

Lands known as “RB Central” at
Rockbrook, Carmanhall Road, Sandyford
Business District, Sandyford, Dublin 18

Outline Construction Management Plan

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1 Introduction

The purpose of this document is to briefly outline the general activities required for the construction of the proposed residential development on a site located at Lands known as "RB Central" at Rockbrook, Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18.

A Main Contractor has not yet been appointed to carry out the proposed works. Once appointed, it will be the responsibility of the Main Contractor to prepare and submit a detailed construction management plan for the Client's submission to the local authority for approval. The construction management plan will be a live document that will be updated throughout the project lifecycle by the Main Contractor as required.

Regardless of the form of contract, the Contractor will be contractually bound by any conditions arising from the site constraints identified and specified, all Statutory Regulations governing the works, and any additional measures or modifications that may be imposed on the proposed development by the local authority or An Bord Pleanála.

2 Description of the Works

The RB Central site is located on the Lands known as "RB Central" at Rockbrook, Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18. The proposed development is to be constructed on sections of the building that were constructed prior to cessation of the previous site development due to the economic downturn. The previously constructed building elements consist primarily of basement and podium level construction components, including the vast majority of associated bulk excavations. The premises have a plan area of approximately 2.02 hectares in total.

The development will consist of 2 no. residential blocks ranging in height from 5-14 storeys comprising a total of 428 no. apartments (including all balconies, terraces and roof gardens) arranged around two courtyards; communal and public open spaces including boulevards; 4 no. ground floor retail units; resident community uses and crèche with outdoor play area. The development will also include revisions to the existing basement levels including car and bicycle parking provision with new vehicular access from Carmanhall Road; apartment storage areas; waste storage areas; ESB substations and switch room and plant/service areas. The development will also include all piped infrastructure and ducting; green roofs; changes in level; internal roads and pathways; pedestrian access points; services provision; landscaping and boundary treatments and all associated site development and excavation works above and below ground.

Access to the development will be via the existing access points from Carmanhall Road and Blackthorn Drive. The layout of the proposed scheme is detailed in a series of planning drawings prepared by TOT Architects.

3 Indicative Construction Programme

It is estimated that the construction programme for the works associated with the proposed works will last in the order of 130 - 160 weeks from the date of commencement. This estimation is based on the typical construction programmes for other similar developments that are currently underway. It is envisaged that construction of the proposed building and external works will be carried out over a single

phase. The Main Contractor will be required to prepare a detailed construction programme as part of their tender proposal.

4 Site Set-Up and Security

The Main Contractor will be required to submit a site layout plan that will detail the proposed location of the site compound. The Contractor will ensure that the site compound will be serviced as required and will be secured with appropriate fencing/hoarding. The site compound will be used as the primary location for the storage of materials, plant and equipment, site offices and worker welfare facilities. As Project Supervisor Construction Stage (PSCS), the Contractor will be responsible for site security and they are to ensure that the site and site compound are adequately secured at all times.

As with the other construction activities that are being carried out within the Dun-Laoghaire/ Rathdown County Council area, activities associated with the construction compounds will be subject to restrictions to the nature and timing of operations so that they do not cause undue disturbance to neighbouring areas and communities.

The site layout plan will also include the site perimeter and the proposed detail with regards the hoarding and gate system.

5 Site Access

The site currently has both pedestrian and vehicular access points from Carmanhall Road and Blackthorn Drive. The Contractor will ensure that entrance points to the construction zone are controlled as required. Carmanhall Road and Blackthorn Drive are to remain open during the works.

The Main Contractor will be responsible for all site access and works activity and must ensure the continued operation of Carmanhall Road and Blackthorn Drive. It is proposed that construction vehicles will primarily access the site via the Carmanhall Road entrance (see Figure 1).



Figure 1 - Location map of development and site access route

The management of construction traffic on the public road network both around and Carmanhall Road and Blackthorn Drive is a critical part of the overall project and must be actively managed by the Contractor.

The Contractor must submit a Construction Traffic Management Plan to the Local Authority for approval. Haulage vehicle movements should be fully coordinated to comply with the requirements of the agreed plan:

- Construction vehicles must not stop or park along the routes at any time;
- Haulage vehicles must not travel in convoys greater than two vehicles at any time;
- Site entrance to remain free of parked or stationary vehicles at all times;
- All loading of demolition material will occur within the site boundary;
- All off-loading of deliveries will take place within the site, remote from the public road and will access via the agreed construction access point.

The site is located in an urban area where the road and junction space is shared with public road users and the flow of construction traffic will need to be marshalled and controlled to ensure that potential conflicts are avoided as much as possible.

6 Material Storage and Delivery

The Contractor will ensure that the delivery of materials is coordinated to minimise impacts to adjacent properties. The Contractor will ensure that all materials are adequately stored and secured in their site compound.

For more details please refer to the Construction and Demolition Waste Management Plan prepared and included in the planning submission.

The Contractor will ensure the roads adjacent to the site are kept clean and free of debris.

7 Preliminary Construction Traffic Management Plan

The following sets out the Preliminary Construction Traffic Management Plan (CTMP) for proposed construction of the RB Central development in Sandyford, Dublin 18.

This CTMP sets out how the works will be constructed ensuring minimal adverse impact on the external interfaces in the local environment. This plan will be issued to the successful contractor for the works for use as a basis for a construction stage plan.

This report does not assess the suitability of the proposed road alterations and junctions for capacity purposes and as such this report should be read in conjunction with the Traffic and Transport Assessment prepared by CST Group for this planning application. Any subsequent use or development of the plan shall the responsibility of the contractor alone.

7.1 Existing Site

The existing RB Central site comprises a partially complete car park which is accessed from Blackthorn Drive. The excavation for the full basement was substantially completed by a previous owner of the site. Other portions of the site as illustrated in the red line boundary include a paved boulevard, road frontage along Carmanhall Road and other areas associated with flood mitigation measures to third party lands (please refer to the Site Specific Flood Risk Assessment for further details).

7.2 Proposed Development

7.2.1 Description

The proposed project comprises the completion of basement construction and the subsequent RB Central development. The accommodation is predominantly residential, but there will also be a small elements of retail space and a crèche.

7.2.2 Access Arrangements

The proposed development site is located in the northwest corner of the Sandyford Business District. Retail and crèche parking will be accessed off Blackthorn Drive to the northeast of the site, the residential parking will be accessed off Carmanhall Road to the southwest of the site. Please note that construction traffic will only be able to access the site from Carmanhall Road.

The site is surrounded by three roads - with foot path and cycle facilities. These comprise:

- Blackthorn Drive West - 2.5m wide footway with 1.5m wide cyclelane;
- Blackthorn Drive North - 2.5m wide footway with 1.5m wide cyclelane;
- Carmanhall Road 2m wide footway with 1.5m wide cyclelane.

There is also a wide boulevard which runs diagonally through the Rockbrook site on a southwest to northeast direction. The Boulevard provides connectivity to the new blocks on onward connection to the Stillorgan Green Line Luas Stop and Blackthorn Drive - West.

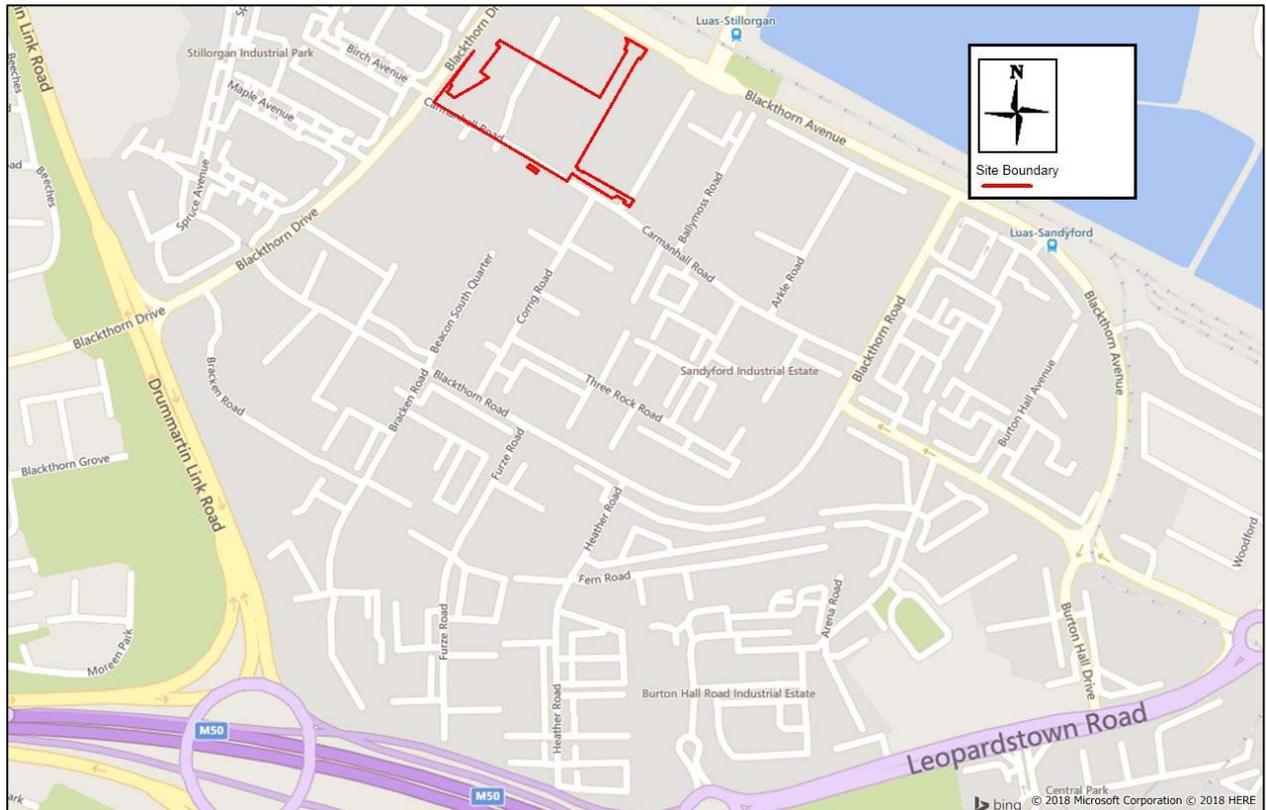


Figure 2 - Location map of development and surrounding road network

7.3 Construction Programme and Phasing

7.3.1 Programme

The project as proposed is subject to planning approval. It would be anticipated that the construction programme will have a duration of 2.5 to 3 years.

7.3.2 Construction Phase

The nature of the works that will be carried out are significantly different from those which would be anticipated with a project of this nature. As the basement is substantially excavated there remains relatively little work required to advance the subsequent substructure works which remain to be constructed. The benefits of this is a reduction of construction traffic with respect to disposal of excavated material.

It should be noted that there will be a need for some demolition of existing as built works due to the change of footprint of the overall buildings and associated cores. Such works will be kept to a minimum.

7.4 Construction Traffic

7.4.1 Site Access and Egress

The site will be accessed for deliveries via Carmanhall Road. Permanent scheme proposals include construction of a three bay short term car park. Early construction of these works will afford a set down area for deliveries which will mitigate traffic disruption on the main carriageway. Further the main works site boundary is set back from the existing back of footway on Carmanhall Road. This buffer area will provide potential material storage. Additionally, an access will be required at the southwestern edge of the site at Carmanhall Road. It would be anticipated that the volumes of traffic generated would be significantly less than the post development in service phase. Therefore, the local receiving road network will not be adversely impacted.

All works required within the public road area to facilitate the above will have necessary traffic management implemented. This will be compliant with Chapter 8 of the Traffic Signs Manual. Road Opening Licences will also be sought as necessary.

The site will be adequately hoarded and gated to ensure security and safe working. Within the site sufficient space will be set aside for material deliveries and craneage points for installation of the prefabricated building units.

7.4.2 Reduction of Traffic Movements

Construction traffic movements will be reduced and minimised by:

- consolidating loads.
- use of precast and prefabricated materials where possible.
- design of the works ensuring minimization of demolition of existing structure and associated removal from site.
- scheduling deliveries and removals to being outside normal traffic peaks.
- ensuring that there is sufficient on-site storage of materials.
- ensuring deliveries of large elements are done on a just in time basis to reduce the need for queuing of trucks awaiting offloading.

7.4.3 Reduction of Adverse Impact on the Local Roads

To reduce the amount of deleterious material being deposited on roads adjacent to the site road sweeping will be conducted as necessary. Wetting down facilities will be provided as required, to ensure that dust nuisance will not be an issue.

7.4.4 Routing

The site is located close to the main road network for Sandyford and as such will not need to be routed via smaller roads. Large vehicles will be routed to and from the M50 via Blackthorn Drive. Routing of vehicles will be via existing sign posted route.

7.4.5 Site Operatives

The site benefits from the previously mentioned substantially complete basement car park. Therefore, it will be proposed that limited car parking will be allocated to contractor's staff. These will be accessed via Blackthorn Drive access. It is not anticipated that there will be significant adverse impact on the existing road network since the number of vehicles will not be significant, and flows will be opposite those for the existing residential units, and out of sync with the retail units already accessing via this access point.

The site is readily accessed by bus and Luas services for which will be highlighted to operatives. The Travel Plan which has been prepared for the planning application will be issued to the successful contractor to part of their own travel plan to inform workers of alternative means of transport to the site. It would also be anticipated that operatives who use car or van transport will share same which is the norm in the construction industry.

7.4.6 Potential Interface with Other Projects

The proposed works may have an interface with other projects within the locality. The appointed Contractor will need to coordinate with other Contractors as required to ensure a smooth interface between projects.

There may be a number of PSCS's operating in the urban locality at any one time on individual sites. It will be responsibility of the appointed Contractor as PSCS to ensure that delivery and haul routes, site access and egress points and potential crossing points associated with the site are fully coordinated and agreed with other Contractors in advance of the works commencing.

8 General Construction Approach

8.1 Construction Working Space

Construction working space will be set out in the detailed construction management plan at compliance stage.

Construction access routes, haul routes and delivery routes to the site are to be agreed with the Engineer/Employer's Representative in advance of works commencing onsite.

Any road closures required will be submitted and approved in advance with the local authority. It is the responsibility of the Main Contractor to prepare and submit the road closure application to the local authority in advance of works commencing onsite.

8.2 Outline Works Description

The construction works will involve an indicative sequence of works, as described in short below. The Contractor will outline works which impact public spaces within the Construction Management Plan that shall be subject to submission and agreement with Dun Laoghaire/ Rathdown County Council.

8.2.1 Hoarding, Site Set-up and Formation of Site Access/Egress

The site area will be enclosed with hoarding details of which are to be agreed with DLRCC.. This will involve either the retention of existing hoarding or the modification of existing to provide a hoarding around the proposed site perimeter, in line with the finished development extents. Hoarding panels will be maintained and kept clean for the duration of the works

The available site footprint will enable the Contractor to set up the site compound within the site boundary.

The Contractor will be responsible for the security of the site. The Contractor will be required to:

- Operate a Site Induction Process for all site staff;
- Ensure all site staff shall have current 'Safe Pass' cards and appropriate PPE;
- Install adequate site hoarding to the site boundary;
- Maintain site security at all times;
- Install access security in the form of turn-styles and gates for staff;
- Separate public pedestrian access from construction vehicular traffic;

8.2.2 Site Clearance and Demolition

The existing site consists of a partially complete car park consisting of three levels of basement and partially completed extents of a podium level transfer slab. The excavation for the full basement was substantially completed by a previous owner of the site.

The following is an outline method statement for the demolition works associated with the development:

- Establish a site set-up and welfare facilities;
- Carry out a detailed services survey of the site to identify all services, determine what services are live, redundant and potentially serving neighbouring properties. These activities are to be performed prior to any demolition is performed on site;
- Carry out any necessary service diversions and decommissioning works;
- Demolition and removal of existing structures and equipment (if/where required) to clear the site and enable construction of the development. This includes accounting for new rising elements as a result of the proposed development building outlines.

It is noted that the proposed development consists of the completion of the construction of three levels of basement, the subsequent construction of multiple storeys of residential apartments and the associated site landscaping and ancillary development.

8.2.3 Construction Sequence

The construction of the proposed new multi-storey mixed use development structures will consist of installation of basement structure, limited quantities of excavation (due to the current level of partial completion of the basement structure) and construction of an RC framed structure on a podium level transfer slab.

The construction methodology and programme of these activities will be dictated by the Contractor.

Excavation

Completion of the basement area will involve the excavation and removal from site of approximately 160 tonnes of material. A desk-top study of historic information relating to the site notes the ground comprises of granite bedrock at the level of basement.

The Contractor must prepare a Construction and Demolition Waste Management Plan in accordance with the "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects" (Department of Environment, Heritage and Local Government, 2006) and ensure that all material is disposed of at an appropriately licensed land fill site. The Contractor must also outline detailed proposals within the Construction Management Plan to accommodate construction traffic.

Construction Sequence of Substructure

The nature and type of the proposed development with its three levels of basement indicates that to prevent any potential risk of groundwater intrusion into the lower structure the basement will be constructed as a water tight box, the proposed grade for the basement is Grade 2, as per BS 8102:1990. The proposed structural integrity of the basement and its ability to prevent groundwater intrusion into the site is deemed sufficient to mitigate the potential risk to acceptable limits. The concrete works will involve concrete deliveries to site, and adequate road sweeping facilities will be provided as required to manage road debris.

Construction Sequence of Superstructure

The construction of the superstructure will involve complex sequencing of activities and various construction methodologies could be adopted to deliver the Contract. The nature of the building, the column grid and economic factors, among other issues, would suggest that the building will be constructed utilising a reinforced concrete frame. The façade may consist of a unitised system to limit the extent of scaffold required, or a more traditional 'stick' system to the Architect's specification. As noted the construction methodology and therefore the programme of the construction activities will be dictated by the Contractor.

Building Structure:

- Construction of revised RC column arrangements at basement levels where required for the propose building outlines;
- Construction of new rising elements (i.e. cores) through the basement levels up to transfer level;
- Construction of the remaining podium level transfer slab extents;
- Similar sequence of construction of rising elements, RC Frame and floor slabs up to building frame completion.

Envelope / Cladding:

- Commencement of envelope works to Level 1 when structure has progressed to approximately Level 2/3;
- Advancing of Cladding two levels behind the structure.

Mechanical & Electrical Fit-Out:

- First fix will commence from ground floor level upwards;
- This will be followed by the second fix and final connections.

Fit-Out:

- Initial installation of stud work when cladding completed and floor is weather tight;
- Installation of equipment and associated connection to services;
- Completion of finishes.

Commissioning:

- The final commissioning period will commence during fit-out.

The above represents a high level indicative construction sequence only. The actual sequence will be dictated by the Contractor. The Contractor will issue a detailed construction programme outlining the various stages prior to commencement of works.

It is envisaged that one tower crane will be temporarily erected to accommodate the construction works for the distribution of building materials and plant. The Contractor is required to obtain all necessary licences from DLRCC.

9 Waste Management Plan

The Main Contractor will be required to prepare a detailed waste management plan for the project. This will be included in the overall construction management plan that will be submitted to the local authority.

For more details please refer to the Outline Construction and Demolition Waste Management Plan prepared and included in the planning submission.

10 Communications and Local Stakeholder Management

The Contractor will, as required, liaise with owners of the local properties in advance of works commencing onsite. The Contractor will use a competent sign provider and all signage used will meet the requirements of the Safety, Health & Welfare at Work (General Applications) Regulations 2007 and Chapter 8 Traffic Signs Manual.

11 Construction Noise, Dust and Vibration

The Main Contractor will be required to monitor noise, dust and vibration as will be outlined in the planning conditions. The Contractor will establish baselines for noise, dust and vibration in advance of works commencing onsite. As part of their detailed construction management plan, the Contractor will be required to clearly indicate how they plan on monitoring noise, dust and vibration throughout the course of the project. This will be especially critical in relation to the basement construction and associated piling works. The Contractor will also be required to clearly outline the mitigation measures they plan on putting in place to ensure any breaches in the baselines are mitigated.

Noise and vibration monitoring to be in accordance with the following standards:

- BS 5228
- ISO 4866
- BS 7385
- BRE DIGEST 403

For more details please refer to the Construction and Demolition Waste Management Plan prepared and included in the planning submission.

12 Working Hours

It is anticipated that construction working hours will be stipulated in the planning conditions attached to the planning grant. Any working hours outside the normal construction working hours will be agreed with Dun Laoghaire Rathdown County Council. The planning of such works will take consideration of sensitive receptors, in particular any nearby businesses.

13 Lighting

There are no proposals to alter the existing lighting arrangements in the area. It is not envisaged that any existing public lighting will need to be disconnected as a result of the proposed works. Appropriate lighting will be provided as necessary at construction compounds. All lighting will be installed so as to minimise light spillage from the site.

14 Construction Employment

Construction employment numbers will vary depending on the construction stage of the project and the actual approach adopted by the Contractor. However, it is anticipated that at the peak of construction there will be a workforce varying in a range of approximately 30-200 people employed depending on phasing and stage of construction.

For example, initial stages of construction will be limited to specific disciplines which may not require large numbers of personnel. However, multiple trades may be active on the buildings during internal fit-out of the completed superstructure on a staggered basis as the works are progressed leading to higher numbers of personnel being present