriate off-site management of waste.

In addition, all necessary bird strike hazard mitigation measures will be adopted on the site during the construction period (including avoidance of exposed earth and of any food debris) (refer to Aeronautical Report in Appendices).

9.6.5 Consultation with relevant bodies

CCC will be consulted throughout the construction phase to ensure that all available waste reduction, reuse and recycling options are being explored and utilised and that compliant Waste Management is being carried out at the site. Specialist companies, wherever required, will be contacted to determine their suitability and each company's record reviewed to ensure relevant current collection permits | licenses are held. Companies will also be contacted to gather information regarding treatment of hazardous materials, if required (although not anticipated for this site), costs of handling and the best methods of transportation for recycling or reuse when hauling off site.

9.6.6 Pest control

The contractor will be required to adopt an Integrated Pest Management Plan as part of the works. This plan will establish a sustainable approach to managing pests in order to minimise health and environmental risks throughout the construction works and is to be prepared in accordance with the guidelines set out in the '*Rodent Control for Construction Industry*' information leaflet as issued by the Health Service Executive, Environmental Health Service, 2009. The contractor will be responsible for ascertaining if the proposed lands are currently infested rodents and other pests. If so, any lands will be required to be disinfested by a pest control specialist, as is reasonably possible given the nature of the site. Throughout the works, the contractor will be responsible for ensuring that a good standard of hygiene is maintained to limit the attraction of rodents and other pests to the site. Measures are to include, but are not limited to the following:

- Waste food, empty food tins, and other waste to be stored in bins with sealed lids;
- Accumulations of construction debris which may provide harbourage for rodents are to be cleared away regularly and in a timely manner; and
- Stocks of building material are to be neatly stored.

The contractor shall implement measures to prevent infestations during the proposed works. This will include infestation of existing and proposed drains, sewers, ducts and nearby properties. Measures are to include, but are not limited to the following:

- Removal of all existing refuse from site;
- During the laying of new drains, the sewers, open pipe ends, and manholes are to be protected against entry by rodents when work is not in progress – particularly at night-time; and
- Surface water pipes discharging into watercourses to be fitted with an antiflood flap valves at outlet points.

A finalised Pest Control Management Plan will be submitted prior to commencement of works.

9.7 Plant and equipment use

Consideration has been given to the types of plant and equipment that are likely to be used during construction works. Typical plant and equipment associated include:

9.7.1 Indicative plant used during construction

Plant and Equipment	Enabling Works	Site Clearance	Earthworks and Sub-structure	Super-structure	Roofing and Cladding	Services and Finishes
Cranes *(cut-off lighting to be assessed with IAA for external lighting)*				✓	✓	✓
Passenger /goods hoists					✓	✓
Excavator/ Breaker	✓	✓				
Cutters, drills and small tools		✓	✓	✓	✓	✓
Floodlights *(cut-off lighting to be assessed with IAA for external lighting)*		✓	✓	✓		
Forklift truck/ Pallet truck		✓	✓	✓	✓	✓
Hydraulic benders & cutters		✓		✓		✓
Lorries and vans		✓	✓	✓	✓	✓
Mobile lorry mounted concrete pump			✓	✓		
Poker vibrator			✓	✓		

Plant and Equipment	Enabling Works	Site Clearance	Earthworks and Sub-structure	Super-structure	Roofing and Cladding	Services and Finishes
Ready mixed concrete lorry			✓	✓		
Concrete splitters/ saws		✓		✓		
Scaffolding and hydraulic access platforms		✓	✓	✓	✓	
Tipper lorries		✓	✓			
Flatbed articulated vehicle		✓	✓	✓	✓	✓
Large rigid lorries		✓	✓	✓	✓	✓
Track mounted piling rigs			✓			
Water pumps		✓	✓			
Raking props		✓				

9.8 Community liaison plan & public relations

The LDA have provided a Community Liaison Officer (CLO) so that particular issues | complaints raised by local residents may be quickly identified and responded to. CLO details will be shared with local residents.

9.8.1 Community liaison plan (CLP)

Given the nature of the proposed Scheme Development and that there may be at any given stage, multiple contractors on site, there will is a need to have an effective management of public relations and complaint handling to ensure good relations and a mutual trust between all key stakeholders during construction. These key stakeholders will be mainly but not be limited

to the residents and neighbouring businesses and CCC, but will most likely extend to the wider community as development progresses including but not limited to An Garda Síochána, NTA, TII, etc. The dissemination of accurate and timely information in relation to on-going and proposed works, changes to traffic layouts and other activities, in advance to the key stakeholders will lend itself to a potential to reduce queries, complaints and nuisance during construction. It will be essential to operate a Good Neighbour Policy covering the following areas:

- Designated CLO;
- Early implementation;
- Good client, staff and neighbourhood liaison;
- Reduction of nuisance factors;
- Clear access for neighbouring premises; and
- Clear and concise and accurate information.

The CLO is accountable for the development of the CLP. Accountability includes authorising the document, monitoring its effectiveness and performing a formal document review. Members of the project team, including employees, contractors, subcontractors and consultants, will be accountable for ensuring the requirements of the CLP are implemented within their area of responsibility.

The CLP will be updated every six months and uploaded to the CCC website at each update milestone. Updates must consider:

- changes in the design and construction programme;
- changes in stakeholder and community needs; and
- changes in contractor activities and stakeholder and community information requirements.

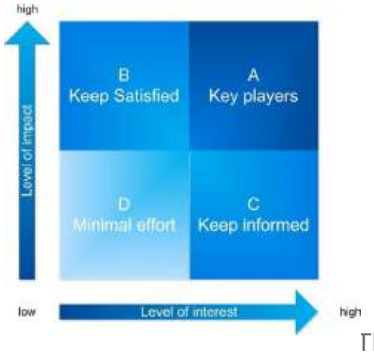
The CLP will include, as sub–plans, separate "*Stakeholder and Community Involvement Plans*" that are specific to separate projects and contractor activities. The CLO can be contacted by e-mailing wilton@lda.ie

9.8.2 Guiding community liaison principles

The management of community liaison issues for the LDA positions the community at the centre of the community liaison effort. The approach taken is based on extensive mapping of stakeholder impacts and interests in the works. Community liaison activities outlined in this plan sit in the 'inform' and 'consult' part of this spectrum. A critical success factor for the effective management of community liaison issues during the project will be the alignment of the community liaison approach and responses with broader project approach. From the stakeholders' perspective this will create a seamless response to all contacts. It also ensures a coordinated risk management approach.

9.8.3 Stakeholder mapping and analysis

Stakeholder mapping and analysis will be undertaken to identify those who may potentially experience the greatest impacts (both positive and negative) and those with an interest in the works. Stakeholders will continue to be identified and categorised according to their levels of impact and interest, using an industry standard stakeholder analysis tool below:



The stakeholder analysis tool categorises stakeholders in the following way:

- Category A – Stakeholders with a high level of impact (positive and negative) and interest in the development – local residents | households and businesses (within a 200.00m radius of the construction zones), CCC, ESB Networks, other agencies including utility providers, transport agencies and An Garda Síochána;
- Category B – Stakeholders with a high level of impact (positive and negative) but a lower level of interest in the development – including nearby residents and businesses beyond a 200.00m radius and within a 500.00m radius
- Category C – Stakeholders who have considerable interest in the development but a relatively low level of impact; and
- Category D – Stakeholders with comparatively little impact and little interest in the development.

For the purposes of the CLP, key stakeholders to be addressed are Category A and B stakeholders. This strategy subject to re-evaluation through periodic review of the CLP or in response to potential response from a wider area.

9.8.4 Community Liaison Officer – Contractor (CLO)

The CLO functions will include but not be limited to the following:

- Main point of contact for the DCLO in respect of their site, works on-going and upcoming;
- Attendance at weekly DCLO meeting (or nominate a representative sufficiently briefed on relevant matters if unable to attend);
- Main point of contact for public and key stakeholders in relation to site specific issues – their contact details will be provided to DCLO and be noted at the entrance to the site and provided to CCC for listing on their webpage;
- Updating the DCLO in relation to any interface with key stakeholders on any site-specific issues/queries; and
- Manage a log of complaints/issues (if any) that arise on their site including actions to resolve and inform the DCLO as part of an agreed Complaints Procedure.

9.8.5 Issues related to the project works, temporary works and construction activities

Project works	Temporary works	Construction activities
▪ Traffic changes ▪ Air quality ▪ Waste ▪ Noise and vibration ▪ Soils and groundwater ▪ Car parking, transport and access ▪ Local business impacts ▪ Local resident impact ▪ Human health ▪ Hazards and risks	▪ Traffic changes ▪ Air quality ▪ Waste ▪ Noise and vibration ▪ Soils and groundwater ▪ Car parking, transport and access ▪ Local business impacts ▪ Local resident impact ▪ Human health ▪ Hazards and risks	▪ Team members and subconsultants to flag issues with the DCLO and CLO ▪ Contractor personnel and subcontractors to behave appropriately at all times ▪ Maintain terms of agreement and protocol

9.8.6 Communication procedure

The objective of communication procedures will be to:

- Maintain effective working relationships and mutual trust between key stakeholders during construction;
- Promote the free flow of timely and appropriate information in all directions between key stakeholders in order to try to anticipate and resolve any potential issues before they arise;
- Evaluate the results of monitoring activities on a periodic basis;
- Oversee a Community Complaints Procedure, ensuring appropriate responses from the contractor are forthcoming;
- Identify and respond to matters raised by local residents or which may arise as a result of the monitoring;
- Construction staff will be encouraged to remove all Personal Protective Equipment (PPE) and use wash down facilities before leaving the site;
- The LDA recognise the importance of the community liaison role in ensuring the smooth running of activities and in relation to residents and public services. Important key issues in ensuring good relations are:
  - correct points of contact, information and liaison;
  - responsiveness to contacts and information;
  - good housekeeping in all aspects of the operations; and
  - keeping people informed of site operations, through regular meetings, mail drops & newsletters will help create good relationships and co-operative atmosphere.
- The contractor is required to ensure that all agents, supply chain contractors, suppliers under their control etc. act in a manner to minimise disruption to the surrounding locality;
- The contractor will be responsible for establishing relationships with relevant parties, and communicating with each as appropriate throughout the pre-construction, construction and operation phases of the development. The contractor Public Relations Coordinator who will support the CLO to:

- ensure all communications are relayed back to CCC for insertion in their webpage as part of the communications strategy to ensure CCC are aware ahead of any potential communications from local residents and property owners.
- be a point of immediate contact for neighbours and stakeholders;
- undertake regular briefings with neighbours on progress, monitoring reports (noise | vibration) and any corrective issues;
- liaise with CCC and emergency services as appropriate;
- liaise with An Garda Síochána, particularly in relation to traffic movements and permits; and
- prepare a site progress meeting report section on neighbourhood issues.

- Efficient signage, maintenance and cleanliness of services and temporary facilities will be given high priorities within the overall scheme of the liaison strategies for the project. Due to the nature of construction works it is essential to operate Good Neighbour Policies.

  Key aspects of a Good Neighbour Policy include:

  - early implementation;
  - good client, staff and neighbourhood liaison;
  - reduction of nuisance factors;
  - clear access for neighbouring premises;
  - clear and concise information; and
  - designated liaison officer.

9.8.7 Monitoring and evaluation construction activities

In keeping with the requirements of the CLP, the DCLO will establish continuous evaluation, monitoring and reporting systems. The purpose of monitoring and evaluation is to verify and validate the successful delivery of stakeholder and community liaison activities. The figure below provides an overview of the approach to the monitoring and evaluation process. It seeks to demonstrate that evaluation is a process, not a product, and is integrated into all stages of programming the community liaison activities (designing, monitoring, and reflecting on success). The information generated can be utilised to adaptively manage the consultation methodology (formative), and to communicate | report, discuss, theorise and redesign.

The monitoring and evaluation process established will capture and report on qualitative and quantitative evaluation measures, for example:

- Frequency and types of consultation and profile of those involved;
- Positive and negative feedback (logged through the CLO);
- Take-up of consultation and engagement process, to assess suitability of the activities; and
- Quality, accuracy and legibility of communications material presented.

9.8.7.1 Sample indicators for monitoring and evaluation activities

Objective	Target	Strategy	Indicator	Target
Timely response to all stakeholder enquiries and complaints	As per the requirements of planning	Adhere to the requirements of planning	Number (and percentage) of responses provided within time limit	100%
Documentation of responses and actions	As per the requirements of consultation	Adhere to the requirements planning	All responses and actions documented	100%
Quality – information, experience, and satisfaction	▪ All interested stakeholders have opportunities to participate in consultation. ▪ All interested stakeholders have opportunities to lodge feedback and complaints. ▪ Stakeholders advised how their feedback would be used	▪ Adherence to CLP ▪ Provision of feedback to stakeholders during liaison activities	▪ Prominent levels of participation across identified stakeholder groups ▪ Prominent levels of stakeholder satisfaction	90%
Appropriateness – for stakeholder, needs, level of interest | impact and expectations	▪ Feedback and complaints were adequately considered and informed construction activities. ▪ Responses addressed issues and concerns raised. ▪ Liaison activities met stakeholder requirements and	▪ Adherence to CLP ▪ Monitoring and analysis of issues and responses in line with planning ▪ Provision of feedback to stakeholders during	▪ Alignment of issues and responses ▪ Prominent levels of stakeholder satisfaction with response mechanisms	90%

	expectations	consultation activities		

10 Construction phase environmental impacts and alleviation measures

10.1 Introduction

The project will generate emissions during the construction phase these include emissions to air (dust, noise, and vibration), construction traffic, surface water run-off or infiltration to groundwater. In addition, leaks or spills from fuel storage areas and construction plant and equipment will have the potential to impact on soil, surface water and groundwater quality. The contractor's CEMP must include emission limits for the various environmental media that require monitoring. The CLO can assess and respond to particular issues or complaints in relation to construction related impacts including environmental issues may be quickly identified and addressed. Issues in relation to environmental nuisance should be addressed by an Environmental Monitoring Officer who will brief the CLO who will then update the key stakeholders on the actions being taken to alleviate environmental complaints and or breeches of environmental monitoring limits.

10.2 Environmental Monitoring Officer

As required, the LDA will appoint an Environmental Monitoring Officer (EMO). The EMO will review the contractors CEMP to ensure that it meets the requirements of this Plan. The EMO will also review monitoring reports to be prepared by the contractor based on the requirements specified in the Grant of Planning to ensure that the construction does not impact on the environment and surrounding property occupants and the general public. The EMO will function as liaison between the contractor, CCC and the Community Liaison Office and should be the single point of contact to ensure compliance with the implementation of the contractor's CEMP and compliance with emission limits for environmental media where these are specified. The EMO will review monitoring reports prepared by the contractor and provide summary of reports assessing compliance with the limits for surface water quality, noise, vibration, and dust specified in the CEMP. The EMO will also report on any incidents such as spills or leaks and how such incidents were dealt with to alleviate environmental impacts. These summary reports should be made available for review by CCC and interested parties.

In the event of an exceedance of trigger limit the contractor should be obligated to implement the following measures:

- Repeat measurement to confirm findings;
- Identify source(s) of impact;
- Inform the EMO;
- Check monitoring data, all plant, equipment, and relevant Contractor's working methods; and
- Discuss alleviation measures with EMO.

10.3 Noise

An environmental noise study should be conducted at the site in order to quantify the existing noise environment. The survey should be conducted in general accordance with ISO 1996: 2017: Acoustics – Description, Measurement and Assessment of Environmental Noise. Noise measurement locations should be selected to represent the noise environment at noise sensitive location surrounding the proposed project. The locations should be chosen to capture

how noise levels in the area around the site vary, from the relatively high noise levels along Sarsfield Road to the relatively quiet Wilton Shopping Centre public car park location.

10.3.1 Construction noise

The construction phase will involve the construction of new floors and structures associated with the proposed project. A variety of items of mobile plant should be in use, such as lifting equipment, compressors, generators, and excavation equipment. There should be vehicular movements to and from the site that will make use of the existing roads and site access points. The contractor should be required to employ a number of measures to minimise the potential noise and vibration disturbance in the surrounding area. The contractor will ensure compliance with the construction noise and vibration limits recommended in the Transport Infrastructure Ireland (TII) document *'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes'* 2014. BS 5228 (2009+A1:2014) and the *Code of Practice for noise and vibration control on construction and open sites – Noise and vibration*.

10.4 Vibration

The main potential source of vibration during the construction programme is associated with groundworks and structural steel fabrication. Where rock breaking is required or during certain construction activities, there is also potential for vibration to be generated through the ground. Pneumatic rock breaking is necessary only towards the bottom of the excavation. Empirical data for these activities is not provided in the BS 5228-2 standard, however the likely levels of vibration are expected to be significantly below the lower adopted criteria for building damage based on experience from other similar sites. It is possible that vibration levels should be detectable within adjacent buildings for short periods of time, depending on the level of breaking activity used. Notwithstanding the above, any construction activities undertaken on the site should be required to operate below the recommended vibration criteria set out.

10.5 Dust

Dust emissions are likely to arise from the following activities during the construction works:

- Enablement works;
- Excavation works;
- Concrete works;
- Handling of construction materials;
- Construction traffic movements.
- Control of vehicle speeds and speed restrictions; and
- Sweeping of hard surface roads.

The following measures should be implemented where construction works occur in proximity to sensitive receptors:

- Provision of hoarding of 2.40m-3.00m high at a minimum;
- Covering of stockpiles and locating stockpiles away from sensitive receptors; and
- Locating plant away from sensitive receptors.

The following avoidance, remedial or reductive measures should be implemented as part of the dust minimisation plan:

- Vehicle speed limits should be enforced at the construction site. Site traffic is restricted to 8km/hr. This will help to minimise the occurrence of dust re-suspension;
- Vehicles delivering or removing materials on site should be loaded carefully to reduce the risk of spillage from the vehicles onto nearby roads;
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, should be controlled by the contractor through regular servicing of machinery;
- Surrounding public roads used by trucks to access to and egress from the site should be inspected regularly and cleaned, using an approved mechanical road sweeper, when required. Roads should be cleaned subject to local authority requirements. Site roads should be cleaned on a daily basis, or more regularly, as required;
- During very dry periods when dust generation is or during windy periods, construction areas and vehicles delivering material with dust forming potential will also be sprayed with water, as appropriate. Wheel wash facilities should be provided for all other construction activities for use by all vehicles exiting the site prior to them entering onto the surrounding public roads. These facilities will contain rumble grids to remove excess mud and other waste from wheels, ensuring that these potential dust producing materials are not released onto surrounding public roads. The wheel wash facilities should be self-contained, ensuring that wastewater discharges to nearby water bodies are not necessary. The facilities should be located away from sensitive receptors, where possible;
- Areas where materials should be managed and stockpiled should be positioned away from access roads. These areas will also be designed to minimise their exposure to wind – all | any stockpiles shall be kept to the minimum practicable height with gentle slopes;
- There shall be no long-term stockpiling on site and storage time should be minimised;
- Material drop heights from plant to plant or from plant to stockpile should be minimised;
- Daily inspections should be undertaken to monitor tidiness;
- A regular programme of site tidying should be established to ensure a safe and orderly site;
- If necessary, scaffolding will have debris netting attached to prevent materials and equipment being scattered by the wind;
- Food waste should be strictly controlled on all parts of the site;
- Loaded lorries, delivery vehicles and all trucks for the movement of materials on and off site should be covered. Skips will also be covered. The contractor will ensure that delivery agents are compliant in this regard;
- Surrounding roads used by trucks to access to and egress from the site should be inspected regularly and cleaned, using an approved mechanical road sweeper, when required. Roads should be cleaned subject to local authority requirements. Site roads should be cleaned on a daily basis, or more regularly, as required;
- Road edges and footpaths should be cleaned using a hand broom with controlled damping; and
- In the event of any fugitive solid waste escaping the site, it should be collected immediately and removed to storage on site and subsequently disposed of in the normal manner.

The degree of implementation for some of the above alleviation measures (water spraying etc.) should be determined by rainfall levels on site. The use of excessive levels of water to suppress dust should be minimised when not required. This will help limit potential drainage related impacts on site.

10.5.1 Dust monitoring

Dust deposition monitoring should be reviewed at the nearest sensitive receptors to the proposed project for the duration of the construction works to ensure the effectiveness of the measures outlined above. Bergerhoff Dust Deposit Gauges should be positioned at each sensitive receptor. Results should be compared with TA Luft guidelines. A qualified air quality expert set the precise location of the dust gauges to ensure that dust gauge locations are positioned in order to best determine potential dust deposition in the vicinity of site boundaries and existing buildings. Dust monitoring is typically completed monthly with the results reported to the EMO.

Quarterly Monitoring reports detailing all measurement results shall be prepared and submitted to the EMO for review. Reports should be maintained on site for inspection if/when required by CCC. Where exceedance of dust emission limits occurs on a monthly basis or where complaints are received an assessment should be undertaken to identify the source(s). This will include an assessment of the construction works taking place, potential off-site sources, and meteorological conditions. Should the construction works taking place be identified as the primary cause of the exceedance, the contractor will ensure that the alleviation measures listed above are improved upon. Should exceedances of the guideline limit value continue to occur following these improvements, the contractor will provide alternative alleviation measures and/or will modify the construction works taking place.

10.6 Carbon emissions

The following alleviation measures should be implemented to minimise CO_2 emissions:

- Materials required for the construction works should be sourced locally where possible;
- A detailed Construction Traffic Management Plan should be implemented in full. This plan will seek to minimise congestion and encourage car sharing and the use of public transport by site personnel;
- Materials should be managed efficiently on site to minimise the waiting time for loading and unloading, thereby reducing potential emissions;
- Engines should be turned off when machinery is not in use;
- The regular maintenance of plant and equipment should be conducted;
- The contractor should be required to implement an Energy Management System for the duration of the works. This will include the following at a minimum:
  - Use of thermostatic controls on all heating systems in site buildings;
  - The use of insulated temporary building structures;
  - The use of low energy equipment and power saving functions on all computer systems;
  - The use of low flow taps fittings and showers; and
  - The use of solar | thermal power to heat water for the on-site welfare facilities including sinks and showers.

10.7 Land, soils, and groundwater

The employment of the following good construction management practices will minimise the risk of pollution of soil and groundwater:

- The contractor will not undertake any works within sensitive catchment areas or protection zones. These areas should be clearly fenced off to avoid encroachment by construction plant and equipment;
- Excavated material shall undergo earthworks testing in accordance with the TII Specification for Road Works (SRW) to establish its suitability for reuse as engineering fill;
- Appropriate safe slope angles and a suitable drainage system should be used for all excavated slopes, while such slopes will also be monitored by the contractor during the construction works to ensure their stability;
- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) on site during construction, and the proper use, storage and disposal of substances and their containers will prevent soil contamination;
- Groundwater pollution should be minimised by the implementation of good construction practices by the contractor. Such practices will include adequate bunding for all potentially contaminating liquids including fuel and lubricating oils and chemicals, wheel wash and dust suppression on site roads, and regular plant maintenance to ensure ecologically protected sites and sensitive receptors;
- Materials such as, fuels, chemicals, lubricants, and hydraulic fluids should be carefully managed to avoid spillages. These materials should be stored within double sealed tanks with bunds to prevent any seepage of same into the groundwater. A fuel filling point should be set-up on site with all plant to be brought to this point for filling. Potential pollutants will also be secured against vandalism and should be clearly marked. Any spillages should be immediately contained, and contaminated soil removed from the site and disposed of in a licensed waste facility; and
- Local dewatering and collection of groundwater during construction may require disposal. Disposal of groundwater during construction should be to the surface water sewer system following suitable pollution control and attenuation measures. The precise measures to be used should be agreed in advance with the EMO and CCC.

10.7.1 Groundwater monitoring

A monitoring programme should be undertaken as required as part of the environmental site assessment established that the groundwater beneath the site was uncontaminated. The water from any excavation dewatering programme is therefore expected to be clean. It is likely however that this water will contain suspended soil particles associated with the excavation works. The water should be discharged to the Irish Water storm sewer that should be regulated by a trade effluent discharge license. The licence will specify the emission limit values (ELVs) that must be complied with to ensure the discharge does not adversely affect the water quality at the final discharge point of the storm sewer.

10.8 Surface water

All collected surface water from the site drains to combined sewers located on Sarsfield Road. There are no sustainable drainage systems or flow control devices in place at the site. In storm events, un-attenuated and untreated surface water discharge can contribute significant flows to the combined sewers. The foul and combined sewer flows in this area discharge to the Wastewater Treatment Plant (WwTP) in Lee Road. Surface water discharge to the combined sewer system contributes to inundation of this system in storm events and recurring untreated discharge of combined sewer flows to open water bodies through combined sewer overflows.

Surface water run-off from surface construction activities has the potential to become contaminated. The main contaminants arising from surface construction activities include:

- Suspended solids: arising from ground disturbance and excavation;
- Hydrocarbons: accidental spillage from construction plant and storage depots;
- Faecal coliforms: contamination from coliforms can arise if there is inadequate containment and treatment of onsite toilet and washing facilities; and
- Concrete/cementitious products: arising from construction materials.

These pollutants pose a temporary risk to surface water quality for the duration of construction if not properly contained and managed. Suspended solids, which can include silt, affect surface water turbidity, and are considered to be the most significant risk to surface water quality from construction activities. Suspended solids can also reduce light penetration, visually impact the receiving water, and damage the ecosystem.

Potential construction activities that could generate suspended solids include:

- Water removal from surface excavations as a result of rainfall or groundwater seepage;
- Wash water;
- Runoff from exposed work areas and excavated material storage areas; and
- Cement watered areas: The potential for cement to increase the pH of water above a neutral range, which is typically pH 6 to 9.

Potential activities that could generate the other pollutants listed above include:

- Inappropriate handling and storage;
- Leakage of temporary foul water services; and
- Solid wastes being disposed or blown into watercourses or drainage systems.

10.8.1 Surface water alleviation measures

Prior to construction the contractor will prepare a detailed Construction Environmental Management Plan for enabling and new build works. Plans will incorporate all alleviation measures which will apply for the prevention of pollution to all waters during construction.

11 Contractor compliance requirements

11.1 Planning compliances*

*(*Applicable to those design elements where a contractor bear design responsibility i.e. specialist contractors | suppliers)* - the contractor must in their planning and execution of the works take ownership for the requirements set out in the Grant of Planning Permission, so conditions are complied with completely.

11.2 Statutory compliances

As a minimum, all aspects of works and project facilities must comply with good industry practice, statutory instruments and all necessary consents including but not limited to the following:

- Cork City Development Plan, 2015-2021;
- The Safety, Health and Welfare at Work Act 2005;
- The Safety, Health and Welfare at Work (Commencement) Order 2012;
- The Factories Act 1955;

- The Safety in Industry Act 1980;
- The Safety, Health and Welfare at Work (General Applications) Regulations, 2007-2022;
- The Safety, Health and Welfare of Work (Construction) Regulations, 2013-2023;
- The Construction Products Regulation (CPR), 2013;
- BS 6187:2011 Code of Practice for Full and Partial Demolition;
- The Building Control (Amendment) Regulations, 2014-2017;
- Any recommendation | Code of Practice etc. made by the Health and Safety Authority (HSA) or equivalent HSE publications;
- BS 5228: Noise and Vibration Control on Construction and Open Sites: 2009 + A1 2014 (BS 5228-1);
- Law and Good Industry Practice on Disability including those of the National Disability Authority;
- Fire Services Act, 1981;
- Good Industry Practice in respect of Fire;
- Requirements of Utility Providers, and the HSA;
- Relevant Irish Standards ("Irish Standards"), British Standards ("British Standards"), Codes of Practice ("Codes of Practice"), EU Directives ("Directives") or equivalent European Standards ("European Standards");
- Building Research Establishment Digest Recommendations;
- Local Byelaws and Regulations;
- The Building Control Acts 1990 and 2007 including all relevant subordinate legislation made under these Acts (and any amendment or re-enactment of such Acts (the "Building Regulations"));
- Regulations and requirements of all relevant authorities;
- All equipment for use in a potentially explosive atmosphere must be appropriate for the environment and must comply with the EU 'Atex' Directive;
- All BSRIA Publications;
- All HVCA Publications;
- ETCI - National Rules for Electrical installations;
- CIBSE Publications- Guides, Codes, Technical Memoranda, Application Guides, Lighting Guides, etc.;
- ASHRAE guidance for specific Mechanical Systems and Components (where more comprehensive than CIBSE); and
- Working Time Directive, 2003.

The LDA will only appoint competent contractors to complete works. The contractor are responsible to positive monitor works ensuring consistently high standards of safe planning, temporary works design as necessary, works management and workmanship. The level of interaction and frequency of inspection is based on assessed levels of risk arising from the works. All contractors are reminded of the need to progress all works in accordance with health & safety regulatory requirements.

11.3 Construction stage requirements

11.3.1 Construction stage document requirements

The contractor must provide prior to commencement of any works on the development the following information to the LDA for written acknowledgment:

- A Construction Management Plan that conforms with this requirement of this DCMP;
- The Construction Management Plan must be submitted for the site to the Planning Authority and CCC for agreement in writing, prior to commencement. In this regard the Construction Management Plan shall include a site-specific site Construction Traffic Management and Community Liaison Plan. Plans shall provide details of intended construction practice for the development.

  Typical information requirements include:

  - location of the site and materials compound(s) including area(s) identified for the storage of construction refuse;
  - location of areas for construction site offices and staff facilities;
  - location of any settlement tank with associated discharge licence;
  - details of site security fencing and hoardings;
  - details of appropriate numbered on-site car parking facilities for site workers during the course of construction;
  - details of the timing and routing of construction traffic to and from the construction site and associated directional signage, to include proposals to facilitate the delivery of abnormal loads to the site;
  - measures to obviate queuing of construction traffic on the adjoining road network;
  - measures to prevent the spillage or deposit of clay, rubble or other debris on the public road network, will be managed through a combination of a full-time road sweeper, wheel wash, automated spray booth provision at the site entrance and good waste management practice employment by the contractor;
  - alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath during the course of site development works;
  - provision of parking for existing properties during the construction period;
  - details of appropriate measures to alleviate impacts measures for noise, dust and vibration, and monitoring of such levels;
  - containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained. Such bunds shall be roofed to exclude rainwater;
  - off-site disposal of construction | excavation waste and details of how it is proposed to manage excavated soil; and
  - means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local surface water sewers or drains.
- Land Development Agency will appoint an individual | business that will be responsible to undertake and record daily checks to ensure works are undertaken in accordance with the DCMP. Records are to be kept for inspection by the Planning Authority;
- Copy of AF2 notification to the Health and Safety Authority for the site;

- Site specific Construction Stage Health and Safety Plan for the site – the contractor as PSCS must produce and submit in soft copy in advance of the works commencing a construction-stage health and safety plan for acknowledgement by Land Development Agency. Each plan will be assessed on an ongoing basis during construction to account for the dynamic evolution of the project and adherence to agreed temporary work measures (demolition, groundworks, service diversions, traffic management etc.) and site rules;
- Site specific contaminated material | hazardous material strategies (as required);
- Approved commencement documentation as required by the Building Control (Amendment) Regulations, 2014 to 2017 and | or similar statutory or regulatory documentation;
- Site specific Safety Statement;
- Names of personnel including shadow and support staff responsible for discharging the role of PSCS, site safety, health, welfare and first aid personnel;
- Written confirmation from Land Development Agency that the contractor proposed site establishment complies with project requirements. If non-compliances are subsequently identified corrective actions must be remedied at the cost of the contractor;
- Evidence of the required insurances being in place;
- Confirmation (in advance of commencement) to confirm that previous works on site have been assessed to ensure compliance with as-built information;
- Details of the contractor contact details for subsequent payments;
- Proposed samples for approval of the design team and Land Development Agency;
- Permit to work submittals such as method statements, risk assessments and applications for works outside the development site redline boundary; and
- Complete Client Safety File.

11.3.2 Construction stage health and safety plan

The plan document must be project-specific and must incorporate the requirements of the strategies within this DCMP. The contractor must ensure their plan enables the location of its entire compound within its site as per the demised area and other areas outside the red line boundary where e.g. MEP, ICT etc. will be required to operate at defined interface points. Each plan, at a minimum must include at least the following sections:

- Project directory and communications protocols proposed to be used with Land Development Agency in response to the necessary Communication Strategy;
- Site establishment plan including any proposed phasing / staging of site compound areas – identifying the location of, inter alia, the building footprint, site offices, welfare facilities for operatives and staff, materials storage, component assembly area, waste skips or similar, craneage / hoists / scaffolding, generator / pumps etc. The layout of same must be agreed in advance with Land Development Agency with focus on the proposed location of potential noisy / dust creating equipment such as pumps & generators, and potential impacts on the progress or uses of nearby residential properties;
- Contract programme as previously agreed with Land Development Agency;
- Risk Management Strategy – listing of specific site risks, the contractor must present a weighted risk matrix based on their evaluation of risks particularised to its specific works and the site;

- Deliveries Strategy - including swept path analysis (projection of HGV vehicle movements linked to the contract programme for the duration of the works), proposals for just-in-time deliveries, and its proposals to avoid impacts on traffic passing around the perimeter and through the site;
- Storage Strategy – developing the deliveries strategy to minimise storage requirements, but also addressing protecting and securing the components;
- Waste Management Strategy – addressing the requirements to implement, reduce, re-use recycle strategy and identifying the proposed location of skips etc. The strategy must address proposed mechanisms to avoid rodents inhabiting the site;
- Fire & Emergency Plan – planning and execution of the works in a manner which avoids impact on operational continuity of Development must particularise these proposals to the works in question and any risks identified in identifying and managing the respective project's risks;
- Storm-water Management Plan – designing and implementing agreed construction site storm-water runoff control, post construction site storm-water management, pollution prevention | good housekeeping etc.;
- Temporary Works Register - this register must be submitted at pre-start by the contractor to the Project Manager and PSDP. The register is to be updated during the construction period in coordination with the Project Manager and PSDP;
- Temporary Connections Plan – for the avoidance of doubt, the contractor shall not be permitted to source temporary connections for utilities or draw power or water from the permanent infrastructure supplies unless otherwise agreed. Arrangements must instead be made for generators and similar temporary installations;
- Temporary Traffic Management Plan and swept path analysis – the contractor must carry out a swept path analysis for the Development site using design plans and take account of the expected vehicles that will enter and exit the site during the construction project. The contractor must demonstrate how vehicles can operate safely within the traffic management proposal of the site and wider permanent roadways;
- Overhead Lifting Plan – the contractor is obliged to obtain acknowledgment from IAA, Cork Airport, CCC and ESB Networks regarding their use of cranes (mobile, self-erecting, tower etc.) if the slewing capacity of these lifting appliances breach or travel over or near to neighbouring properties;
- Community Liaison Plan - responding to the Good Neighbour Charter and Section 9.8 commitments;
- Noise, Dust & Vibration Measures to alleviate impacts Plan - attention is to be given to the impact on neighbours, immunosuppressed neighbours & members of the public, roadway structures and occupants of adjacent buildings; and
- Invasive Species Management Plan - Invasive alien plant species have been found on the site. The contractor must adhere to the recommendations on how to deal with this in the Invasive Plant Solutions *'Invasive Alien Plant Species: Site Assessment Report & Management Plan'* Report.

11.3.3 Client Safety File

The Client Safety File is information collated by the PSDP under Regulation 13(a) & (b) of the Safety, Health and Welfare at Work (Construction) Regulations, 2013 to 2023. The Safety File is a record of information for the end user of the development which focuses on safety and health in relation to the day-to-day usage, maintenance, alteration and demolition of each

structure within the development site. The information contained within the file shall alert those responsible for the design of new structures and services of any significant risks to safety and health that shall be addressed during detailed design development. The Safety File document must be held in PDF format while also being capable of handling BIM (Level 2) documentation, Revit, AutoCAD, MS Word, Excel files etc. To make this task achievable co-operation between and co-ordination of all the relevant parties is of essential, right from the outset of the project. The design & build contractor is responsible under Regulation 21 for the co-ordination of arrangements among contractors to ensure the provision of relevant information, in writing, thus enabling the completion of the safety file.

The BCaR information needs list is separate to the Client Safety File. The format and quantum for each Block | Structure will be agreed | provided during pre-contract stage with the preferred contractor.

11.3.4 Site utilities

Existing services will be identified from the utility bodies, current service drawing records and by use of a full-service sweep of the buildings and surrounds. These will be retained on site for reference. As appropriate, applications will be submitted for power, drainage and water connections through the relevant CCC departments. The contractor will be required to review and advise on:

- Electricity: - completed application form for temporary supplies and informing the Power Supply Company of the required power on dates and the dates at which the new supply connection is required. An application will be made to the ESB and relevant power networks for the temporary supplies required for the construction works;
- Water: - applications for final water connection and | or metering. An application will be made to Irish Water for a new water supply required for a temporary construction supply. An application will be submitted for the final connection. This will be a water supply up to the site boundary and terminate with an isolator. From the isolator, the mechanical contractor will run a new pipe and enter the plant room where a double valve and mains isolator will be installed. All underground pipework is to be disinfected in accordance with Water Supply (water fittings) Regulations 199 (SI 1999, 1148);
- Wastewater: - reviewing means for disposal of wastewater. Connection to the Local Authority sewer for both temporary supply and for permanent supply will be lodged with CCC;
- Telecommunications: - advising the contractor's head office on the number of telephone lines required for broadband, phones, faxes and computers. The contractor will then apply for the lines and advise on the installation date; and
- Gas Supply: - completing the various form for the new Gas Supply main for the development from the existing site boundary location and connection to the mechanical systems in a timely manner to allow for testing, commissioning and to aid drying out of the building.

The contractor will work together with their temporary electrics sub-contractor to establish the total power requirements for the site.

12 Traffic management

The level of construction traffic directly associated with the development will vary over the course of the construction programme and the following section presents the projected volume of traffic generated during the peak construction activity only. Overall, the traffic movements for construction related traffic and construction workers at the peak stage of construction

would equate to approximately 1nr. vehicle every minute arriving or departing the site during the morning and evening peak hours. This level of traffic will in overall terms will have no material traffic impact on Sarsfield Road or the surrounding road network. This volume of construction traffic during peak traffic hours is lower than the peak volumes projected for the operational phase of the development and therefore construction related traffic has no material additional impact on existing levels of traffic on the surrounding road network. Therefore, in Traffic Impact Assessment terms, the most onerous scenario to assess in terms of capacity and traffic impact is the operational stage of the development.

12.1 Peak construction period

Excavation and substructure activities represent the most onerous construction stages in terms of construction traffic for the site. The traffic impact of the likely increase in traffic associated with the construction of the proposed development has been assessed. Specific details of construction traffic management plans will be provided in the detailed Construction Management Plan prepared by the contractor. The reduced dig excavation and construction of the floor slab areas will require a large quantity of excavation haulage movements with concrete, and steel deliveries replacing excavation vehicle numbers thereafter. It is important to note that the proposed single stage construction programme will alleviate against any large truck movements, due to contractor only working in quadrants at a time. It has been considered that:

- Estimated HGV movements during construction stage will range subject to site activities;
- Peak HGV movement is expected during substructure (excavation, groundworks etc.) and superstructure (concrete pour) periods; and
- Estimated peak construction personnel attending site is circa 350-400.

12.2 Construction traffic generation

Construction traffic is spread over a period of time with the most intense HGV movements typically occurring during site clearance works. For traffic assessment purposes it has been assumed as a worst-case scenario that all of the 17,136m^3 excavated material would be removed off site. Assuming 8m^3 per load this would require 2,148 loads to be transported off site which would generate 4,296nr. movements on the adjacent regional road. It is assumed that the excavation would take place over a 3month period and would generate 330nr. movements per week or approximately 60 movements per day across the permitted working 5.5day times. In addition, other large construction vehicles will generate approximately 30nr. movements per week or 6nr. movement per hour during this period also. The peak construction related HGV movement, likely occur during 2027, between 300 to 360 HGV movements to and from the site per week are expected to arise. The site construction will operate for approximately 60 hours per week and these movements will be spread throughout the day, exporting and importing construction materials to and from the site. This across a permitted 11hr working day would average at 6nr. HGV movements per hour at the peak construction periods. All HGVs will be required to use the proposed haul route(s). Construction works will generate traffic from the following activities:

- Reduced dig excavation;
- Delivery of concrete;
- Delivery of steel;
- Miscellaneous deliveries;
- Staff; and

- Site visitors | unscheduled visitors.

12.2.1 Delivery of concrete

There will be a significant number of concrete movements associated with staff and raw material deliveries to the site.

12.2.2 Delivery of steel

Steel reinforcement is required for the construction of the foundations. It is anticipated that the site will generate 3-4 steel trucks a week. Movement numbers will be alleviated by the proposed phasing plan.

12.2.3 Contractor staff and site operative number estimates

Excluding HGV drivers, it is estimated that the construction works would require personnel parking on site, including full time construction workers and contractors. It is projected that the works will result in approximately 300 construction workers on site during a typical construction workday, with a maximum of 350 construction personnel on site concurrently during the period of peak construction activity. Given typical construction working hours the majority of these personnel are expected to arrive to site in advance of the 08:00 – 09:00 morning peak hour and depart after the 17:00 - 18:00 evening peak hour periods. Some construction workers will arrive on foot, cycle or use public transport. Sarsfield has good accessibility. Many construction workers come to site in groups by car or van. It is robustly assumed that 70% of staff will arrive to site by car | van with 30% of this percentage carpooling or arriving in people carriers.

No parking will be permitted in the surrounding non landowner areas with onsite carparking being accommodated on site.

12.3 Total construction traffic generation

12.3.1 Construction traffic distribution

It is assumed that all construction traffic entering the site will arrive from Sarsfield Road.

12.3.2 Construction traffic impacts

12.3.2.1 Impact of works on neighbouring property access

Access to all neighbouring properties will be maintained through all stages of construction. Details of the traffic management arrangements will be contained within the site-specific Construction Traffic Management Plan that will be submitted to CCC by the contractor.

12.4 Construction traffic measures to alleviate impacts

12.4.1 Construction traffic strategy

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

- During peak hours, ancillary, maintenance and other site vehicular movements will be discouraged.
- Daily construction programmes will be planned to minimise the number of disruptions to surrounding streets by staggering HGV movements to avoid queuing;
- Access to neighbouring properties will be maintained through all stages of construction;

- Abnormal site deliveries will be coordinated with CCC in consultation with local residents as per CLO requirements;
- Site staff parking will be provided onsite; and
- The contractor will be required to promote travel by sustainable modes of transport.

12.5 Construction traffic management plan

A draft CTMP has been prepared for the development by ILTP and is included in the Planning Application submission. This plan will be further developed by the contractor at appointment. Discussed below are a number of issues, information on which are to be included in each Traffic Management Plan as set out and guided by the Dublin City Council document '*Directions for the Control & Management of Roadworks in Dublin City*'.

12.5.1 Movement of machinery and plant

The contractor shall determine safe internal haul routes within their site area, including the locations for crossing any public roadways as part of their agreement with CCC prior to construction. The contractor must provide an appropriate number of competent Banksmen to specifically manage (as necessary) vehicle movements at these locations as they have been found to pose risks arising from proximity of works roadway users, pedestrian movements (construction personnel and members of the public). Contractors must not move machinery and plant across public roads in areas other than designated agreed crossing locations.

12.5.2 Loading | unloading locations

Vehicles must be loaded and unloaded within the demised site area (i.e. within the site boundary red line). All deliveries and collections must be overseen and managed for the contractor by a nominated competent person. The contractor must consider and explain how to manage the impacts on vulnerable persons, cyclists, pedestrians, other road users, and any affected roadway infrastructure.

Appendix A – Proposed development site plan

WILTON SHOPPING CENTRE

WILTON SHOPPING CENTRE CAR PARK

WILTON SHOPPING CENTRE OVERFLOW CAR PARK

WILTON SHOPPING CENTRE ACCESS ROAD

SMA CORK ACCESS ROAD

EXISTING TREES OUTSIDE OF SITE BOUNDARY

FOR BOUNDARY TREATMENT DETAILS, SEE LANDSCAPE ARCHITECTS' DRAWING NO. **7848-PHL-SW-ZZ-DR-L-1001**

GATED ACCESS ROAD TO ST. JOSEPH'S SMA WILTON

GATED SECONDARY ENTRANCE FROM STREET TO EAST BLOCK

SITE NOTICE LOCATION

TOWNHOUSE BLOCK A

TOWNHOUSE BLOCK B

WEST BLOCK

MIDDLE BLOCK

EAST BLOCK

CRÈCHE 156m²

GENERATOR COMPOUND

BIKE SHELTER 60 SPACES

EAST BLOCK ESB SUBSTATION & OFFLOAD ROOM

COVERED BIN STORE

RETAINING WALL

FORMAL SQUARE

DEMOUNTABLE BOLLARDS

CARDINAL COURT

SARSFIELD ROAD

FOR DETAILS ON PROPOSED JUNCTION, SEE CIVIL ENGINEER'S DRAWING NO. **23215-BMD-ZZ-XX-DR-C-11100**

EXISTING SECURITY KIOSK TO BE RELOCATED

CCTV POLE

PROPOSED NEW LOCATION FOR SECURITY KIOSK

LAND IN ESB OWNERSHIP HATCHED YELLOW

PROPOSED BI-FOLDING FAST OPENING/CLOSING ENTRANCE GATE TO ESB LANDS

PROPOSED 7m CANTILEVER STEEL SECURITY GATE

RELOCATED VEHICLE BARRIER

EXISTING ENTRANCE GATES TO BE DEMOLISHED

FOR DETAILS ON RECONFIGURED ENTRANCE, SEE CIVIL ENGINEER'S DRAWING NO. **23215-BMD-ZZ-XX-DR-C-11100**

WAREHOUSE

ESB NETWORKS BUILDING

ESB COMPOUND

ORIGINAL SHEET SIZE = A1

-	-	-	-
-	-	-	-
G	83.04.2025	AK	DRAWING REVISED
F	84.03.2025	AK	DRAWING REVISED
E	85.03.2025	AK	DRAWING REVISED
D	86.01.2025	AK	DRAWING REVISED
-	-	-	-
C	89.01.2025	AK	DRAWING REVISED
B	85.12.2024	AK	LAYOUT & SITE BOUNDARY REVISED
A	84.11.2024	AK	ISSUED FOR COMMENT
-	-	-	-
REV	DATE	DRN	NOTES

NOTES

LEGEND

- SITE BOUNDARY
- EXISTING TREES
- PROPOSED TREES
- ROOT PROTECTION AREA
- RETAINING WALL
- LAND IN ESB OWNERSHIP - *LETTER OF CONSENT ACCOMPANIES APPLICATION.*
- APARTMENT BLOCK ENTRANCE

SITE METRICS

SITE AREA: 2.61HA
PUBLIC OPEN SPACE: 3545m²
PODIUM DECKS: 1487m²
DENSITY: 133 DWELLINGS/HA

SEE LANDSCAPE ARCHITECTS' DRAWINGS FOR DETAILS ON PLANTING AND SURFACE TREATMENTS

PARKING

148 PARKING SPACES
90 UNDER-PODIUM
58 IN LANDSCAPE

0.43 PARKING RATIO

503 BICYCLE PARKING SPACES

NORTH

JOB
LRD at Lands Adjoining the ESB Networks DAC Office, Farrandahadore More, Sarsfield Road, Wilton, Cork City

CLIENT
LAND DEVELOPMENT AGENCY

PLANNING PERMISSION

DRAWING
PROPOSED SITE LAYOUT - GROUND LEVEL

DATE NOVEMBER 2024 | SCALE 1:500@A1
DRN AK | REVISION G
CHECKED PM

DWG NUMBER
WLT-06 SW-ZZ- DR-RAU-A -1003

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Appendix B – Indicative client safety file contents list

Client Safety File Information List

Client Safety File Information Needs List

DCON Safety Consultants Project Number: 0635

Project Name: Proposed Development, Wilton Cork City

Ref	Folders and Subfolders	Folder Ref Nrs	Documents included	Subcontractor	PI Insurance	Specialist Insurance	Uploaded	Comments	BCaR Checked	Complete and on file
Ref	**Folders & Sub-folders**	**Folder and Subfolder Ref Nrs**	**Documents included**	**Subcontractor**	**PI Insurance**	**Specialist Insurance**	**Uploaded Y|N**	**Comments Y|N|N/A**	**BCaR Checked Y|N**	**Complete and on file Y|N**
0.0	Contents & Health & Safety	0.1	Contents							
		0.2	Project Directory (Design Team)							
		0.3	Project Directory (Subcontractors)							
		0.4	Architect Practical Completion Certificate							
		0.5	Safety File Handover Letter							
		0.6	Certificate of Compliance on Completion (PSCS | Main Contractor)							
		0.7	Certificate of Compliance on Completion Architect (Architect)							
		0.8	Certificate of Compliance on Completion Assigned Certifier							
		0.9	Certificate of Compliance on Completion Structural Engineer							
		0.10	Certificate of Compliance on Completion M&E Consultant							
		0.11	Ancillary certificates (subcontractors | supply chain contractors)							
1.0	Excavation	1.1	Site inspection documents							
		1.2	Waste Permits							
2.0	Foundations	2.1	Site foundation inspection report							
		2.2	Reinforcement rebar certificates							
		2.3	Concrete mix details							
		2.4	Ancillary certificate (PSCS | Main Contractor)							
		2.5	Cube test results							
		2.6	Reinforcement mesh Declaration of Performances (*DOP's*)							
		2.7	Certificate for crushed stone							
3.0	Substructure including floor screeds	3.1	Inspection reports from design team							
		3.2	Test certificates for stone & sand							
		3.3	Hollocore slabs including ancillary cert							
		3.4	Block certificates							
		3.5	Mortar mix details							
		3.6	Concrete lintels							
		3.7	Radon barrier DOP							
		3.8	Radon sump DOP							
		3.9	Radon barrier ancillary certificate							
		3.10	Underfloor insulation information							
		3.11	Concrete mix details							
		3.12	Pressure test of drainage pipes reports							
		3.13	Drainage DOP's							
		3.14	Watermain DOP's							
		3.15	Cube test results							
		3.16	Watermain test results (CCTV | pressure | jointing information etc)							
4.0	Rising walls to roof	4.1	Inpsection sheets from design team							
		4.2	Block & brick certificates							
		4.3	Cavity insulation information							
		4.4	Precast concrete design and product information (walls | slabs) and selected perimeter walls							
		4.5	Concrete & steel lintels (DOP's & certificates)							
		4.6	Cavity barriers information							
		4.7	Cavity closers information							
		4.8	Mortar mix details							
		4.9	Wall ties & DPC details							
		4.10	Airtightness membrane & tape information							
		4.11	Window cills details and information							
		4.12	Structural steel & beam information (including coating details and certificate)							
		4.13	Masonry and render finish information							
		4.14	Coating reports							
5.0	Roof structure	5.1	Inspection reports from design team							
		5.2	Roof material | system specification & guarantee (e.g. Sika)							
		5.3	Material DOP's							
		5.4	Ancillary certificate (roof structure)							
		5.5	Aluminium flashing informatio							
		5.6	Cavity Barrier (ceilng | roof void areas etc.)							
		5.7	Roof maintenance strategy							
6.0	External windows & doors	6.1	Inspection reports from design team							
		6.2	O&M manuals including certificates, DOP's, drawings, warranties etc							
		6.3	Ancillary certificate							
		6.4	Roof light information							
		6.5	Steel door ifnformation							
		6.6	Electrical window information							
		6.7	External windows & doors ironmongery information **(specific product manual pages only)**							
		6.8	Fire cert windows?							
7.0	Drainage	7.1	Inspection report from design team							
		7.2	Test certificates for stone & sand							
		7.3	Pressure test of drainage pipes report							
		7.4	Drainage DOP's							
		7.5	Ancillary certificate (PSCS | Main Contractor)							
		7.6	Drainage CCTV survey report							
8.0	Service ducting	8.1	Inspection report from design team							
		8.2	ESB duct information (as installed | residual (in place) etc)							
		8.3	Eircom duct information (as installed | residual (in place) etc)							

Client Safety File Information List

		8.4	Gas ducts (as installed | residual (in place) etc)							
		8.5	Generator to switch room duct(s) (as installed | residual (in place) etc)							
		8.6	Ducting across service yard gate (as installed)							
		8.7	Ducting to gate (as installed)							
		8.8	Ancillary certificate (PSCS | Contractor)							
9.0	Internal Floor screed	9.1	Inspection reports from design team							
		9.2	All floors DOP's							
		9.3	Screed certificate (PSCS | Contractor)							
		9.4	Ancillary certificate							
		9.5	Cube test results							
10.0	Internal partition walls	10.1	Inspection reports from design team							
		10.2	Stud partition DOP's specification, BBA certificate (if applicable) & associated fire rating information | certificates							
		10.3	Ancillary certificate							
		10.4	Fire rated partitions opinion of compliance (Fire Consultant)							
		10.5	Fire rated partitions opinion of compliance (PSCS | Main Contractor)							
11.0	Internal wall finishes	11.1	Inspection reports from design team							
		11.2	Vinyl for wet rooms & bedrooms							
		11.3	Finish to block walls, DOP's & product and safety data sheets							
		11.4	Wet coat finish to block walls, DOP's& product and safety data sheets etc							
		11.5	Ancillary certficates							
		11.6	Decorations DOP's (paint, tile, wallpaper, vinyl, any feature walls etc.)							
12.0	Mechanical	12.1	Inspection reports from design team							
		12.2	O&M Manuals including commissioning reports, ancillary certificates, as built drawings (in PDF and DWG) **(specific product manual pages only)**							
		12.3	M&E Consultant opinion of compliance							
		12.4	Gas certification (PSCS | Main Contractor)							
13.0	Electrical	13.1	Inspection reports from design team							
		13.2	O&M Manuals including commissioning reports, ancillary certificates, as built drawings (in PDF and DWG) **(specific product manual pages only)**							
		13.3	M&E Consultants opinion of compliance							
		13.4	Emergency lighting and fire dectection and alarm systems (#3217 and #3218 4-part certificates)							
		13.5	RECI/ECTI certification							
14.0	Ceiling finishes	14.1	Inspection reports from design team							
		14.2	Fire Ceiling - Material DOP's							
		14.3	MF Ceiling - Material DOP's							
		14.4	Grid ceiling - Material DOP's							
		14.5	Gypsm report							
		14.6	Access hatch details and product information							
		14.7	Ancillary certificates							
		14.8	Fire rated ceilings opinion of compliance							
		14.9	Rooflight information							
		14.10	Access ladder information							
15.0	Internal Doors & Screens	15.1	Inspection reports from design team							
		15.2	O&M Manuals, DOP's, fire certificates							
		15.3	Ancillary certificates							
		15.4	Ironmongery product information **(specific product manual pages only)**							
		15.5	Commissioning							
		15.6	Signage (ironmongery and wayfinding)							
16.0	Internal floor finishes	16.1	Inspection reports from design team							
		16.2	Ancillary certificates							
		16.3	Screeds & fillers							
		16.4	Underlays							
		16.5	Floor finishes							
17.0	Sanitary ware	17.1	Inspection reports from design team							
		17.2	DOP's and specification and product information **(specific product manual pages only)**							
18.0	Fire stopping	18.1	Inspection reports from design team							
		18.2	Fire consultant inspection report							
		18.3	Fire damper inspection report							
		18.4	Material DOP's							
		18.5	Fire certificate							
		18.6	Ancillary certificate							
		18.7	Opinion of compliance (Supply chain contractor)							
19.0	Air tightness	19.1	Air tightness test report							
		19.2	Inspection report from Design Team							
20.0	Paths, Paving & Grounds	20.1	Inspection sheets from design team							
		20.2	Concrete test results							
		20.3	Paving DOP's & data sheets							
		20.4	Tarmacadam DOP & data sheet							
		20.5	Ancillary certificates							
21.0	External railing, gates & Landscaping	21.1	Inspection sheets from design team							
		21.2	CE Certs, Mill certs, drawings & letter of compliance & commissioning							
		21.3	Steel certs							
		21.4	Fixings							
		21.5	Ancillary certs							
		21.6	Signage							
		21.7	External Lighting							
		21.8	Bike Racks							
		21.9	Landscaping							
		21.10	Aco drains							
		21.11	Fire Hydrants							
22.0	Fall arrest	22.1	Inspection sheet from design team							
		22.2	O&M Manuals, certs, warranties							
		22.3	Ancillary certificate							
23.0	As Built Drawings **(validated by Design Team)**	23.1	Underground services (PSCS - Main Contractor) (PDF and DWG)							
		23.2	Architects As Built drawings (Revit, PDF and DWG)							
		23.3	Structural As Built drawings (Revit, PDF and DWG)							
		23.4	M&E As Built (PDF and DWG)							
		23.5	Fire Consultant As Built drawings (Revit, PDF and DWG)							

Client Safety File Information List

24.0	IPS Panels & Toilet Cubicles	24.1	Design team inspection reports							
		24.2	O&M Manuals & drawings **(specific product manual pages only)**							
		24.3	Ancillary certificates							
25.0	Fire Dampers	25.1	Inspection reports from design team							
		25.2	DOP's							
		25.3	Fire stopping DOP's							
		25.4	Electrical elements, details, schematics etc.							
26.0	Fitted Furniture	26.1	Inspection reports from design team							
		26.2	DOP's							
		26.3	Ancillary certificate							

Appendix C – Daily site hoarding inspection template

Daily Contractor Safety Inspection Checklist

(Appendix 3)

Main Contractor | PSCS:

Site:

Name of competent assessor:

Date: Time:

Today's key items of inspection	*Satisfactory/ Unsatisfactory*	*Follow-up Actions and Close Out Time*
Access | egress | public roadways:		
Site hoardings (daily inspection item)	Y / N	
Site entrance(s) (daily inspection item)	Y / N	
Gangways	Y / N	
Ladders	Y / N	
Passageways	Y / N	
Working at height:		
Scaffolding | working platforms	Y / N	
Floor edge / openings	Y / N	
Lift shafts / openings	Y / N	
Earthwork:		
Excavations	Y / N	
Trenches	Y / N	
Slopes	Y / N	
Lifting Applauses and Lifting Gear:		
Cranes	Y / N	
Winches	Y / N	
Pulley blocks	Y / N	
Passenger Hoists	Y / N	
Material or skip hoists	Y / N	
Suspended Working Platforms	Y / N	
Chains, ropes, hooks, slings	Y / N	
Electricity:		
Switches	Y / N	
Wiring	Y / N	
Fixed installations	Y / N	
Portable lighting	Y / N	
Portable tools	Y / N	
Welding Machinery	Y / N	
Fire prevention:		
Fire-fighting appliances	Y / N	
Dangerous goods stock	Y / N	
Gas welding cylinders	Y / N	

Daily Contractor Safety Inspection Checklist (Appendix 3)

Today's key items of inspection	*Satisfactory/ Unsatisfactory*	*Follow-up Actions and Close Out Time*
Health:		
Dust control on and outside site (daily inspection item)	Y / N	
Noise control (daily inspection item)	Y / N	
Protection from dangerous substrates	Y / N	
First-Aid equipment	Y / N	
Washing facilities	Y / N	
Toilets	Y / N	
Machinery:		
Woodworking machines	Y / N	
Hoist way	Y / N	
Abrasive wheels	Y / N	
Power tools	Y / N	
General:		
Cleanliness of public roadways outside site boundary (daily inspection item)	Y / N	
Housekeeping onsite	Y / N	
Safety Net and Fans	Y / N	
Stacking of materials	Y / N	
Passageways	Y / N	
Lighting	Y / N	
Ventilation	Y / N	
Provision of Personal Protective Equipment:		
Helmets	Y / N	
Eye protection (appropriately graded for task)	Y / N	
Ear Protections	Y / N	
Respirators	Y / N	
Hi visibility clothing	Y / N	
Safety Gloves (appropriately graded for task)	Y / N	
Safety boots	Y / N	
Other (please specify):		
	Y / N	

Name of assessor: _____

Signature of assessor: _____

Date of Inspection: _____

Appendix D – Overview of safe working cycle

An Overview of the Safe Working Cycle

(Appendix D)

- Priority Items
- Important Items
- Planned Items

Daily Items	Weekly, monthly or intermittent items
	Weekly
Morning meeting	Weekly process safety discussion
Hazard Identification	Weekly site tidying up
Prior-to-work Inspection equipment and electrical installation, etc.	Weekly inspection on mechanical equipment and electrical installation, etc.
Inspection by Safety supervisor	Weekly inspection
Guidance & supervision at work	
Inspection by Project manager/site agent	**Monthly**
	Safety Committee Meeting
Lunch break	Monthly inspection on mechanical equipment and electrical installation, etc.
Guidance and supervision at work	Safety training
Inspection by Project manager/site agent (When needed)	Safety meeting
Daily process safety discussion	
Tidying up afterwork	**On needed-basis**
Final check	Safety induction training courses for new staff
	Approval for new mechanical equipment
	Pre-commencement meeting with Subcontractors in advance
	Special meetings including safety meeting
	Various safety trainings

Appendix E – Indicative site compound location


TOWNHOUSE BLOCK B
TOWNHOUSE BLOCK A
WEST BLOCK
MIDDLE BLOCK
STEPPED PLANTING TO RETAINING WALL
STEPPED PLANTING TO RETAINING WALL
ASPHALT SURFACE FOR ACCESS TO SUBSTATION
CARDINAL COURT
3M HIGH RETAINING WALL TO SOUTHERN BOUNDARY WITH ESB.
3M HIGH RETAINING WALL TO SOUTHERN BOUNDARY WITH ESB.
3M HIGH RETAINING WALL TO SOUTHERN BOUNDARY WITH ESB.
ESB COMPOUND
EXISTING CAR PARK

Appendix F – Indicative craneage plan

INDICATIVE CRANE LOCATION PLAN LAYOUT

SCALE @ A1: 1:500
SCALE @ A3: 1:1000

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS & ARCHITECT'S DRAWINGS.FIGURED DIMENSIONS ONLY (NOT SCALING) TO BE USED. WHERE A CONFLICT OF INFORMATION EXISTS OR IF IN ANY DOUBT - 'ASK'.
2. CONSULTANTS TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.

ISSUE	DATE	DESCRIPTION	BY
P2	17.12.24	ISSUED FOR INFORMATION	POD
P1	17.12.24	ISSUED FOR INFORMATION	POD

Project Engineer: Peter O'Dwyer | Project Director: Brian Mahony

BM STAGE
FOR INFORMATION

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CLIENT
LAND DEVELOPMENT AGENCY

PROJECT TITLE
LDA WILTON
SARSFIELD ROAD LRD

BM PROJECT No.
23.215

MODEL	REFERENCE	SUITABILITY	REVISION

DRAWING TITLE
INDICATIVE CRANE LOCATION PLAN LAYOUT

DWG	DRAWING REFERENCE	STATUS	REVISION
	23215-BMD-ZZ-XX-DR-C-11800		P2

Appendix G – Construction and operational waste management plan (2024)

January 2025

Construction and Operational Waste Management Plan

Large-Scale Residential Development at LDA Wilton, Sarsfield Road, Cork

On behalf of The Land Development Agency ('LDA')

MALONE O'REGAN ENVIRONMENTAL

MALONE O'REGAN

Form ES - 04

MALONE O'REGAN ENVIRONMENTAL

Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
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Email: enviro@mores.ie

Title: Construction and Operational Waste Management Plan, Large-Scale Residential Development at LDA Wilton, Sarsfield Road, Cork, Land Development Agency.

Job Number: E2170

Prepared By: Michael Hulme **Signed:** _____

Checked By: Henry Tennyson **Signed:** _____

Approved By: Gus Egan **Signed:** _____

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	21/08/24	Preliminary Report	Final	MH	HT	GE
1A	23/12/24	Updated Preliminary Report	Draft	MH	HT	GE
02	10/01/25	Updated Preliminary Report	Final	MH	HT	GE

Construction and Operational Waste Management Plan

Large-Scale Residential Development at LDA Wilton, Sarsfield Road, Cork

Land Development Agency

Contents

FIGURES

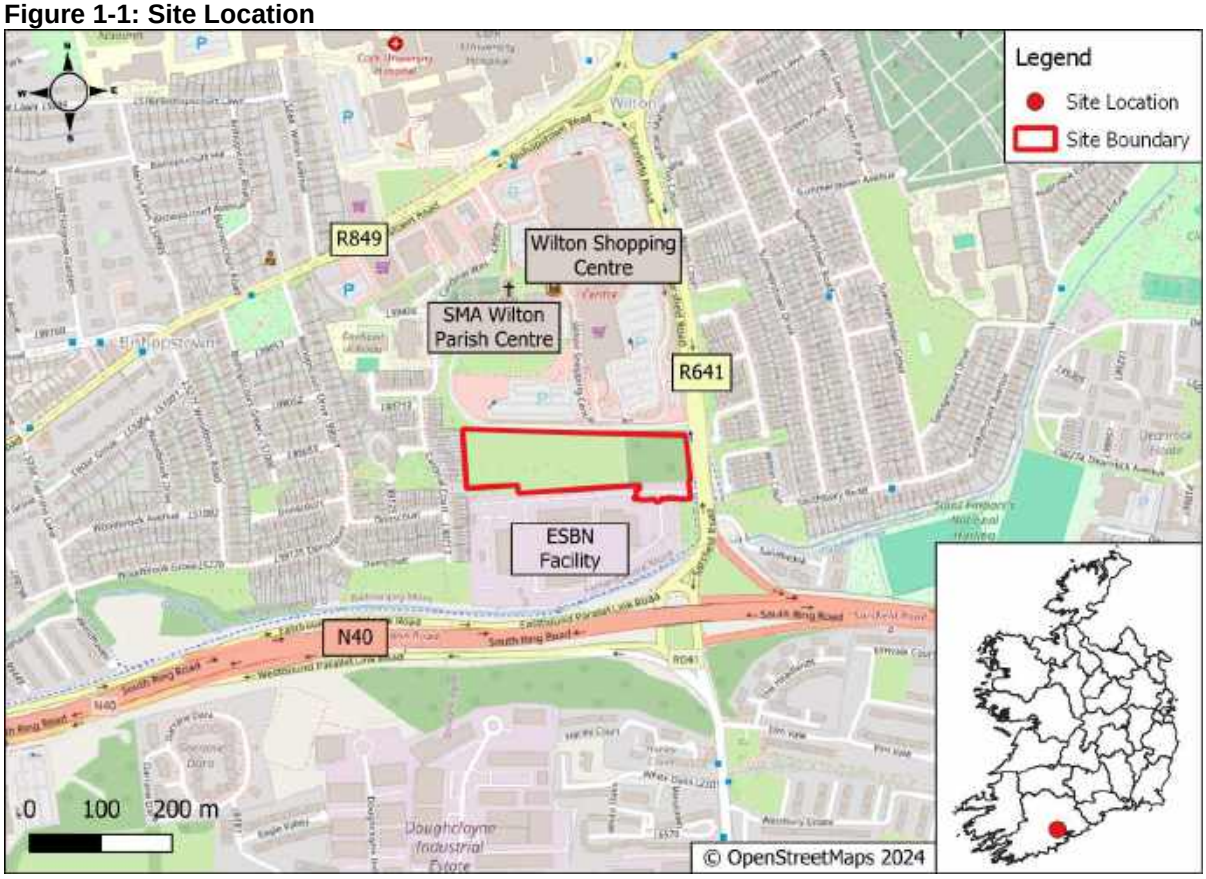
TABLES

APPENDICES

1 INTRODUCTION

Malone O'Regan Environmental ('MOR Environmental') was commissioned by the Land Development Agency ('the Applicant') to prepare a Construction and Operational Waste Management Plan ('C&OWMP'). The C&OWMP will accompany the planning application for the housing development and all associated works ('the Proposed Development') on lands at Farrandahadore More, Sarsfield Rd, Wilton, Cork. The location of the Proposed Development ('the Site') is shown in Figure 1-1.

Figure 1-1: Site Location



1.1 Scope and Objective

The purpose of the C&OWMP is to outline the manner in which construction and operational waste will be managed throughout the construction and operation phases of the Proposed Development in order to achieve compliance with the relevant waste legislation. This will ensure that waste management activities from the Site will not have an adverse impact on the environment.

This C&OWMP has been prepared with reference to the following legislation and plans:

- The Waste Management Act, 1996 (as Amended) and Associated Regulations;
- The Litter Pollution Act, 1997;
- The Southern Region Waste Management Plan 2015 – 2021 [1]; and,
- Waste Action Plan for a Circular Economy [2].

This document has been prepared with the cognisance of the "Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects" [3]. In these Guidelines, the category and quantity of waste generated by the Proposed Development is estimated and recommendations for the management of the various waste streams are made.

1.2 Environmental Policy

The project will be carried out in accordance with the policies/objectives of the developers and appointed contractor's resource and waste policies and procedures.

1.2.1 Waste Policy and Legislation

Directive 2008/98/EC [4], also known as the Waste Framework Directive, establishes an overall policy on waste in the EU. The Directive outlines key concepts such as waste, recovery, and disposal, establishes the necessary requirements for waste management, and establishes principles for handling waste in a way that does not negatively impact the environment or human health.

The waste hierarchy is encouraged throughout the Directive and will be adhered to during the construction and demolition phase of the Proposed Development.

1.2.1.1 National Waste Policy and Legislation

Ireland's National Waste Policy 2020-2025: A Waste Action Plan for a Circular Economy [2] focuses on preventing waste generation and resource consumption and to extend the productive life of products and goods within Irish society and economy. The Waste Action Plan outlines methods for reducing and managing waste from construction and demolition (C&D). The Plan outlines areas in which the C&D sector will need to achieve over the coming years, and where possible, the Proposed Development will assist in reaching these objectives such as promoting waste prevention, following best available techniques and expanding the range of recycled products.

1.2.1.2 Local Waste Policy and Legislation

The Southern Region Waste Management Plan 2015-2021 [1], operated over ten local authorities comprising Carlow, Clare, Cork County, Cork City, Limerick City & County, Kerry, Kilkenny, Tipperary, Waterford City & County, and Wexford. The Plan sets out the strategic and policy context for the region, reviews the waste management strategies implemented before its publication, and assesses waste projections and plans for future waste management strategies.

One of the goals set out in the Plan is to "*reduce and where possible eliminate landfilling of all major waste streams including municipal, industrial and construction and demolition wastes in favour of the recovery of residual wastes*" by 2030 [1].

1.3 Waste Management Objectives

The Waste Management Objectives for the Construction and Operational Phases for the Proposed Development are as follows:

- Preventing waste and maximising recycling and recovery of waste where possible;
- Diverting waste from landfill wherever possible;
- Prevent littering; and,
- Prevent any other environmental pollution such as soil or water contamination.

The C&OWMP is a "live" document and should be reviewed and updated throughout all stages of construction and operation.

2 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Context

The Site is located on a ca. 2.61ha site, which is located ca. 3km southwest of Cork City. The Site is accessed via the ESB Networks facility entrance and a gate, which is along the regional road R641 also known as Sarsfield Road that connects to the N40 'Cork South Ring Road'.

The Site is comprised of an area of amenity grassland and a section scrub in the northeast corner. A hedgerow / treeline borders the north and west of the Site along with a section of scrub.

The Site is located in the centre of Wilton, to the west of Sarsfield Road (R641). The surrounding area is largely made up of residential, commercial and institutional uses. The Site is bordered to the north by the access road to the SMA Wilton Parish Centre and its associated buildings and lands. Wilton Shopping Centre and car park is located immediately to the east of the SMA Wilton Parish Centre and its associated buildings. To the west of the Site and east of the Sarsfield Road comprises of large areas of residential premises both semi-detached and terraced. The Site is bound to the south by the Wilton Electricity Supply Board Networks ('ESBN') Facility. See Figure 2-1 below.

Figure 2-1: Site Overview

2.2 Proposed Development

The Proposed Development will consist of the following:

> *'The Land Development Agency ('LDA') intends to apply to Cork City Council for permission for a Large Residential Development with a total application site area of c. 2.61ha, on lands adjoining the ESB Networks DAC Office, at Farrandahadore More, Sarsfield Road, Wilton, Cork City. The development will provide 348 no. residential units and a 138 sqm childcare facility, revised access arrangements to Sarsfield Road and all associated development above and below ground.'*

Full details of the above Proposed Development can be found in the Planners Report submitted as part of this planning application.

2.3 Drainage

2.3.1 Surface Water Drainage

2.3.1.1 Existing Surface Water Drainage

Following a desktop review of the available drainage records, along with a visual site inspection, it is noted there is no formal surface water drainage serving the site. There are a number of existing road gullies within the site boundary on the existing ESB Networks facility access road to the southeast which appear to connect to an existing combined sewer which flows eastwards.

Beyond the site boundary to the east, there is an existing 600mm diameter surface water pipe located below Sarsfield Road, which flows in a southerly direction, ultimately discharging to the Glasheen River. To the west, there is an existing 600mm diameter surface water pipe at Cardinal Court, which also flows in a southerly direction to a separate outfall to the Glasheen River.

2.3.1.2 Proposed Surface Water Drainage

It is proposed that the 2.61ha catchment area is split into five sub-catchments, as shown in Figure 2-2. The above strategy has been arrived at, on the basis of the limited available open space available for one central attenuation facility. Due to various constraints, such as existing mature tree root protection zones and the need to avoid placing tanks below roads to be taken in charge in future, the above strategy allows for localised attenuation, with smaller structures, within each sub-catchment. Restricted flows from sub-catchments A, B, C & D will all ultimately drain via sub-catchment F and discharge finally at a rate limited to Qbar for the site (13.21l/s), to the existing 600mm diameter surface water network at Sarsfield Road.

Figure 2-2: Proposed Surface Water Catchment Strategy

2.3.2 Foul Drainage

The proposed foul drainage system will be designed to take discharges from the new residential units. There is a small amount of commercial space on site, namely the proposed creche facility within the middle block.

The foul network will be designed in accordance with Uisce Eireann's current Code of Practice for Wastewater Infrastructure. The foul network will comprise of 150mm, 225mm and 300mm

diameter SN8 pipework, and will be designed for a minimum velocity of 0.75m/s (self-cleansing) and maximum peak velocity of 2.5m/s.

It is proposed to connect to the existing Irish Water network at an existing manhole on the 225mm foul sewer at Sarsfield Road, and to upgrade the existing sewer from 225mm to 300mm downstream of this (ca. 12m in length) until its junction with the existing 525mm diameter combined sewer.

Figure 2-3: Proposed Development Site Layout

3 CONSTRUCTION WORKS

3.1 Construction Programme

The anticipated duration of the construction of the Proposed Development will be confirmed upon the appointment of the main contractor.

3.2 Construction Management Plan

During the construction phase, the methods of working will comply with all relevant legislation and best practices in reducing the environmental impacts of the works. Although construction phase impacts are generally of a short-term duration and are localised in nature, the impacts will be reduced as far as practicable through compliance with current construction industry guidelines. Construction phase times will be as follows:

- 7:00am to 6:00pm Monday to Friday;
- 8:00am to 2:00pm on Saturdays; and,
- No work on Sundays or public holidays.

Construction works outside these hours will be limited to works necessary for health and safety reasons, to protect the environment or with prior agreement with the Planning Authority.

3.3 Construction Compound

To ensure the efficient management of the construction works, a temporary construction compound will be set up for the duration of the construction works. During the construction of the Proposed Development, it is expected that the site compound will be located in the east of the Site.

3.4 Construction Traffic and Site Access

During the construction works, construction vehicles, i.e., Heavy Goods Vehicles ('HGVs'), are proposed to approach the Site via the existing access road of the R641, which currently serves the ESB site to the south.

4 RESPONSIBILITIES AND TRAINING

A member of the construction management team will be appointed as the Project Resource and Waste Manager to ensure compliant, efficient and documented resource and waste management during the construction phase. A member of the facility management team will be appointed for the project's operational phase. Each member of the construction and operational staff, including sub-contractors, will require training in resource and waste management procedures appropriate to their role. Each person will be responsible for complying with the C&OWMP and related resource and waste management procedures.

Table 4-1: Roles and Responsibilities

Role	Responsibility
Client	• Responsible for appointing and directing an appropriately qualified design team.
Contractor	• Responsible for appointing a Resource and Waste Manager; • Managing the construction phase of the project; was responsible for the project's overall environmental performance; • Responsible for reporting incident responses and, where required, communicating the incident details to relevant regulatory authorities; • Monitoring of the construction processes against the project objectives; • Liaison with all staff and local stakeholders dealing with any complaints or queries from the public; and, • Ensure compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the C&OWMP and other environmental reports.
Architect, Engineer and Quantity Surveyor	• Responsible for the design of the project, including setting environmental targets; • Liaison with the planning authority, client and contractor to ensure that requirements are communicated; and, • Ensure compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the C&OWMP and other environmental reports.
Resource and Waste Manager	• The Resource and Waste Manager will be given responsibility and authority to select a resource and waste team, if required, i.e., site staff members that will aid them in the organisation, operation and recording of resource and waste management systems on the Site. The Resource and Waste Manager will be responsible for overseeing, recording and providing feedback to the Client on everyday waste management at the Site. Authority will be given to the Resource and Waste Manager to delegate responsibilities to sub-contractors where necessary and coordinate with suppliers, service providers and sub-contractors to prioritise on-site waste prevention and recycling; • They will be responsible for appropriately training all relevant site personnel for their role in implementing the C&OWMP and related waste management procedures. These procedures will include litter prevention and mitigation measures to ensure that all waste is disposed of legally, economically, and safely; • The Resource and Waste Manager will be required to ensure that only appropriately permitted waste collection contractors are used to collect waste from the Site; • The Resource and Waste Manager will be trained in how to establish and maintain a waste record-keeping system, perform an audit, and establish targets for waste management on site. They will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused onsite, and know how to implement the C&OWMP. They will also be responsible for conducting waste audits from time to time; and,

Role	Responsibility
	• The Resource and Waste Manager will be available for any Local Authority or other audits as required. They will also update the C&OWMP as required.
Site staff, including sub-contractors	• It will be the responsibility of all relevant site construction / operational staff and sub-contractors to ensure that waste is segregated and stored appropriately in line with the C&OWMP and related waste management procedures; and, • A basic awareness course will be given to all site staff and relevant sub-contractors to outline the C&OWMP, to detail the segregation of waste materials at source and litter prevention requirements. This may be incorporated with other site training sessions e.g. general site induction. This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained. This may also include the provision of training and reminder material such as posters, signs and contact details for the Waste Manager or their nominated deputy.

5 WASTE MANAGEMENT

5.1 Construction Phase

5.1.1 Minimisation, Reuse and Recycling of Construction Waste

All wastes generated onsite will be collected by a suitably licensed waste contractor and sent to an appropriately permitted or licensed facility for onward processing, in line with the Waste Management Act (as amended).

Construction waste will arise on the project mainly from excavation activities. It is expected that while there will be unavoidable construction waste, material surpluses, and damaged materials that will need to be disposed of, the Site Manager shall ensure that materials are ordered so that the quantity delivered and the storage are not conducive to the creation of unnecessary waste.

Construction waste materials will be collected in a designated storage area for subsequent separation and disposal at a remote facility. Packaging will be source segregated for recycling and returned to the suppliers. Excavation soil and construction waste-derived aggregates are considered suitable for certain on-site construction applications.

Concrete waste will be minimal and will be generated from the construction process. This waste will be source segregated and will either be stored in piles for further processing on-site or will be used as a lean mix in conjunction with hard-core fill. Where necessary it is intended that hardened concrete waste will be sent to a waste recovery facility and recovered for hardcore off-site. As the concrete waste will be the excess left as a result of ordering, there will not be any reinforcing steel to recycle. Masonry waste resulting from the construction process will also be sent to a waste recovery facility and recovered for hardcore off-site.

5.1.2 Soil

Excavated soil/stone will be carefully stored in segregated piles on the site for subsequent reuse within the development where it is deemed acceptable by the site engineer to do so. Excess material will be removed from site to a suitably permitted recovery/disposal site or an Article 27 by-product notification will be submitted to the Environmental Protection Agency (‘EPA’) for approval.

5.1.3 Assignment of Responsibilities

The Resource and Waste Manager appointed by the Construction Management will have overall responsibility for the implementation of the Project C&OWMP. The Construction Waste Manager will be assigned the authority to instruct all site personnel to comply with the specific provisions of the Plan. At the operational level, the Site Foreman from each sub-contractor on the Site shall be assigned the direct responsibility to ensure that the discrete operations stated in the Project C&OWMP are performed on an ongoing basis.

5.1.4 Training

Copies of the C&OWMP will be made available to all relevant personnel on-site and included in the site induction information. All site personnel and sub-contractors will be instructed about the objectives of the C&OWMP and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation and material reuse techniques apply, each member of staff will be given instructions on how to comply with the project C&OWMP.

5.1.5 Waste Auditing

The main contractor will manage the development and implementation of the C&OWMP during the construction phase, including monitoring/mitigation measures. The Waste Manager shall arrange for full details of all movements and treatment of construction waste discards to be recorded during each phase of the Project. Each consignment of waste taken from the site will

be subject to documentation, which will conform with the requirements of Table 5-1 and ensure the material's full traceability to its final destination.

Table 5-1: Waste Details to be Included in Transportation Dockets

Details	Particulars
Name of project of origin	Insert Address.
Material being transported	Identify the material being transport e.g., soil and stone, timber.
Quantity of material	Record the quantity in tonnes (use three place decimals).
Date of material movement	Record the date.
Name of permitted carrier	Record the driver's name, vehicle registration and permit number.
Material Destination	Record site address and permit number if applicable.
Proposed Use	Record the proposed use, recovery or disposal.

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. 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 construction waste management will be measured and will take into account 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 construction waste materials using the format shown in Table 5-2 below.

Table 5-2: Example Record form for Costs of Construction Waste Management

Material	Estimated quantities	Units	Associated costs
Quantity of waste material			
Purchase Costs i.e., Import Costs			
Material Handling Costs			
Material Storage Costs			
Material Transportation Costs			
Revenue from Material Sales			
Material Disposal Costs			
Material Treatment Costs			
Total Waste MATERIAL Management Costs			

Material	Estimated quantities	Units	Associated costs
Unit Waste MATERIAL Management Cost			

A separate table is required to be compiled in respect of each waste material replacing "MATERIAL" with the relevant item. Final details of the quantities and types of construction waste arising from the Project will be forwarded to Council's Environmental Department.

5.1.6 Hazardous Wastes

It is not anticipated that there will be any hazardous wastes generated on-site; however, if required, the management of hazardous waste will comply with current legislation:

- The Waste Management Acts ('WMA') 1996 (as amended); and,
- Waste Management Regulations 1998 (as amended).

Hazardous waste which may be produced or encountered on site includes:

- Soils contaminated with waste oils or fuels;
- Waste oils and fuels; and,
- Used aerosol containers.

Hazardous wastes will be kept separate from other construction waste materials to avoid further contamination. Hazardous wastes will be stored on-site in suitable receptacles for subsequent separation and disposal at a suitably permitted remote facility.

5.2 Operational Phase

5.2.1 Estimated Waste Generation

The estimated volume of waste that will be generated during the Operational Phase of the Proposed Development has been determined using the BS5906:2005 Waste Management in Buildings – Code of Practice [5]. The standard has been utilised to calculate the waste production of each individual resident and the waste storage capacity required.

The BS5906:2005 Waste Management in Buildings – Code of Practice [5] uses the following formula to calculate domestic weekly waste arisings:

number of dwellings x {(volume arising per bedroom [70L] x average number of bedrooms) + 30}

5.2.1.1 Apartment Units

The predicted waste arisings for each of the apartment blocks using the BS5906:2005 Waste Management in Buildings – Code of Practice [5] have been outlined below.

Table 5-3: Predicted Waste Arisings from the Western Block

Unit Type	Number of Units	Number of Bedrooms	Volume of waste per Bedroom (Litre)	Weekly Total (Litre)
1 Bedroom Apartment	52	1	70	3,670
2 Bedroom Apartment	64	2	70	8,990
Total				**12,660**

Table 5-4: Predicted Waste Arisings from the Middle Block

Unit Type	Number of Units	Number of Bedrooms	Volume of waste per Bedroom (Litre)	Weekly Total (Litre)
1 Bedroom Apartment	59	1	70	4,160
2 Bedroom Apartment	75	2	70	10,530
Total				**14,690**

Table 5-5: Predicted Waste Arisings from the Eastern Block

Unit Type	Number of Units	Number of Bedrooms	Volume of waste per Bedroom (Litre)	Weekly Total (Litre)
1 Bedroom Apartment	43	1	70	3,040
2 Bedroom Apartment	41	2	70	5,770
Total				**8,810**

5.2.1.2 Townhouses

The predicted waste arisings for the Townhouses using the BS5906:2005 Waste Management in Buildings – Code of Practice [5] have been outlined in Table 5-6 below.

Table 5-6: Predicted Waste Arisings from the Townhouses

Unit Type	Number of Units	Number of Bedrooms	Volume of waste per Bedroom (Litre)	Weekly Total (Litre)
Townhouses	16	3	70	798
Total				**798**

5.2.1.3 Creche

The BS5906:2005 Waste Management in Buildings—Code of Practice [5] defines waste arising from "*premises forming part of a university or school or other educational establishment*" as "*household waste*." The standard does not provide typical weekly waste arising from a facility such as a creche. Therefore, an office was used as the closest comparison under which a single person typically produces 50 litres of waste weekly.

The predicted waste arisings for the Creche have been outlined in Table 5-7 below.

Table 5-7: Predicted Waste Arisings from the Creche

Unit Type	Capacity of Creche	Volume of waste per person (Litre)	Weekly Total (Litre)
Creche	45	50	2,250

5.2.2 Waste Segregation

According to the EPAs 'Household Waste Statistics for Ireland' (2024) [6]. The typical wastes collected in residential development respective bins during 2022 are as follows:

- Dry Mixed Recycling (22%);
- Mixed Non-Recycling / General Waste (61%); and,
- Organic Material (17%).

In addition to the common waste type outlined above, a residential development generally also generates the following wastes in small quantities:

- Glass;

- Electrical Waste: Electronic Equipment such as televisions, printers, radios, mobile phones and batteries;
- Chemicals: Paints, glues, resins, detergents;
- Textiles; and,
- Furniture.

Utilising the waste generation breakdown provided by the EPA 'Household Waste Statistics for Ireland' (2024) [6] and predicted waste arising from each unit outlined in section 5.2.1, Table 5-8 below presents the predicted volumes of each waste type generated from each unit in the Proposed Development.

Table 5-8: Predicted Typical Weekly Waste Arisings Breakdown for the Proposed Development

Waste Type	Weekly Total per West Block (Litre)	Weekly Total per Middle Block (Litre)	Weekly Total per East Block (Litre)	Weekly Total per Townhouse (Litre)	Weekly Total Creche (Litre)
Dry Mixed Recycling	2,785	3,232	1,938	11	495
Mixed Non-Recycling	7,723	8,961	5,374	30	1,373
Organic Material	2,152	2,497	1,498	8	383

Segregation of waste of domestic waste shall occur at source through the provision of 3 no. bin types to facilitate waste segregation in each accommodation unit. An example is shown below in Figure 5-1.

Residents of the Proposed Development will be required to segregate waste into the following main waste categories:

- Dry Mixed Recyclables;
- Mixed Non-Recyclables / General Waste; and,
- Organic Waste.

Residents will be required to take their segregated waste materials to the designated waste storage area and deposit their segregated waste into the appropriate bins.

Figure 5-1: Example of Bin Segregation

5.2.3 Waste Storage

Each apartment block in the Proposed Development will have its own waste storage area. Waste arisings from the creche will be stored in the middle block. Appendix A shows the ground floor layout of each apartment block and the location of the waste storage areas.

The townhouses have available storage for 2 no. 240L bins, one recycling bin, and one general waste bin. The screened bin stores will be located at the front of the mid-row townhouses, while the end terrace townhouses will have rear garden storage. Appendix B shows the proposed waste storage locations for the townhouses. However, due to new legislation in Ireland as of 1st January 2024 as required by the European Union (Household Food Waste and Bio-waste) (Amendment) Regulations 2023 (S.I. No. 679/2023) [7] "*All households must have access to a brown bin service for the collection of food and garden waste*"; therefore, it is recommended that an organics bin is included for all townhouses.

Table 5-9 below outlines waste storage available as part of the Proposed Development. Waste arising from the creche will be stored in the middle block and, therefore, is included in the waste-arising storage calculations for the middle block.

Table 5-9: Bin Storage Available for each Unit Type.

Unit Type	Bin Availability
West Block	4 x 1100L Bins
Middle Block (including Creche)	4 x 1100L Bins
East Block	3 x 1100L Bins
Townhouses	2 x 240L Bins per townhouse

A breakdown of bins that are proposed to be included in each unit type which utilises storage space provided is outlined in Table 5-10 below, it is also proposed that 1 no. organics bin is provided for each townhouse; consideration should be given to the use of smaller 140L bins to allow for the increased number of bins in the screened storage area.

Table 5-10: Proposed Bin Type in Each Unit Type Waste Storage Area

Unit Type	West Block	Middle Block and Creche	East Block	Townhouses
Dry Mixed Recycling	1 x 1100L	1 x 1100L	1 x 1100L	1 x 240L per townhouse
Mixed Non-Recycling	2 x 1100L	2 x 1100L	1 x 1100L	1 x 240L per townhouse
Organic Material	1 x 1100L	1 x 1100L	1 x 1100L	1 x 240L per townhouse

The weekly storage requirements for each waste type have been calculated considering the BS5906:2005 Waste Management in Buildings—Code of Practice [5]. The required storage for each unit type is outlined in Table 5-11 below.

Table 5-11: Weekly Waste Arising Storage Requirements for the Proposed Development

Waste Type	Number of 1100L bins required per week West Block	Number of 1100L bins required per week Middle Block and Creche	Number of 1100L bins required per week East Block (Litre)	Number of 240L bins required per week per Townhouse
Dry Mixed Recycling	3	3	2	0.05
Mixed Non-Recycling	7	9	5	0.13
Organic Material	2	3	1	0.04

General design considerations should be considered in the provision of waste storage area at the Proposed Development:

- Signage shall be installed to inform residents of their obligations to reduce waste, segregate waste within the home and dispose of waste in the correct bin will be clearly posted within the waste storage area;
- All bulk waste storage bins shall be clearly labelled with exactly what type of waste materials may be deposited within them;
- Sufficient communal storage area to satisfy the three-bin system;
- In larger apartment schemes, consideration should also be given to the provision of separate collection facilities for other recyclables such as glass and plastics;
- Waste storage areas must be adequately ventilated so as to minimise odours and potential nuisance from vermin/flies and taking account the avoidance of nuisance for habitable rooms nearby;
- Provision in the layout for sufficient access for waste collectors, proximity of, or ease of to, waste storage areas from individual apartments, including access by disabled people;
- Waste storage areas should not pose any safety risks to users and should be well-lit and have a non-slip surface;
- Waste storage areas should not be on the public street and should not be visible to or accessible by the general public. Appropriate visual screening should be provided, particularly in the vicinity of apartment buildings;
- The waste storage area shall be fitted with sensor lighting;
- The waste storage area shall be fitted with CCTV cameras;
- The waste storage areas shall include ground drainage to allow for their regular cleaning and disinfection; and,

- A battery box shall also be provided.

An example of a communal waste storage area is shown in Figure 5-2 below.

Figure 5-2: Example of a communal waste storage area.

5.2.4 Waste Collection

In order to fulfil the waste-arising storage requirements for each apartment blocks outlined in Table 5-11 above while considering the available storage presented in Table 5-9 a collection frequency of 5 no. occasions a week would be required to provide suitable waste storage for the Proposed Development, Table 5-12 below outlines the available storage based on 5 no. collections a week.

Table 5-12: Available Waste Arising Storage Based on 5 No. Weekly Bin Collections

Unit Type	West Block	Middle Block and Creche	East Block (Litre)
Dry Mixed Recycling	5	5	5
Mixed Non-Recycling	10	10	5
Organic Material	5	5	5

Considering these calculations assume full occupancy of the Proposed Development, it can be considered the 'worst-case' scenario, and therefore, it is expected that actual waste generation will be lower and proposed collection frequencies may be reduced.

As presented in Table 5-11 The townhouses will be provided with ample waste storage, therefore it is proposed to collect each waste type bi-weekly.

Residents of the Proposed Development will be responsible for taking glass waste to a bottle bank facility.

Numerous private contractors provide waste collection services in the Cork City area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permitted/licensed facilities only.

The nominated waste contractors will collect waste on agreed-upon days and times. The Proposed Developments Management staff will bring all bulk waste bins from the communal bin storage areas to the designated bin collection areas within the development at road level.

Emptied bins shall be returned to the bin storage areas immediately following collection.

5.2.5 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

5.2.5.1 Plastic Bottles

Most drink containers can be recycled via the deposit return scheme, such as bottles, cans and tins made from plastic once they are between 150ml and 3 litres in size and have the Re-turn logo on them. You Containers can be returned at the shops using a Reverse Vending Machine ('RVM'). Locations of RVM machines can be found via the Re-turn website (www.re-turn.ie).

5.2.5.2 Green Waste

Green waste may be generated from external landscaping and internal plants/flowers, which can be placed in organic waste bins. If substantial green waste is generated from external landscaping, this can be removed by a landscape contractor or brought to a civic amenity centre.

5.2.5.3 Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is required to comply with the S.I. No. 283/2014 - European Union (Batteries and Accumulators) Regulations 2014, as amended. Per these regulations, consumers can bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and irrespective of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

5.2.5.4 Waste Electrical and Electronic Equipment ('WEEE')

The WEEE Directive (Directive 2002/96/EC) and associated Waste Management ('WEEE') Regulations have been enacted to ensure a high level of electronic and electrical equipment recycling. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition, consumers can return WEEE within 15 days to retailers when they purchase new equipment on a like-for-like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

5.2.5.5 Printer Cartridge/Toners

Waste printer cartridges/toners generated by residents can usually be returned to the supplier for free or brought to a civic amenity centre.

5.2.5.6 Chemicals

Chemicals (such as solvents, paints, adhesives, resins, detergents, etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery/recycling/disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

5.2.5.7 Light Bulbs

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery/disposal.

5.2.5.8 Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Residents will be responsible for disposing of waste textiles appropriately.

5.2.5.9 Waste Cooking Oil

If the residents generate waste cooking oil, this can be brought to a civic amenity centre or placed in the organic bin.

5.2.5.10 Furniture & Other Bulky Waste Items

Furniture and other bulky waste items (such as carpet, etc.) may occasionally be generated by the residents. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

5.2.6 Training

Copies of the C&OWMP will be made available to all relevant personnel on-site and included in the site induction information. All site personnel and sub-contractors will be instructed about the objectives of the C&OWMP and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation and material reuse techniques apply, each member of staff will be given instructions on how to comply with the project C&OWMP.

5.2.7 Assignment of Responsibilities

The Proposed Developments management company shall be responsible for the implementation of all aspects of the C&OWMP. The management company shall employ an appropriately qualified and experienced staff member responsible for all waste management aspects at the Proposed Development. All accommodation units shall be provided with a waste management information document, which shall clearly state the methods of source waste segregation, storage, and recycling initiatives that shall apply to the management of the development.

The Proposed Developments management company shall be responsible for managing all domestic waste generated by apartment residents and ensuring correct storage before collection by an appropriately waste-permitted waste collection company.

A daily inspection of the waste storage areas shall be carried out and shall sign a daily checklist which shall be displayed within the area.

The Proposed Developments management company shall maintain and clean all waste storage areas to prevent odours and the attraction of vermin.

6 MONITORING AND IMPLEMENTATION OF THE C&OWMP

6.1 Complaints, Comments and Enquiries

Any complaint related to the Site will be dealt with by the Site Manager. The source of the complaint will be investigated immediately. If possible, the source of the complaint will be stopped, moved or modified immediately. All complaints must be recorded including details of the complaint and any required corrective actions.

6.2 Site Visits and Evaluation of Compliance

An Environmental clerk of works ('ECoW') will undertake periodic site inspections as required during the works. The aim of these visits will be to ensure compliance with procedures and mitigation measures set out in the C&OWMP.

This will be done by means of a Site inspection and the auditing of different aspects of the works including documentation. Checklists for compliance will be drawn up; corrective actions will be required for any non-compliances identified and follow-up surveys will be scheduled to ensure compliance.

All monitoring results and reports detailing the compliance or otherwise, of the works will be maintained at the Site office. In the event of an incident, an incident report will be completed and that will document both the cause of the incident and the corrective action taken to address the incident. These incident forms will be available for inspection at the Site office.

6.3 Control of Records

Environmental records, including waste management records, will be maintained in accordance with the respective company procedure and legal requirements. The records are to be maintained, in either hard copy or electronic format as required by the individual procedure that the records relate to, in such a way that they are readily identifiable, retrievable and protected against damage, deterioration or loss. The procedure that the records relate to also specifies the retention time for the records and who has the authority to dispose of them.

7 IMPLEMENTATION, REVIEW AND TRAINING

The Appointed Construction Project Manager and Operational Facility Manager will develop an updated site-specific C&OWMP(s) prior to the commencement of Site works and ensure compliance with it. Each subcontractor will appoint a point of contact for matters related to environmental protection.

Copies of the C&OWMP(s) will be available to all on-site personnel. All Site personnel and sub-contractors will be instructed about the objectives of the C&OWMP and informed of the responsibilities which fall upon them as a consequence of its provisions.

All staff will receive environmental awareness training as part of their Site induction to ensure they know their responsibilities under the C&OWMP. This will include:

- Site induction, including relevant environmental issues;
- Method statement and risk assessment briefings;
- Toolbox talks, including instruction on incident response procedures; and,
- Key task-specific environmental issue briefings.

The C&OWMP(s) will be reviewed as needed if the scope of works changes significantly or if the need is identified following a site audit.

7.1 Training Awareness and Competence

Site personnel shall be trained appropriately to ensure they are competent to perform tasks that have the potential to cause a significant environmental impact as part of the Proposed Development. Competence is defined in terms of appropriate education, training and experience.

All managers and supervisors will be briefed on the C&OWMP.

Method Statements will be prepared for specific activities prior to the works commencing and will include environmental management / best practice measures and emergency preparedness appropriate to the activity. The Site Manager or nominated deputy will review key Method Statements prior to their issue.

Method Statement briefings will be given before personnel carry out key activities for the first time.

8 CONCLUSIONS

This C&OWMP document outlines the management procedures to enable the Appointed Site Manager to respond to potential environmental risks from construction and operational activities on-site.

The appointed Contractors and Management Companies will be required to develop an updated C&OWMP prior to the commencement of each phase, which will, if necessary, be submitted to the Planning Authority for approval.

The implementation of all of the management measures outlined in this C&OWMP will ensure that the construction programme will be completed without significant adverse effects on the surrounding environment and minimise waste disposal in so far as is possible.

REFERENCES

[1] SWR, “Southern Region Waste Managemnt Plan 2015 - 2021,” Southern Waste Region, 2017.

[2] Government of Ireland, “Waste Action Plan for a Circular Economy,” Government of Ireland, 2020.

[3] EPA, “Best Practice Guidelines on the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects,” EPA, 2021.

[4] European Union, “Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives,” EU, 2008.

[5] British Standards Institution, “Waste management in buildings — Code of practice,” BSI, London, 2005.

[6] Environmental protection Agency, “Household Waste Statistics for Ireland,” EPA, Wexford, 2024.

[7] European Union, “S.I. No. 679/2023 - European Union (Household Food Waste and Bio - Waste) (Amendment) Regulations 2023,” European Union, Brussels, 2023.

APPENDICES

APPENDIX A

WILTON SHOPPING CENTRE
CAR PARK

WILTON SHOPPING CENTRE
OVERFLOW CAR PARK

FOR BOUNDARY TREATMENT DETAILS,
SEE LANDSCAPE ARCHITECTS' DRAWING NO.
7848-PHL-00-ZZ-DR-L-1001

EAST BLOCK
ESB SUBSTATION &
OFFLOAD ROOM

GATED SECONDARY
ENTRANCE FROM
STREET TO EAST BLOCK

SITE NOTICE
LOCATION

FOR BOUNDARY TREATMENT DETAILS,
SEE LANDSCAPE ARCHITECTS' DRAWING NO.
7848-PHL-00-ZZ-DR-L-1001

SITE NOTICE
LOCATION
CARDINAL COURT

SITE NOTICE
LOCATION

FOR DETAILS ON PROPOSED JUNCTION,
SEE CIVIL ENGINEER'S DRAWING NO.
23215-BMD-ZZ-XX-DR-C-11100

FOR BOUNDARY TREATMENT DETAILS,
SEE LANDSCAPE ARCHITECTS' DRAWING NO.
7848-PHL-00-ZZ-DR-L-1001

TOWNHOUSE BLOCK A

TOWNHOUSE BLOCK B

WEST BLOCK
FFL +14.000

MIDDLE BLOCK
FFL +13.500

EAST BLOCK
FFL +14.900

CRECHE
FFL +13.275

FORMAL SQUARE

BIKE SHELTER 60 SPACES

BIKE SHELTER 60 SPACES

BIKE SHELTER 60 SPACES

GENERATOR COMPOUND

COVERED BIN STORE

ESB SUB

OFFLOAD ROOM

RETAINING WALL

WAREHOUSE

WAREHOUSE

ESB COMPOUND

ESB NETWORKS
BUILDING

CARDINAL COURT

SARSFIELD ROAD

Cork
Corcaigh

ORIGINAL SHEET SIZE = A1

B	05.12.2024	AK	LAYOUT & SITE BOUNDARY REVISED
A	14.11.2024	AK	ISSUED FOR COMMENT
REV	DATE	DRN	NOTES

NOTES

LEGEND

- SITE BOUNDARY
- EXISTING TREES
- PROPOSED TREES
- ROOT PROTECTION AREA
- RETAINING WALL
- APARTMENT BLOCK ENTRANCE

SITE METRICS

SITE AREA:	2.61HA
PUBLIC OPEN SPACE:	3545m^2
PODIUM DECKS:	1487m^2
DENSITY:	133 DWELLINGS/HA

SEE LANDSCAPE ARCHITECTS' DRAWINGS FOR DETAILS ON PLANTING AND SURFACE TREATMENTS

PARKING

148 PARKING SPACES
90 UNDER-PODIUM
58 IN LANDSCAPE

0.43 PARKING RATIO

503 BICYCLE PARKING SPACES

NORTH

JOB
LDA WILTON, SARSFIELD ROAD
LRD

CLIENT
LAND DEVELOPMENT AGENCY

PLANNING PERMISSION

DRAWING
PROPOSED SITE LAYOUT - GROUND LEVEL

DATE NOVEMBER 2024 | SCALE 1:500@A1
DRN AK | REVISION A
CHECKED PM

DWG NUMBER
WLT-06 SW-ZZ- DR-RAU-A 1003

reddy architecture+urbanism
Reddy Architecture + Urbanism
Cork Office,
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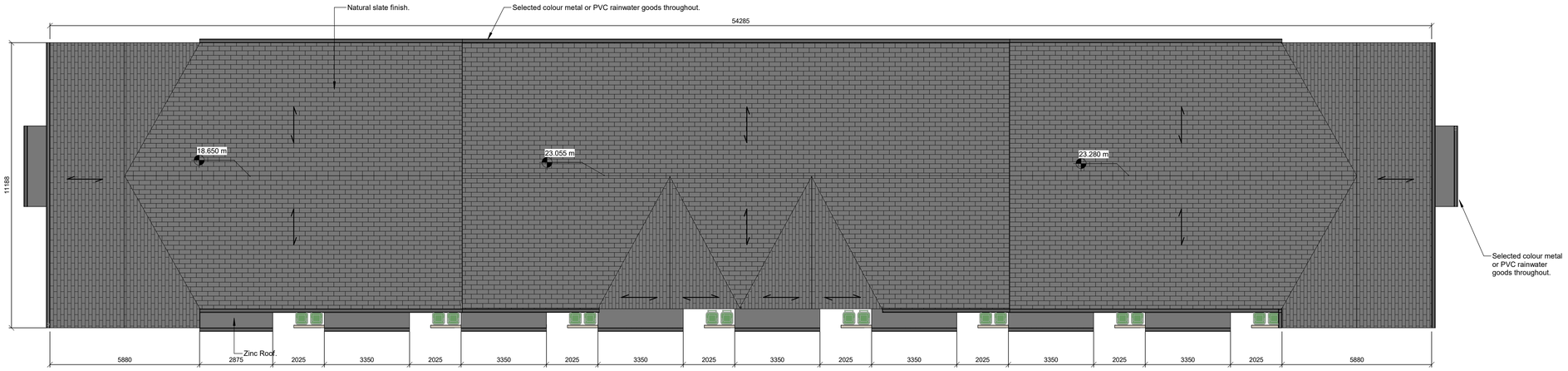
APPENDIX B



RF - Roof Plan
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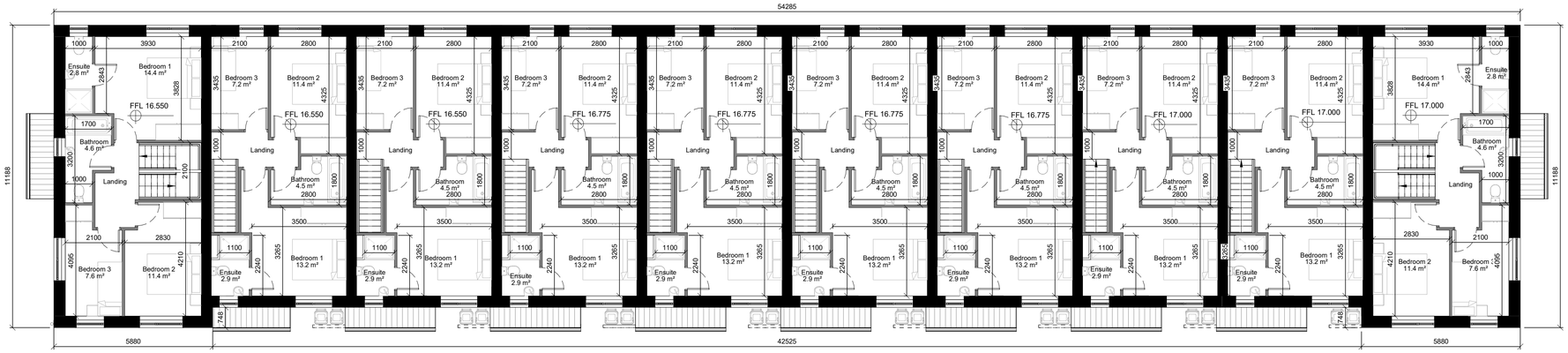

L01 - First Floor
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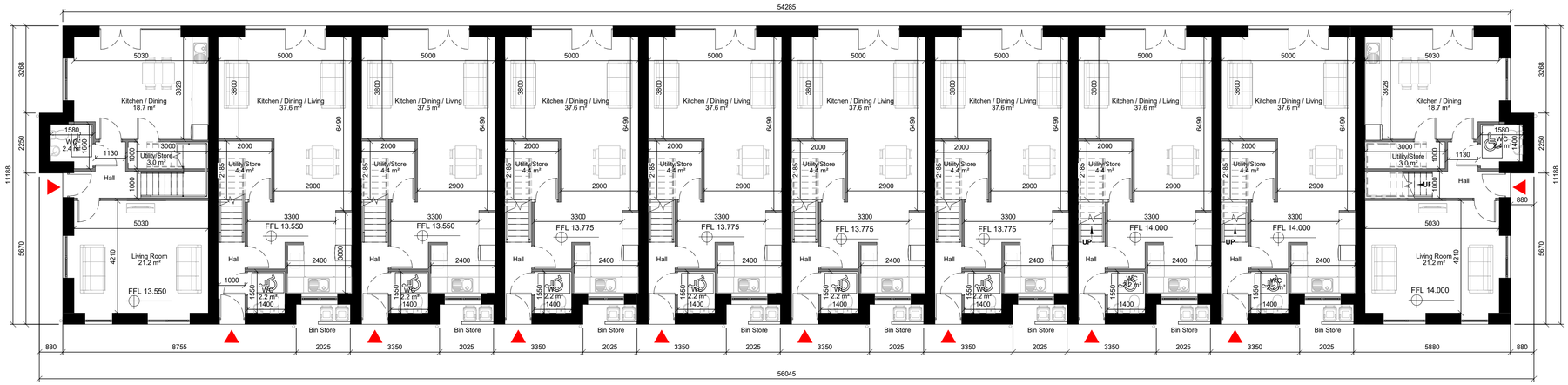

L00 - Ground Floor
1 : 100

Notes:

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Drawing Notes:

LEGEND

ENTRANCE

NORTH

Issues & Revisions

Rev.	Date	Drwn	Details of Issue / Revision

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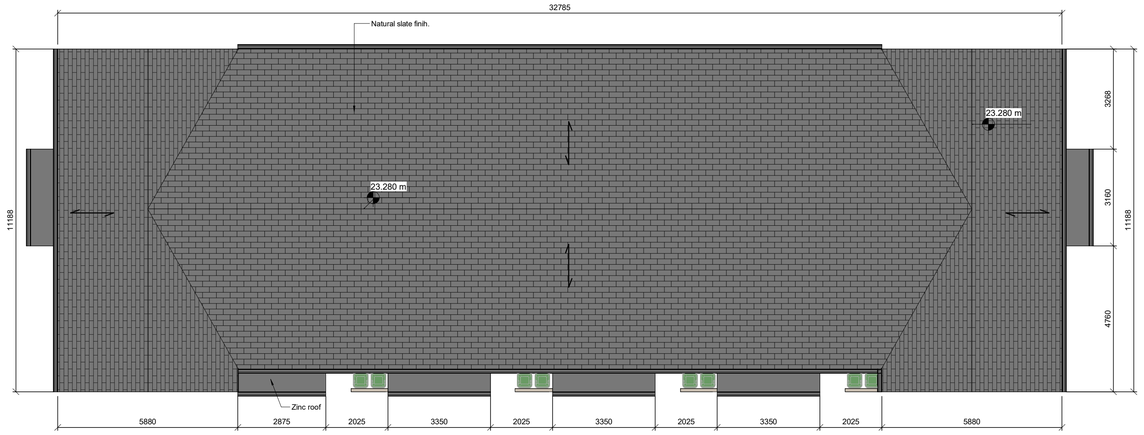
Client Details:
LDA

Project Details:
LDA Wilton Sarsfield Road LRD

Drawing Title:
Townhouse Block A Floor Plans

Job No.	Sheet Size:	Scale @A1:	Status	Purpose of Issue
P23-081C	A1_L	1 : 100	**P02**	**S32B SUBMISSION**

Issue Date:	Drawn By:	Reviewed By:	Project - System - Spatial Zone - Level - Type - Originator - Role - Number	Revision
AUGUST 2024	AK	PM	**WLT-02-TH2-L00-DR-RAU-AR-1102**	



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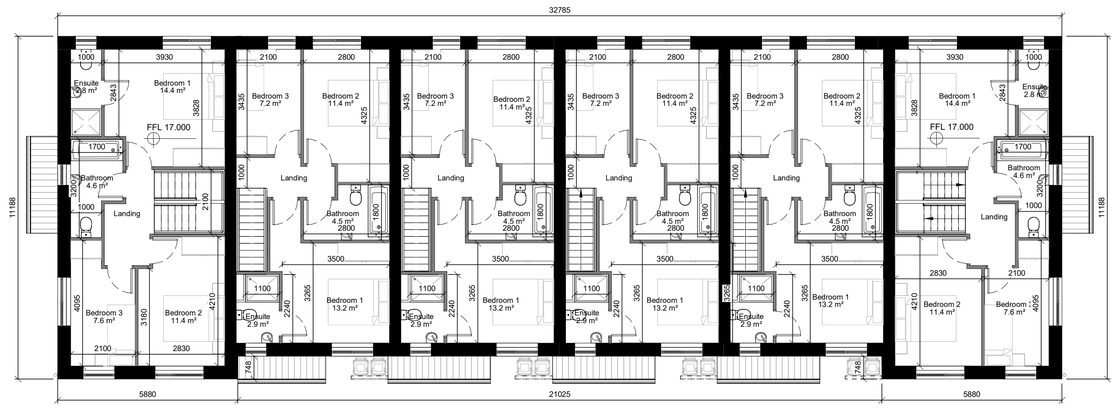
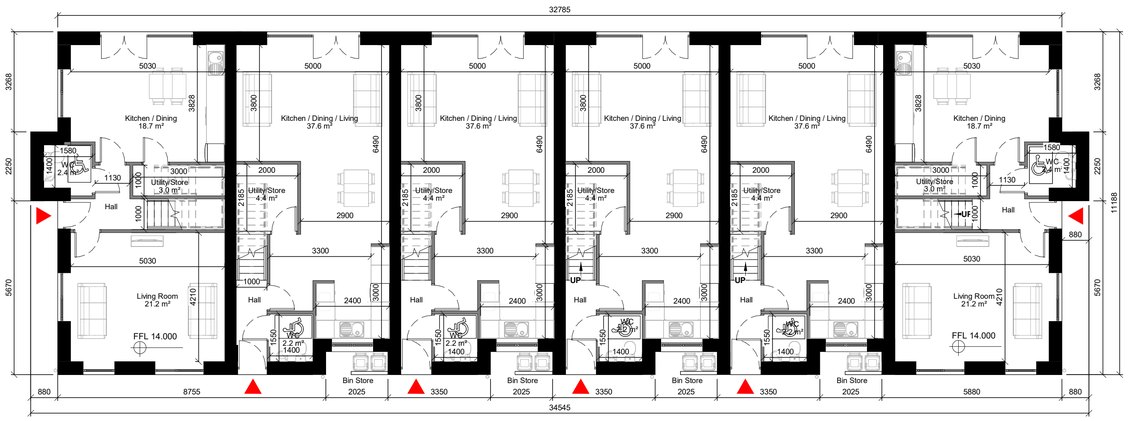


L01 - First Floor
1 : 100



L00 - Ground Floor
1 : 100

Notes:

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Drawing Notes:

LEGEND

ENTRANCE

NORTH

Issues & Revisions

Rev.	Date	Drwn	Details of Issue / Revision

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Client Details:
LDA

Project Details:
LDA Wilton Sarsfield Road LRD

Drawing Title:
Townhouse Block B Floor Plans

Job No.	Sheet Size:	Scale @A1:	Status	Purpose of Issue
P23-081C	A1_L	1 : 100	P02	S32B SUBMISSION

Issue Date:	Drawn By:	Reviewed By:	Project - System - Spatial Zone - Level - Type - Originator - Role - Number	Revision
AUGUST 2024	AK	PM	WLT-02-TH1-L00-DR-RAU-AR-1101	

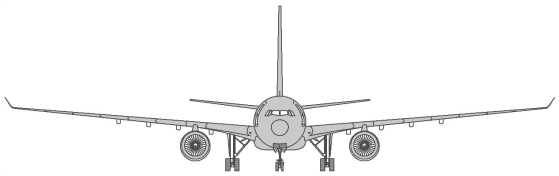
Appendix H – Aeronautical assessment report (December 2024)

Aeronautical Assessment Report
re
a proposed
Large-scale Residential Development
at
Farrandahadore More,
Sarsfield Road, Wilton,
Cork City

for

The Land Development Agency

December 2024



O'DWYER & JONES DESIGN PARTNERSHIP

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INDEX *page*

[Note: In all maps /diagrams /aerial photos in this report which do not contain a North Point, north lies to the top]

1. EXECUTIVE SUMMARY

1.1 Purpose of this Report

This Report addresses the aviation impact of a proposed Large-scale Residential Development of 348 residential units (and a childcare facility) in three apartment blocks of 5 & 6 storeys, plus two rows of 2-storey townhouses, off Sarsfield Road in the Wilton area of Cork City.

1.2 Executive Summary

This Aeronautical Assessment confirms that the proposed residential development will comply with all aviation and aeronautical requirements affecting the site.

1.3 This Report includes —

(a) an assessment of the various "Obstacle Limitation Surfaces" of the European Union Aviation Safety Agency [EASA] which affect the site, with calculations as to how the proposed LRD will lie in relation to these Surfaces;

(b) an assessment of the development in relation to the new helipad at Cork University Hospital, and its helicopter approach and departure routes;

(c) assessments of the site in relation to other aviation aspects, including —
Cork Airport's Public Safety Zones, Noise Contours, and Building Restricted Areas (relating to its navigational equipment);
Flight Paths in the vicinity of the site, and possible requirements in relation to external lighting and to cranes during construction, etc.

1.4 A 3-D view of the proposed development (looking north-north-west) is shown below:

2. Description and Zoning of the Site

2.1 Site Description:

The site (of area 2.61 ha. approx. – *outlined in red on the aerial photo below*) is located off Sarsfield Road in Wilton, at around 200m north of the N40 roadway.

2.2 Zoning:

In Map 8 ["South-western Suburbs"] of the adopted Cork City Development Plan 2022-2028, the site is zoned "ZO-01: Sustainable Residential Neighbourhoods" *(coloured pale yellow)*. Adjoining areas include a "Public Open Space" *(in green)*, the Wilton "District Centre" *(in purple)* to the north, and the ESB "Public Infrastructure & Utilities" *(in brown)* to the south. Cork University Hospital is ~500m to north *(in grey)*.

3. Relevant Cork City Development Plan Paragraphs

3.1 Cork Airport

Cork Airport features in particular on pages 384 to 390 of the Cork City CDP 2022-2028, with Objectives 10.50 to 10.55 relating to the airport and to aviation in general. Of these, Objective 10.55 *(shown opposite >)* refers to the airport's "Obstacle Limitation Surfaces" and "Public Safety Zones" which are of relevance to this LRD proposal at Wilton.

A diagram of these airport-related Surfaces and Zones appears on page 388 of the Cork City Development Plan, and this CDP diagram is reproduced overleaf on the following page of this report.

Strategic Consolidation and Regeneration Areas Objectives

4. Cork Airport

Objective 10.55

Airport Safety Zones

Implement the policies to be determined by Government in relation to Public Safety Zones for Cork Airport. Additionally, the Obstacle Limitation Surfaces will be safeguarded. Planning applications in the vicinity of these zones will be referred to the Irish Aviation Authority for observations as part of the statutory planning process. Issues such a proposed development's height and proximity to these zones will form part of considerations.

3.2 Also relevant to this development at Wilton are —

Paragraph 10.194 on page 387 of the Cork City CDP *(see below)*, concerning the Airport's Noise Zones; and
paragraphs 11.252-11-253 on page 529 of the CDP *(see opposite >)* concerning Solar Energy and the need for Glint & Glare analysis in relation to aviation, etc.

Noise

10.194
Cork Airport has at present three noise contours associated with aircraft operations, namely 57db (outer zone) 66dB (inner zone) and 72dB (inner, inner zone) These existing noise contours for the airport are indicated on the following map. The noise environment and contours around the airport are likely to change because of future growth and development. Increased operations, changes in aircraft type and mix, changes in the associated operations such as maintenance and construction activity during implementation of developments will all contribute to increased noise.

Solar Energy

11.252
Solar energy has the potential as a clean source of energy to reduce dependence on fossil fuels and help achieve climate change targets on greenhouse gas emissions. The retrofitting of existing buildings and the integration of solar infrastructure into the design of new buildings will generally be encouraged.

11.253
In the assessment of any planning applications for solar farms, Cork City Council will consider these renewable energy developments having regard to:

1. Any future national guidance to be published on Solar Farms
2. The landscape character of the area in which the site is located
3. Visual impact
4. Glint and Glare
5. Ecology
6. Heritage and Archaeology
7. Security requirements such as CCTV, security lights, fencing
8. Construction impacts and impact on drainage patterns and water tables
9. Suitability of and access to the electricity grid
10. Decommissioning

3.3 Extended Cork City Area and Cork City Development Plan 2022-2028:

Under the Local Government Act 2019, the administrative area of Cork City was greatly extended, so that it now includes Cork Airport.

Map 10.32 on p.388 of the Cork City CDP shows "Obstacle Limitation Surfaces", "Public Safety Zones", and Noise Contours for Cork Airport, superimposed onto a map of the enlarged Cork City area. *[See below, with added notes in red and location of the LRD site at Wilton indicated by an arrow & red dot].* It can be seen that the Wilton site lies (i) under Cork Airport's "Inner Horizontal Surface", (ii) under the Approach to Runway 16, (iii) partly within an Outer Public Safety Zone, and (iv) touches Airport Noise Zone 'C'. *[These aviation features are assessed in Section 6 following >>]*

Public Safety Zones

10.197
Cork Airport has two Public Safety Zones (inner and outer) which are recognised in this plan and are identified on the following map.

10.198
Planning applications in the vicinity of these zones will be referred to the Irish Aviation Authority (IAA) by Cork City Council's Development Management Section to seek their observations as part of the statutory planning process under Section 28 of the Planning and Development Regulations, 2001. Cork City Council will adhere to the advice of the Irish Aviation Authority regarding the effects of proposed development on the safety of aircraft and the safe and efficient navigation thereof.

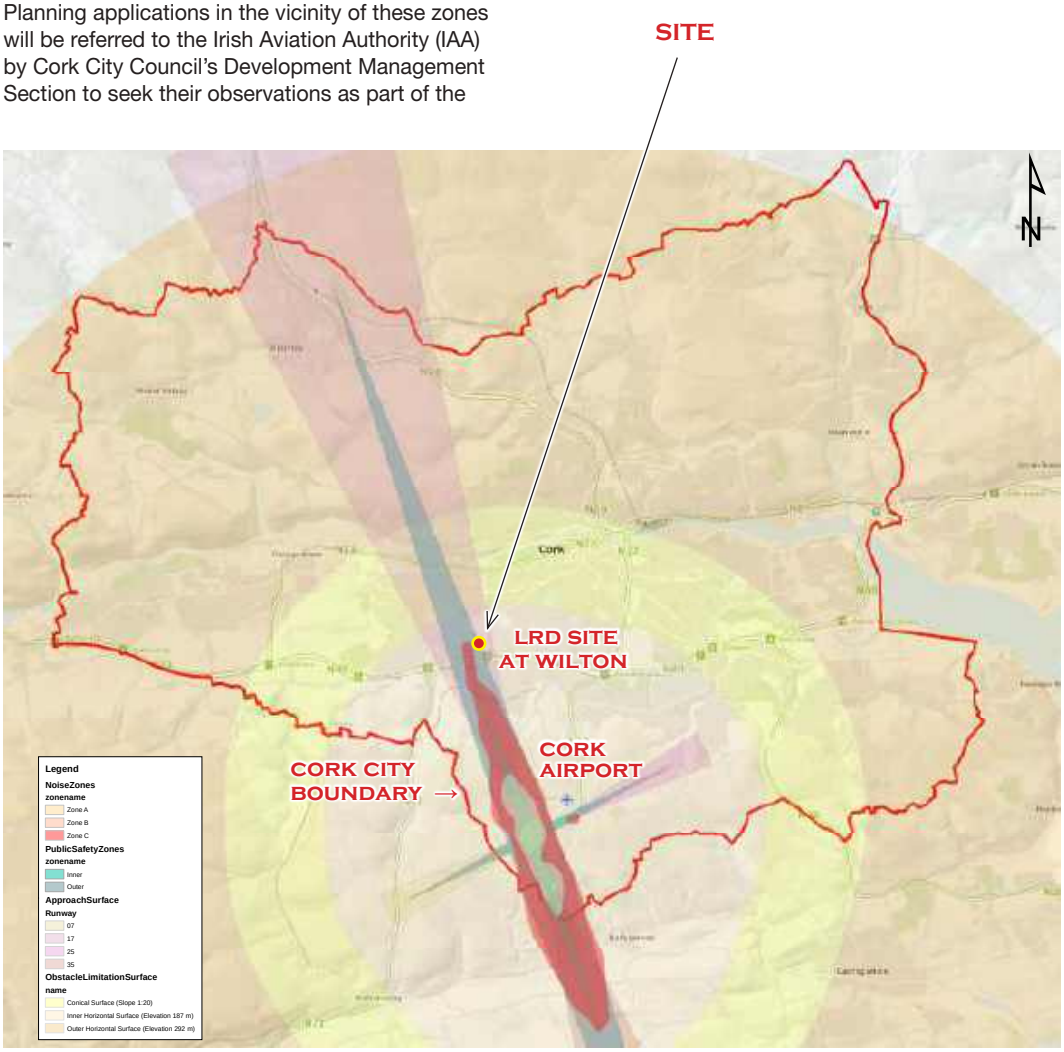


Figure 10.32: Cork International Airport Safety Zones.

4. Layout and Elevations-OD of the Proposed Development

4.1 Below to approximate scale 1:1,750 is a Site & Roof Plan of the proposed development at Wilton in Cork City, which comprises 348 residential units in all, of which 332 of the units are in three apartment blocks (two of which are U-shaped blocks in the centre of the site of 5 & 6 storeys each, with one 6-storey apartment block to the east of the site), with 16 of the residential units in two blocks of 2-storey townhouses at the west side of the site. Elevations OD of the highest elements of each block are indicated on this diagram.

The western two-thirds of the site (approximately) lies under one of Cork Airport's Outer Public Safety Zone. This area includes the two blocks of townhouses, the western apartment block and around half of the middle apartment block.

In this diagram, darker blue shading indicates higher roof elements.

SITE & ROOF PLAN OF PROPOSED DEVELOPMENT
SCALE 1:1,750 APPROX.

O'DWYER & JONES DESIGN PARTNERSHIP
AVIATION PLANNING CONSULTANTS © 12-2024

5. Aeronautical Considerations in Relation to the Site

5.1 There have been some significant developments affecting aviation at Cork —

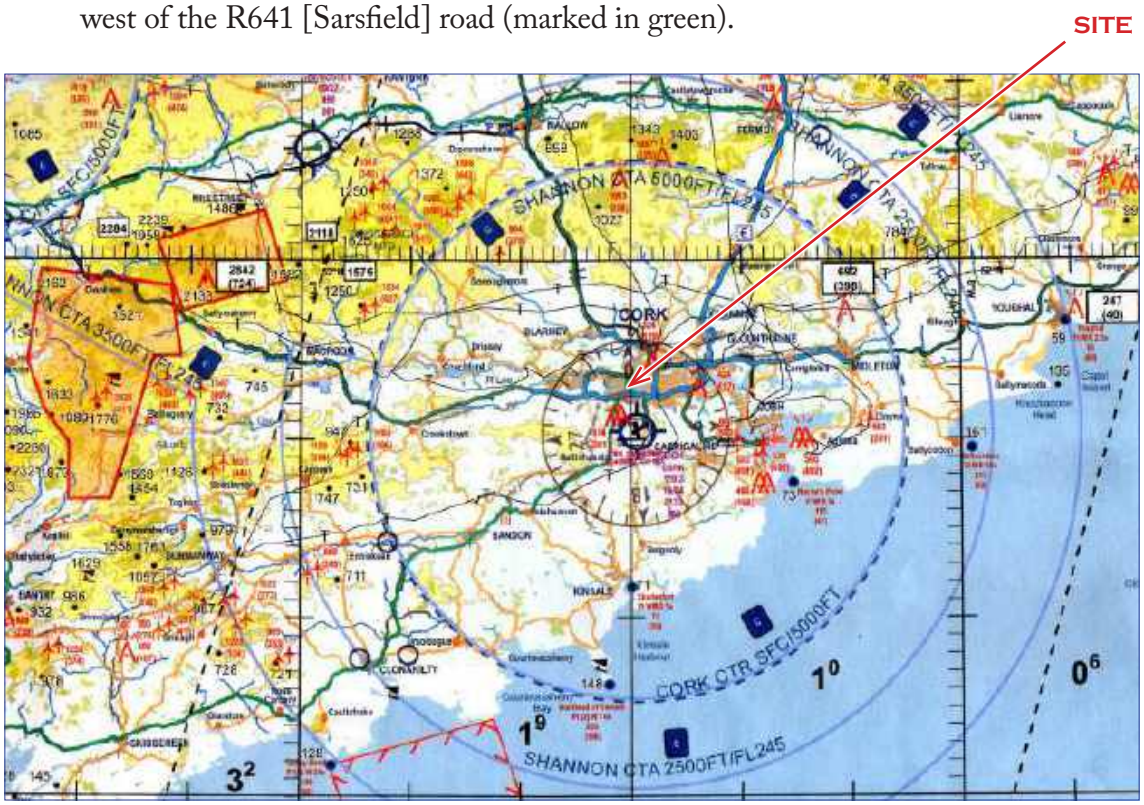
(i) In **April 2016**, the designations of Cork Airport's main runway **changed from 17/35 to 16/34**, due to a magnetic shift affecting compass bearings. *[It is noted that the legend of Cork Airport map on p.388 of the 2022-28 Cork City Development Plan (shown on p.5 of this report) refers to the older rwy designations, although other references to Cork's runways in the Plan's text have been updated].*

(ii) In **December 2017**, the Standards relating to eight international and regional airports in Ireland (including **Cork Airport**) came **under E.A.S.A. control** [European Union Aviation Safety Agency], rather than I.C.A.O. control [International Civil Aviation Organization] as previously applied, with several changes to airport design specifications (including narrower Approach Surfaces and Runway Strips).

(iii) In **November 2018, I.C.A.O. issued revised 'Annex 14' Standards** bringing these in line with the new E.A.S.A. Aerodrome Specifications.

(iv) In **September 2024**, the **new Aero-medical Helipad at Cork University Hospital**, was opened, with Approach & Departure Surfaces oriented east-west.

5.2 Below is an extract from the IAA's Aeronautical Chart of Ireland, showing (in the inner blue circle) the Cork Airport Air Traffic Control area, which extends from ground level ['SFC'] to 5,000ft amsl. The location of the Wilton site is indicated by an arrow, north of the N40 dual carriageway (marked in blue on the chart) and west of the R641 [Sarsfield] road (marked in green).



6. The Development in Relation to Cork Airport

6.1 The Site in Relation to Cork Airport's "Obstacle Limitation Surfaces":

Below, superimposed on an aerial photograph, is a diagram of Cork Airport's "Obstacle Limitation Surfaces" per EASA [European Union Aviation Safety Agency] 'Specifications', which now apply at Cork Airport. *[The Wilton LRD site is shown outlined in red, and Cork's Conical Surface is shaded in blue.]*

On this map it can be seen that the Wilton LRD site lies simultaneously under three of Cork Airport's "Obstacle Limitation Surfaces":

(i) It lies **under the "Approach Surface"** (outlined in yellow) to Cork Airport's Runway 16 (at 3.2 km from Threshold 16); and

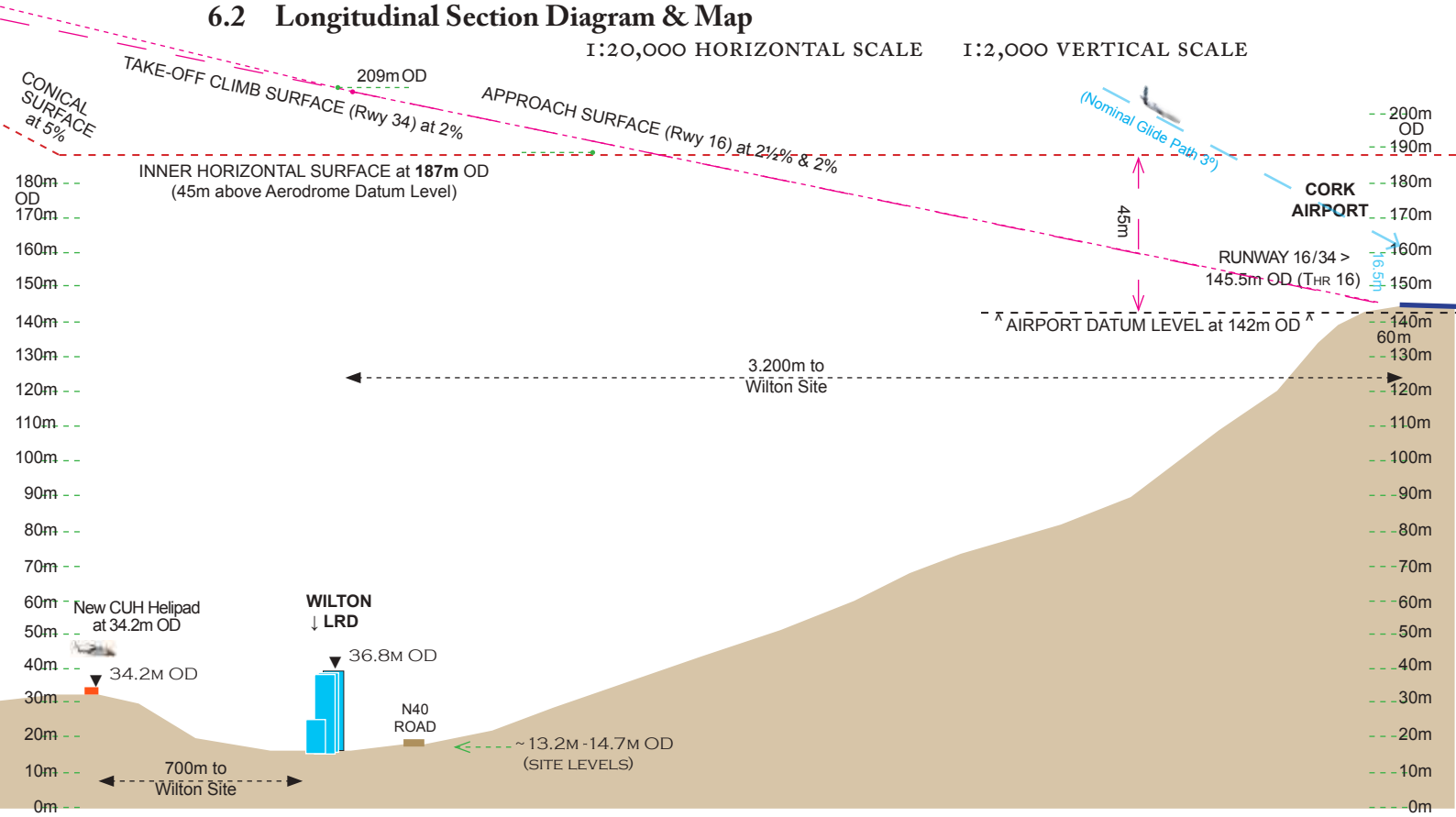
(ii) it lies **under the "Take-off Climb Surface"** (outlined in white) from Cork Airport's Runway 34; and

(ii) it lies **under Cork Airport's "Inner Horizontal Surface"**.

A Longitudinal Section taken between the Wilton site and Cork Airport (along the centreline of the Approach Surface to Runway 16) is shown on the following page 9, and calculations in relation to the three "Surfaces" under which the site lies are given on page 10 >>.

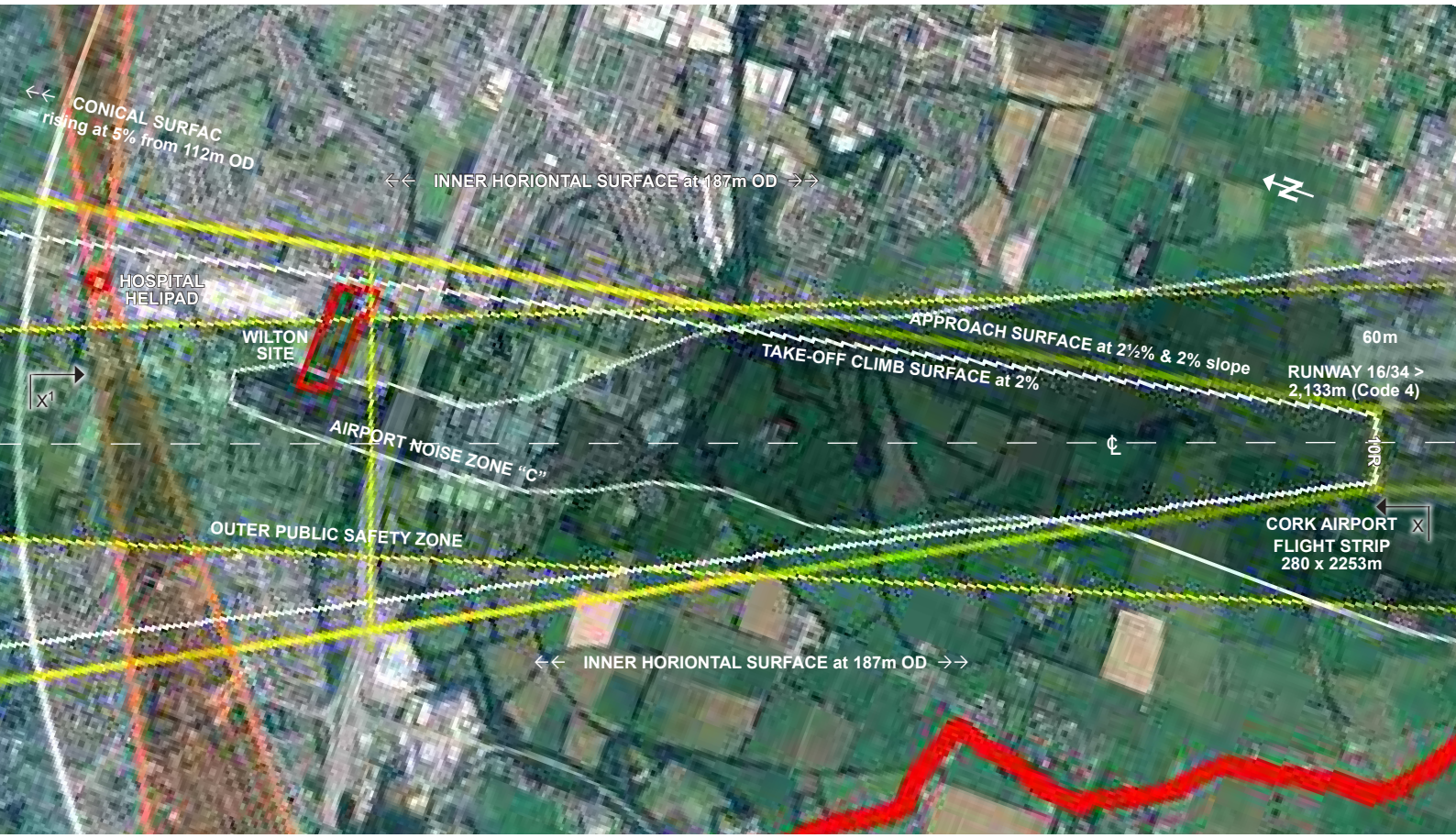
6.2 Longitudinal Section Diagram & Map

1:20,000 HORIZONTAL SCALE 1:2,000 VERTICAL SCALE



LONGITUDINAL SECTION X¹-X ALONG APPROACH TO RUNWAY 16

A4-SIZE: TO HORIZONTAL SCALE 1:20,000 APPROX. WITH VERTICAL SCALE 1:2,000 APPROX.
(NOTE AERONAUTICAL SECTION: VERTICAL SCALE =10X HORIZONTAL SCALE)



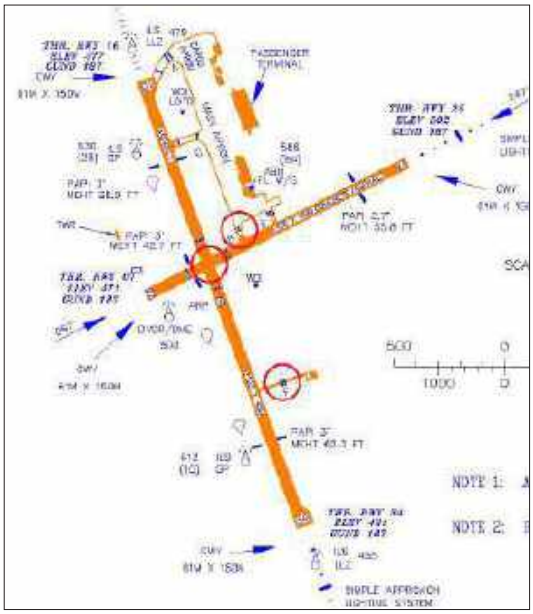
AERIAL PHOTO MAP
SITE OUTLINE: —

PLAN SCALE [A4] 1:20,000 APPROX.

6.3 **Calculations in relation to Cork Airport's Obstacle Limitation Surfaces:**
[These "Surfaces" are illustrated in plan and section on the preceding page]

(i) **Cork Airport's Inner Horizontal Surface:**

The **Inner Horizontal Surface** extends for 4km from runway centrelines and lies horizontally at 45m above the airport's datum level (which is at 142m OD). Therefore Cork Airport's Inner Horizontal Surface lies above the site at **187m OD**, which is **150.2 metres** above the highest point of the proposed development (at 36.8m OD).



(ii) **Take-off Climb Surface from Runway 34:**

The **Take-off Climb Surface from Runway 34** lies above all of the development site, and the slope of this Take-off Climb Surface is 2% (as defined by EASA for Code 4 runways in its *Certification Specifications* for Aerodromes). This Surface commences at 60m from the end of runway 16/34, i.e. at 3140m from the site, and at an elevation of 477ft amsl (i.e. 145.5m OD). Thus, at its lowest above the site (at 3140m from the Flight Strip of Runway 16/34), the Take-off Climb Surface from Runway 34 lies at **208.3m OD***, and therefore at **171.5 metres** above the highest point of the proposed development.

* *calculated as follows —*
3140 × 2% +145.5m OD = 62.8 + 145.5m = 208.3m OD

(iii) **Approach Surface to Runway 16:**

The slopes of the **Approach Surface to Rwy 16** are at 2% in its 'first section' of 3,000m length, and at 2.5% in its 'second section' of 3,600m length (per EASA specifications for a Code 4 instrument runway).
Thus, *at its lowest, above the site* (at 3.140m from the Flight Strip of Runway 16/34), the Approach Surface to Runway 16 lies at **209m OD****, and therefore at **172.2 metres** above the highest point of the proposed development.

** *calculated as follows —*
(3000 × 2%) + (140 × 2.5%) +145.5 m OD = 60 + 3.5 + 145.5 m = 209m OD

(iv) **Overall:**

The proposed development (with its highest element at 36.8m OD) is well clear of all three of Cork Airport's "Obstacle Limitation Surfaces" which lie above the site, the lowest of which (the airport's "Inner Horizontal Surface") is at more than 150m above the highest point of the proposed development at Wilton.

6.4 Cork Airport's Navaids, Noise Contours, &"Public Safety Zones" :

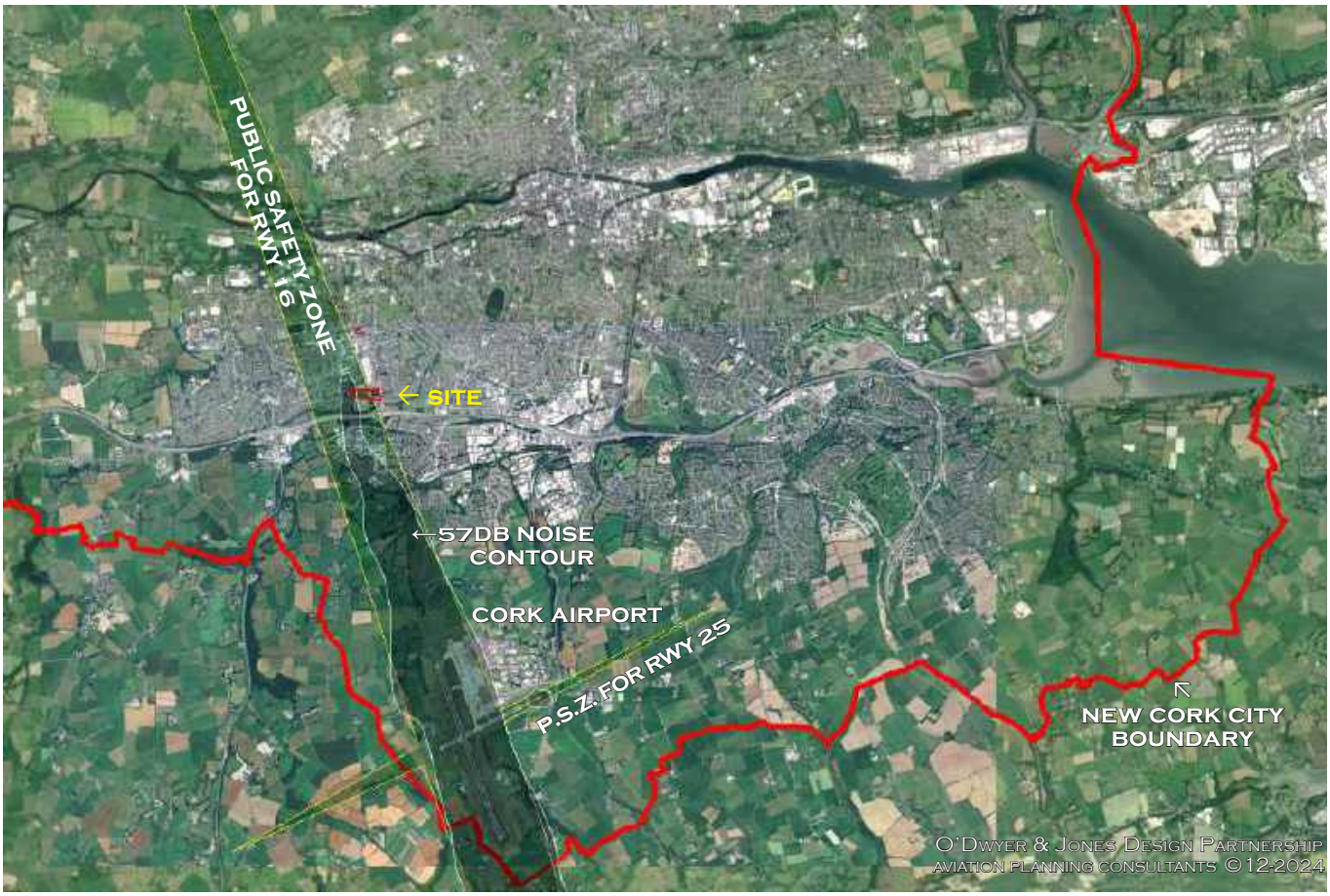
Below, superimposed on an aerial photograph of Cork City, are the outlines –
(a) of the outer limit of Cork Airport's current **Public Safety Zones**, and
(b) of the outer limit of Cork Airport's current **Noise Contours**.

It can be seen that the Wilton site (outlined in red) lies partly within one of Cork Airport's current Outer Public Safety Zones (*shaded pale grey*); and that a smaller portion of the site (to its west side, *shaded darker grey*) lies within Cork Airport's outer Noise Contour "C". This contour "C" delineates the area where airport noise in excess of 57dB Laeq may occur.

No part of the site lies within an Inner Public Safety Zone, or within any of the higher Airport Noise Contours "A" or "B".

(i) Airport Navigational Equipment –

Being at more than 100m below the elevation of Cork Airport, the site is well outside all ICAO 'Building Restricted Areas' relating to the airport's **Navigational, Communications, and Security equipment** and cannot adversely affect this equipment.



6.4 (ii) **Airport Noise Contours –**

Airport Noise Contour "C" lies above one row of proposed townhouses to the west side of the site, and these townhouses will be provided with noise insulation suitable for locations in which noise levels of 57dB Laeq to 60dB Laeq might occur.

(iii) **Outer Public Safety Zone –**

Approximately two-thirds of the site lies with an Outer Public Safety Zone, as originally proposed in the ERM Public Safety Zones study of 2005 and as marked *(in pale grey with a yellow outline)* in the diagram opposite >.

It is important to note that these proposed Public Safety Zones for the three State airports, dating from a study done in 2000-2005, have now become very much out of step with Public Safety Zones at all other airports worldwide. The UK criteria used by ERM in 2000-2005 have now been abandoned as out of date in the UK, where currently (as of October 2021) very much smaller standardized Zones – of no more than 1.5km maximum length – now apply at all UK airports which have more than 45,000 annual traffic movements. The Public Safety Zones at Cork are now larger than those applying at much busier UK airports (such as at Heathrow and Gatwick). It is likely that a review of the Zones at Cork, Shannon & Dublin would give rise to a significant reduction in their size, with no PSZ reaching as far as the Wilton site.
It is also worth noting that the original ERM study did not take into account the unique topography of Cork Airport, which should have resulted in much shorter Public Safety Zones in locations where ground levels fall away from the airport by substantial amounts (i.e. by more than 100m height at the Wilton site).

In any event, a calculation based on the ERM criteria indicates that the proposed development is in compliance with that study's recommendations (and it is noted that the proposed 138m^2 childcare facility lies *outside* the Public Safety Zone area). —

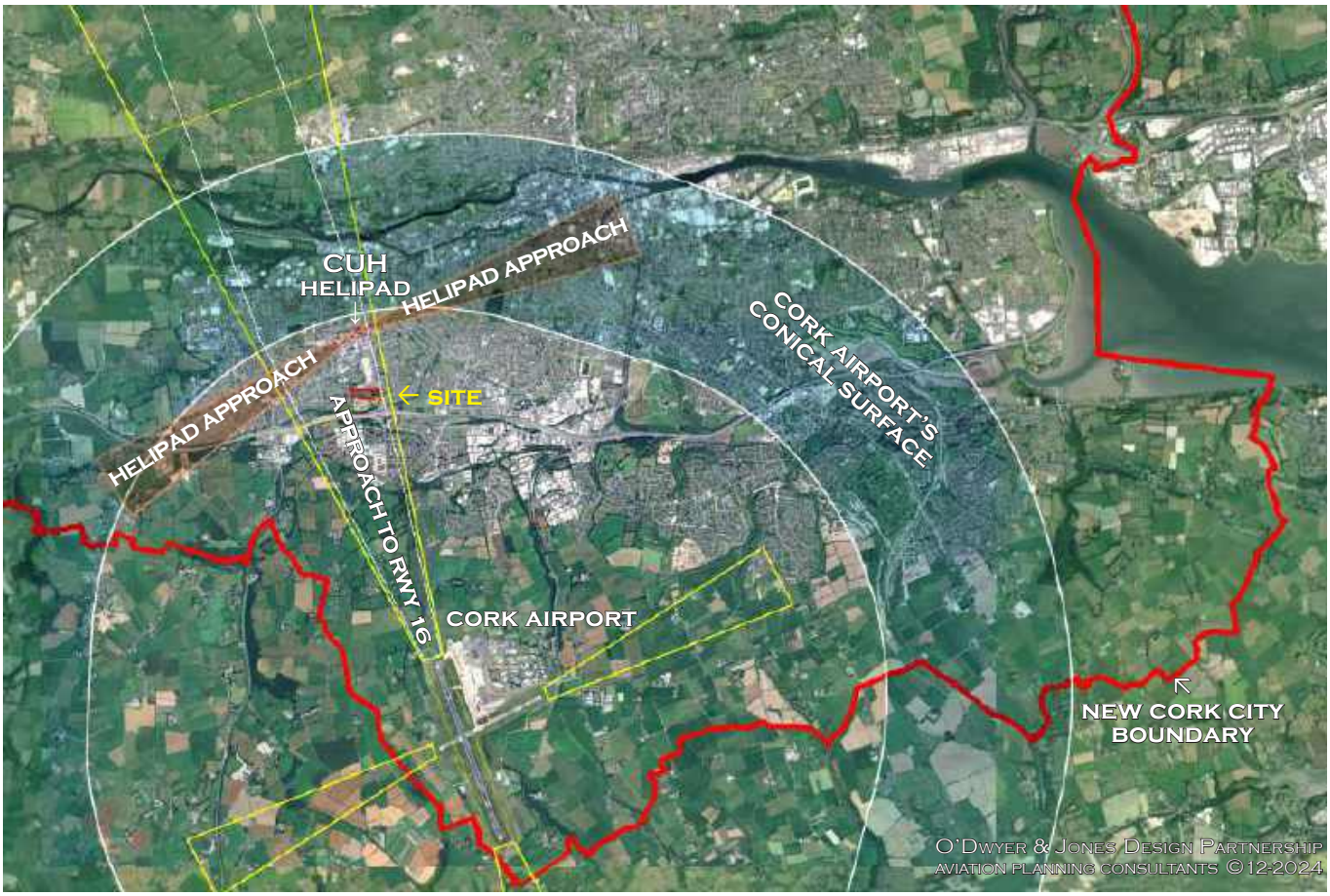
The ERM Report provides (in its Table 6.1) that there should be no more that 60 persons per half hectare in any new residential development. It also pointed out (in para. 6.2 on p.37) that this applied to the half-hectare/s within which a proposed development was located (i.e. not to a property ownership boundary).
We estimate (from the very small-scale map provided by ERM) that approximately the western two-thirds of the Wilton site would lie within ERM's Outer Public Safety Zone, i.e. both blocks of townhouses, the western apartment block, and around half of the middle apartment block. The occupancy of these buildings would come to around 461 persons (48+215+198). In this location, the ground area within the site boundary under the PSZ comes to ~1.85ha, with substantial unoccupied open space to the north and south of this part of the site. Of these adjoining unoccupied areas, the nearest unoccupied hectare of each can be applied (per ERM) for occupancy calculation purposes, i.e. giving a total area of 3.85 ha., i.e. 7.7 half hectares, in which an occupancy of up to 462 persons would match the ERM proposals. Therefore the proposed development is in compliance with Public Safety Zone occupancy requirements.

7. The Development in Relation to Helipads

7.1 The nearest helipad to the site is at Cork University Hospital in Wilton. [Recent aero-medical operations by Coastguard and Air Corps helicopters have taken place on the pitch of the adjoining GAA grounds to the west of the hospital.]

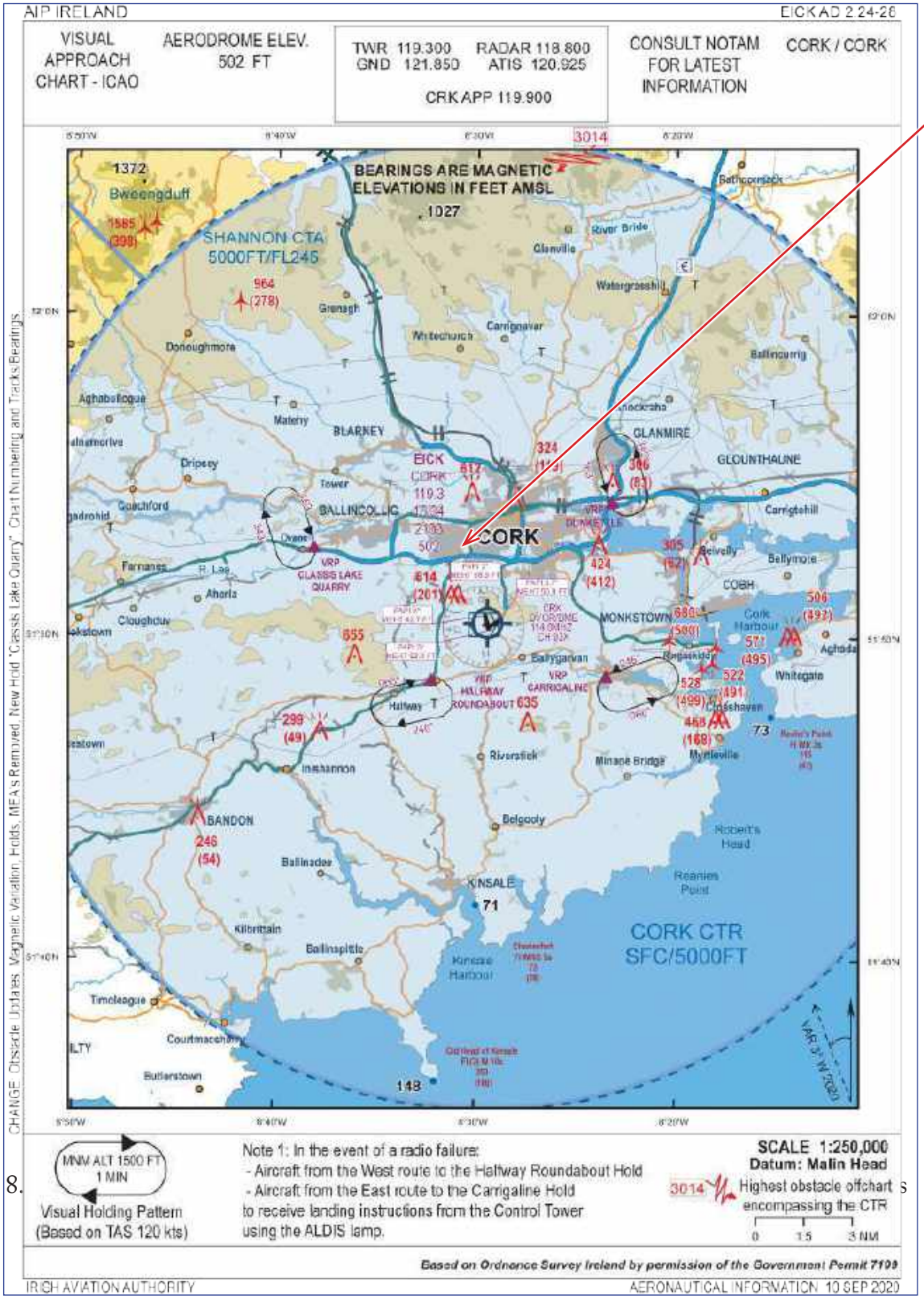
In September 2024 landings commenced at the new helipad within the hospital grounds, at 700m north of the LRD site, in the location marked by a red square in the aerial photograph below *(which also contains an outline of the Development Site, and Cork Airport's 'obstacle limitation surfaces')*. Other hospital helipads in the State (which are all private and unlicensed) do not have designed Approach and Departure Surfaces, however the planning application documents for new CUH helipad have indicated specific Approach and Departure Surfaces at 4.5% slopes, of a category which (per ICAO specifications) extends to 3.386m in length. These are shown in their standard shape* *(tinted orange)* in the diagram below.

It can be seen that none of the new Helicopter Approach or Departure Surfaces pass over (or close to) the LRD site. The elevation of the helipad surface (at 34.2m OD) is just 2.6m lower than the highest point of the proposed LRD, so that a departure/arrival (rising at 4.5% slope in any direction from the new helipad surface) would be wholly unaffected by the proposed development.
[It is also possible that these Surfaces could be designed as curved Surfaces.]*



8. Aeronautical Charts, Flight Paths, & Obstacles in Cork City area

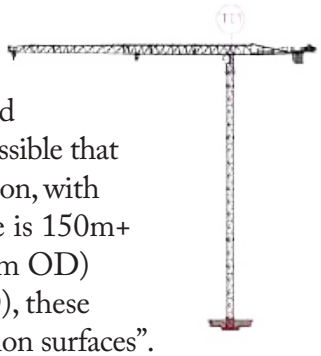
8.1 The current Visual Approach Chart for Cork Airport is shown below. This includes four VFR Reporting Points ▲ with associated Visual Holding Patterns, and various obstacles (masts etc.) are indicated by the symbol: ⍋, all of which are substantially taller than the proposed LRD (whose location is indicated by an arrow), and no flight path or holding pattern will be affected by the proposed development.



8.

9. Other Aviation Considerations Relevant to this Site

9.1 Cranes During Construction:



Any cranes used during construction will give rise to increased heights to be taken into account vis-à-vis aviation, and it is possible that these cranes could add up to 40m in height during construction, with their topmost point/s reaching ~75mOD. However, as there is 150m+ to spare between the development's highest point (at 36.8m OD) and Cork Airport's Inner Horizontal Surface (at 187m OD), these cranes will not breach any of Cork Airport's "obstacle limitation surfaces".

In any event S.I. 215 of 2005 – *'Irish Aviation Authority (Obstacles to Aircraft in Flight) Order'* requires that prior notification of any such crane (i.e. any object of greater than 45m in height above ground, within 10km of a licensed aerodrome) be submitted, at least 30 days in advance, to the Irish Aviation Authority and to the airport operator i.e. to Cork Airport Authority.

In regard to helicopter operations at CUH, advance notice of cranes on site should also be given to the HSE's Aero-Medical Unit (in Phoenix Park, Dublin).

An obligation to provide crane notifications should be included in the project's CEMP.

9.2 External Lighting:

As the site is at more than 3km from Cork Airport, and well below any flight path, it seems unlikely that there will be any requirement for the proposed apartment buildings to be fitted with I.C.A.O. aviation warning lights. However cranes on site may be required by the IAA to be fitted with aviation warning lights.

In view of the proximity of the new hospital helipad (at 700m north of the site) it is suggested that any external lighting would be of the "cut-off" type, i.e. not showing light above the horizontal.

9.3 Bird Strike Hazard Mitigation:

As the site lies under an Approach Surface (at ~3km from an airport) and at 0.7km from the new hospital helipad, aviation safety advice (by IAA, EASA etc.) recommends avoidance of all bird attractants (including any permanent standing water) in any SuDS provision on the site, and it is confirmed that this will be done.

In addition, all necessary bird strike hazard mitigation measures will be adopted on the site during the construction period (including avoidance of exposed earth and of any food debris), and we are assured that this requirement will be included in the project's CEMP.

9.4 Solar /PV Panels:

Solar/PV panels are proposed on the roofs of all three apartment blocks. The site lies within three of the new Solar Safeguarding Zones set out in S.I. 492 of 2022, and these panels have been the subject of a Glint & Glare Study by MacroWorks Ltd. in relation to these Zones. This Study has found that all proposed panels will be satisfactory in regard to any Glint or Glare which might affect pilots on approach to, or departure from, any of Cork Airport's runways, or the Hospital helipads, or which might affect Cork Airport's control towers.

The Results and Overall Conclusion on pages 7 & 8 of the Glint & Glare Study of December 2024 by MacroWorks – in which Cork Airport's flight paths and its control tower, and the nearby CUH hospital helipad were assessed – are as follows:

*" **Results:***

Runway Approaches –
The SGHAT results are contained in Appendix A and show that of the 4 runway approaches analysed, two showed potential for reflectance. Runway 25 recorded the greatest potential reflectance at 2,537 minutes of Green Glare over the course of the year. None of the runway receptors showed any potential for Yellow Glare. The absence of Yellow Glare is regarded as a pass in this assessment as there would be no potential for after-image.

Air Traffic Control Towers –
The SGHAT results contained in Appendix A also show there is no potential for glare at 1-ATCT as a result of the proposed development. Thus, there will be no potential for glint or glare to occur at Cork Airport ATCT.

Observation Points –
The SGHAT results are contained in Appendix A and show that of the 26 Observation Points (OPs) analysed, at Bishopstown (OP15-27) and Cork University Hospital (OP2-14), none had any potential to experience any reflectance. Thus, the results are considered a 'Pass' result as there is no potential for yellow glare. "

*" **Overall Conclusion:***
From the analysis and discussions contained herein, it is considered that the proposed array[s], at LDA Wilton, Cork, results in a 'Pass' at Cork Airport, Cork University Hospital, and Bishopstown aviation receptors. "

10. CONCLUSIONS

10.1 The Development in Relation to Cork Airport's "Obstacle Limitation Surfaces":

Three of Cork Airport's "obstacle limitation surfaces" lie above the site – the "**Approach Surface**" to Runway 16, the "**Take-off Climb Surface**" from Runway 34, and the airport's "**Inner Horizontal Surface**" (which is the lowest of the three Surfaces above the site). These are wholly unaffected by the proposed development, which lies at more than 150m below the lowest of these Surfaces.

10.2 The Development in Relation to Cork University Hospital's Helipad:

The site is well clear of the **Approach and Departure Surfaces to the new Helipad at CUH** (700m to the north), which is unaffected by the proposed development.

10.3 Other Aviation Considerations:

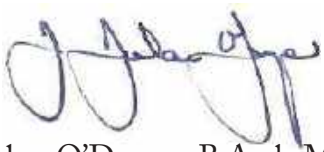
Parts of the site lie within an **Outer Public Safety Zone** and airport **Noise Zone 'C'**, however the development will comply with the requirements of these zones.

The proposed development will not have any effect on Cork Airport's **Navigational Equipment**, or on any **Flight Paths**, or give rise to any **Bird Strike Hazard**.

Cranes on site during construction will not extend near any "obstacle limitation surface", but cranes must be notified 30 days in advance to the IAA and to Cork Airport, and it is desirable that they also be notified to the HSE's aero-medical unit.

10.4 Overall:

We consider that the proposed LRD at Sarsfield Road, Wilton, in Cork City will comply with all aviation and aeronautical requirements affecting its site.



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17th December 2024
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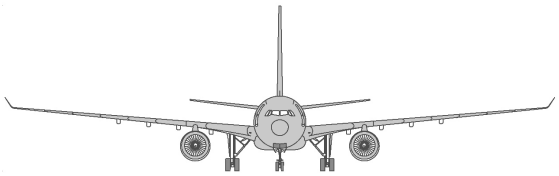

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