

Project

**Residential Development at Newcastle South,
Co. Dublin**

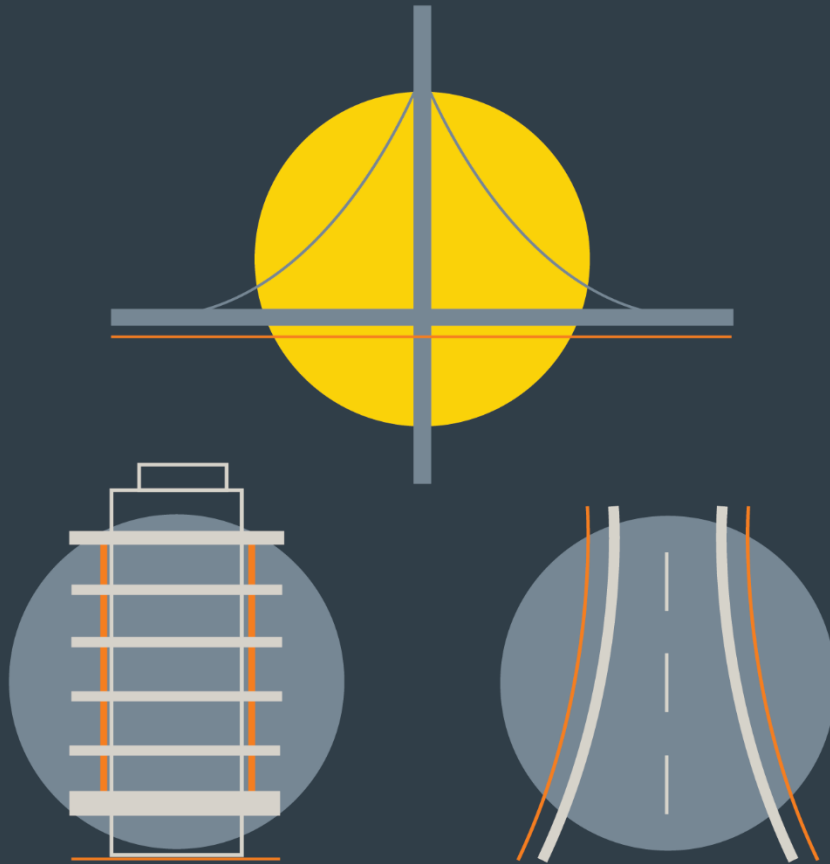
Report Title

Preliminary Construction Environmental Management Plan

Client

Cairn Homes Properties Ltd.

INFRASTRUCTURE



DBFL CONSULTING ENGINEERS

June 2022

Job Title: Residential Development at Newcastle South, Co. Dublin

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1. WORKS PROPOSAL

The development will consist of the construction of 280 no. dwellings and associated ancillary infrastructure on lands of c. 8.47 hectares (2 no. sites comprising main development site (8.4 ha.) and site relating to permitted creche c. 0.07 ha. in 'Graydon') as follows:

- A) 128 no. 2 storey houses (8 no. 2 bedroom houses, 94 no. 3 bedroom houses, 25 no. 4 bedroom houses and 1 no. 5 bedroom house);
- B) 116 no. apartments in 2 no. 5 storey buildings comprising (54 no. 1 bedroom apartments & 62 no. 2 bedroom apartments, all with terrace or balcony along with solar panels and green roofs at roof level as well as telecommunications infrastructure comprising 9 no. support poles on ballast mounts (to accommodate 1No. 2m 2G/3G/4G antenna & 1No. 5G antenna each) & 3 no. poles on lift overrun (to accommodate 2No. Ø0.3m Microwave links each at roof level of Apartment building B, together with associated equipment and cabinets/shrouds);
- C) 36 no. apartments/duplex apartments in 3 no. 3 storey buildings – (18 no. 2 bedroom apartments and 18 no. 3 bedroom duplex apartments) all with terrace;
- D) Amendment to permitted Creche (c. 518sqm) in 'Graydon' (ABP References: TA06S.305343 & ABP-305343-19) to now provide a Creche of c. 778 sq. m of 2 no. storeys;
- E) Open space, hard and soft landscaping (including public lighting & boundary treatment), communal open space for duplex apartments and apartments; along with single storey bicycle/bin stores and ESB substations;
- F) Vehicular access from the Athgoe Road from a new signalised junction along with upgrades to footpath and pedestrian crossing as well as provision of vehicular/pedestrian/cycle link to permitted 'Graydon' (TA06S.305343) 'Newcastle Boulevard' to the east, as well as 423 no. car parking spaces and 370 no. bicycle spaces and all internal roads, cycleways, green routes and paths;
- G) Provision of Surface water attenuation measures and underground attenuation systems, connection to water supply, and provision of foul drainage infrastructure as well as underground local pumping station to Irish Water specifications and all ancillary site development/construction/landscaping works.

The construction management issues addressed within this plan include the following:

- Working Hours
- Traffic Management

- Stripping of Topsoil and Excavation of Subsoil
- Erosion and Sediment Control
- Accidental Spills and Leaks
- Biodiversity
- Waste Management
- Noise and Vibration
- Air, Dust & Climatic Factors
- Landscape and Visual Impact
- Archeology
- Material Assets – Site Services
- Site Compound Facilities and Parking

This Preliminary Construction Management Plan shall be referenced in all tender and contract documentation for the proposed works and is to be read in conjunction with all relevant Engineering and Architectural documentation.

All works must be carried out in accordance with the mitigation measures outlined in this document.

2. WORKING HOURS

For the duration of the proposed infrastructure works the maximum working hours shall be 07:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 15:00 Saturdays, subject to the restrictions imposed by the local authority.

No working will be allowed on Sundays and Public Holidays.

Subject to the agreement of the local authority, out of hours working may be required for water main connections, foul drainage connections etc.

3. TRAFFIC AND TRANSPORTATION

A Traffic Management Plan (TMP) will be prepared for the works in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Department of Transport Traffic Signs Manual 2019 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)
- Local Authority road licensing restrictions

In general, the impact of the construction period will be temporary in nature and less significant than the operational stage of the proposed development (HGV vehicle

movements not expected to exceed 3 vehicles per hour during the busiest period of construction works).

All construction traffic will enter the site via the Athgoe Road and the entrances previously constructed as part of this development. This site entrance will also facilitate construction of the proposed road network within the site.

Construction traffic will consist of the following categories:

- Private vehicles owned and driven by site staff and management
- Construction vehicles e.g. excavation plant, dump trucks and material delivery vehicles, involved in site development works

On-site employees will generally arrive before 08:00, thus avoiding morning peak hour traffic. These employees will generally depart after 16:00.

It should be noted that a large proportion of construction workers would arrive in shared transport.

Where feasible, excavated material will be reused as part of the site development works (e.g. use as fill material beneath houses and roads) in order to minimise truck movements to and from the site, however, some unsuitable excavated subsoil is expected and will have to be removed to an approved landfill.

4. SOILS AND GEOLOGY

Site development works will involve stripping of topsoil and excavation of subsoil layers for the construction of the proposed basement, and general site development works.

Excavation activities have potential to expose the soils and geological environment to pollution. The contractor shall agree the methodology of excavating cut material with the Local Authority where necessary and ensure that soils are protected against risk of pollution during the construction period.

The following measures are to be implemented in order to mitigate against such risks.

Stripping of Topsoil

- Stripping of topsoil shall be carried out in a controlled and carefully managed way and coordinated with the proposed staging for the development.
- At any given time, the extent of topsoil strip (and consequent exposure of subsoil) shall be limited to the immediate vicinity of active work areas.
- Topsoil stockpiles shall be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.
- Topsoil stockpiles shall also be located so as not to necessitate double handling.

Excavation of Subsoil Layers

- The duration that subsoil layers are exposed to the effects of weather shall be minimized. Disturbed subsoil layers will be stabilized as soon as practicable (e.g. backfill of service trenches, construction of road capping layers, construction of building foundations and completion of landscaping).

- Similar to comments regarding stripped topsoil, stockpiles of excavated subsoil material shall be protected for the duration of the works. Stockpiles of subsoil material shall be located separately from topsoil stockpiles.

Weather Conditions

- Typical seasonal weather variations will also be taken account of when planning stripping of topsoil and excavations with an objective of minimizing soil erosion

Dust Control

- Dust suppression practices to be implemented during stripping of topsoil layers, excavation of subsoil layers and bedrock. Full details of the dust management plan can be found in Appendix 7.2 of the EIAR. Some of these measures include:
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility prior to entering onto public roads.
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.
- At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

Water Pumped from Excavations

- Rainwater pumped from excavations is to be directed to on-site settlement ponds.
- Groundwater pumped from excavations is to be directed to on-site settlement ponds.
- On-site settlement ponds are to include geotextile liners and riprappd inlets and outlets to prevent scour and erosion.
- Surface water discharge points during the construction phase are to be agreed with South Dublin County Council's Environment Section prior to commencing works on site

Accidental Spills and Leaks

- All oils, fuels, paints and other chemicals shall be stored in a secure bunded hardstand area.
- Refuelling and servicing of construction machinery shall take place in a designated hardstand area which is also remote from any surface water inlets (when not possible to carry out such activities off site).
- A response procedure shall be put in place to deal with any accidental pollution events and spillage kits shall be available and construction staff will be familiar with the emergency procedures and use of the equipment.

5. WATER – HYDROGEOLOGY & HYDROGEOLOGY

The following measures are to be implemented during the construction phase in order to mitigate risks to the water and hydrogeological environment.

Erosion and Sediment Control

- Measures shall be implemented to capture and treat sediment laden surface water runoff (e.g. sediment retention ponds, surface water inlet protection, fencing and signage around specific exclusion zones and earth bunding adjacent to open drainage ditches)
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations shall be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate
- Groundwater pumped from excavations is to be directed to on-site settlement ponds.
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- On-site settlement ponds are to include geotextile liners and rippapped inlets and outlets to prevent scour and erosion
- Surface water discharge points during the construction phase are to be agreed with South Dublin County Council's Environment Section prior to commencing works on site
- Weather conditions and seasonal weather variations shall also be taken account of when planning stripping of topsoil and excavations, with an objective of minimizing soil erosion.

Accidental Spills and Leaks

- All oils, fuels, paints and other chemicals will be stored in a secure bunded hardstand area
- Refuelling and servicing of construction machinery shall take place in a designated hardstand area which is also remote from any surface water inlets (when not possible to carry out such activities off site)
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds/tanks.

- A response procedure shall be put in place to deal with any accidental pollution events and spillage kits shall be available and construction staff will be familiar with the emergency procedures and use of the equipment

Concrete

- Concrete batching will take place off site where practical.
- Concrete wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed on site.
- Pumped concrete shall be monitored to ensure there is no accidental discharge.
- Concrete mixer washings are not to be discharged to surface water drains.

Wheel Wash Areas

- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds/tanks, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility

6. WATER: WATER SUPPLY, DRAINAGE & UTILITIES

The following measures are to be implemented during the construction phase in order to mitigate risks to the water supply, drainage and utilities.

- Surface water runoff from areas stripped of topsoil and surface water collected in excavations shall be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established.
- The construction compound's potable water supply shall be located where it is protected from contamination by any construction activities or materials.
- Relocation of existing overhead ESB lines shall be fully coordinated with ESB Networks to ensure interruption to the existing power network is minimized
- Connections to the existing gas and telecommunications networks shall be coordinated with the relevant utility provider and carried out by approved contractors.

7. BIODIVERSITY

The following mitigation measures are to be implemented during the construction phase in order to mitigate risks to plant and animal life.

- High value hedgerows/treelines should be retained where feasible.
- The removal of hedgerow, treelines or scrub vegetation should not take place from March to August inclusive as per the Wildlife Act to minimise mortality to animals during construction.

- A bat survey has been carried out and will be included in the planning application documents. This took place during the active period for these mammals, which typically lasts from late April/May through to September. The survey was carried out by a suitably qualified professional, identifies the species of bat present, and the location of likely roosts if relevant. It assesses the likely impact of the project on the local bat population, the need for a derogation licence from the National Parks and Wildlife Service and presents appropriate mitigation measures.
- To avoid damage to trees the developer should follow the guidance from the National Roads Authority in establishing root protection areas (RPA) along hedgerows to be retained. The NRA gives the following equation for calculating the root protection area (RPA) (NRA, unknown year):

$$\text{RPA(m}^2\text{)} = \pi(\text{stem diameter mm } 12/1,000) \times 2$$

The RPA gives the area around which there should be no disturbance or compaction of soil. This will be calculated for the largest tree within each hedgerow. Prior to construction this area will be clearly labelled 'sensitive ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone. As a rule of thumb this buffer zone should extend at least to the canopy of the trees concerned. Prior to construction this area will be clearly labelled 'sensitive ecological zone', fenced off with durable materials and instruction given to construction personnel not to disturb this buffer zone.

An arborist has also been appointed who will add additional expertise to the developer regarding this.

8. WASTE MANAGEMENT

The following measures are to be implemented during the construction phase in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle waste in such a manner as to minimise the effect on the environment:

- Building materials should be chosen with an aim to 'design out waste'
- On-site segregation of non-hazardous waste materials into appropriate categories
- On-site segregation of hazardous waste materials into appropriate categories
- All wastes segregated at source where possible
- All waste material will be stored in skips or other suitable receptacles in a designated area of the site
- Left over materials (e.g. timber off-cuts) shall be re-used on site where possible
- All waste leaving the site will be recycled, recovered or reused where possible
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities
- All waste leaving the site will be recorded and copies of relevant documentation maintained

9. NOISE AND VIBRATION

During the works the contractor shall comply with the requirements of BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 (Code of Practice for Noise and Vibration Control on Construction and Open Sites) as well as Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration.

In particular, the following practices are to be implemented during the construction phase:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- Establishing channels of communication between the contractor/developer, Local Authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration;
- Monitoring levels of noise during critical periods and at sensitive locations;
- All site access roads shall be kept even so as to mitigate the potential for vibration from lorries.
- Selection of plant with low inherent potential for generation of noise
- Siting of noisy plant as far away from sensitive properties as permitted by site constraints and implementation of noise reduction measures such as acoustic enclosures

Noise Limits

Noise Limits to be applied for the duration of construction works are as set out in the National Roads Authority (NRA) Guidelines for Treatment of Noise and Vibration in National Roads Schemes (summarised below in Figure 9.1) and BS 5228-1:2009+A1:2014 (Code of Practice for Noise Control on Construction and Open Sites).

Date ^a	Noise Level (dB re 2x10 ⁻⁵ Pa) ^a	
	L _{Aeq} (1hr) ^a	L _A Fmax ^a
Monday to Friday 07:00 to 19:00hrs ^a	70 ^a	80 ^a
Monday to Friday 19:00 to 22:00hrs ^a	60* ^a	65* ^a
Saturdays 08:00 to 16:30hrs ^a	65 ^a	75 ^a
Sundays & Bank Holidays 08:00 to 16:30hrs ^a	60* ^a	65* ^a

Figure 9.1, NRA Guidelines for Maximum Permissible Noise Levels at the Façade of Dwellings During Construction.

BS 5228 applies a noise limit of 70 dBA between 07:00 am and 19:00 pm outside the nearest window of the occupied room closest to the site boundary in suburban areas away from main road traffic and industrial noise.

For the duration of construction works, a daytime noise limit (07:00 am to 19:00 pm) of 70 dBA shall apply (in accordance with the requirements of BS 5228 and generally in agreement with the NRA guidelines).

Vibration Limits

Vibration Limits to be applied for the duration of construction works are as set out in BS 5228-2:2009+A1:2014 (Code of Practice for Vibration Control on Construction and Open Sites) and BS 7385: 1993 (Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration). Allowable vibration during the construction phase is summarised below in Figure 9.2

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of [□]		
Less than 4Hz [□]	15 to 40Hz [□]	40Hz (and above) [□]
12 mm/s [□]	12.5 mm/s [□]	50 mm/s [□]

Figure 9.2, Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration

10. AIR, DUST & CLIMATE FACTORS

The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed construction phase mitigation measures are implemented and that construction impacts and nuisance are minimised. The following mitigation measures are to be implemented during the construction phase:

- During working hours, dust control methods shall be monitored as appropriate, depending on the prevailing meteorological conditions.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.
- Community engagement shall be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses.
- A complaints register shall be kept on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out.
- A speed restriction of 20 km/hr shall be applied as an effective control measure for dust for on-site vehicles using unpaved haul roads.
- Access gates to the site shall be located at least 10m from sensitive receptors.
- Bowers or equivalent watering equipment shall be available during periods of dry weather throughout the construction period. Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use.
- Any hard surface roads shall be swept regularly to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust.

- During periods of very high winds (gales), construction activities likely to generate significant dust emissions should be postponed until the gale has subsided.
- Overburden material shall be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors.
- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- At the main construction traffic exits, a wheel wash facility shall be installed. All trucks leaving the site must pass through the wheel wash. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary.
- It is recommended that dust deposition monitoring be put in place to ensure dust mitigation measures are adequately controlling emissions. Dust monitoring should be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119.

11. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Proposed construction phase mitigation measures are summarised below:

- Site fencing/hoarding shall be erected to restrict views of the construction activity e.g. standard 2.4m high
- Establishment of tree protection measures (no-dig construction zones, tree protection fencing and existing hedgerow retention).
- Appointment of an Arborist to oversee all works relevant to trees
- Monitoring of tree protection measures, e.g. maintenance of protective fencing to the satisfaction of the Arborist
- Hand dig excavation under supervision of an arborist is required should excavation be necessary in a tree protection area
- Tree protection fences are to be constructed in accordance with BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"
- A 'Construction Exclusion Zone' notice shall be placed on tree protection fencing at regular intervals
- Tree Protection Zones are not to be used for car parking, storage of plant, equipment or materials
- A post construction re-assessment of retained trees shall be carried out

12. ARCHAEOLOGY & CULTURAL HERITAGE

- Any areas of the archaeological site which may be affected by development works at this location will be subject to full archaeological excavation in advance of construction.

13. PEST CONTROL

The principal contractor must prevent, monitor and reactively treat any issues with vermin or pests throughout the entire construction phase.

- It is recommended that a vermin control layout plan should be devised, and bait traps located at strategic locations identified by an initial site survey.
- Bait traps shall be routinely checked to ensure their effectiveness.
- Skip and waste areas shall always be kept tidy, with skip sizes appropriate to the rate of fill and changed frequently.
- Housekeeping shall be routinely carried out to ensure no conditions are conducive to harbourage.
- Surface areas with standing water shall be regulated where possible.
- Routine site inspections should be carried out to ensure effectiveness of control plans.

14. SITE COMPOUND FACILITIES AND PARKING

The proposed location of the construction compound is shown in Figure 14.1. The location of the construction compound is likely to be relocated during the course of the works, in line with the phasing of the development and will be agreed with South Dublin County Council.

The construction compound will include adequate welfare facilities such as wash rooms, drying rooms, canteen and first aid room as well as foul drainage and potable water supply

- Foul drainage discharge from the construction compound will be tankered off site to a licensed facility until a connection to the public foul drainage network has been established
- The construction compound's potable water supply shall be protected from contamination by any construction activities or materials
- The construction compound will be enclosed by a security fence
- Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure
- A permeable hardstand area will be provided for staff car parking
- A separate permeable hardstand area will be provided for construction machinery and plant
- The construction compound will include a designated construction material recycling area
- A series of way finding signage will be provided to direct staff, visitors and deliveries as required
- All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works

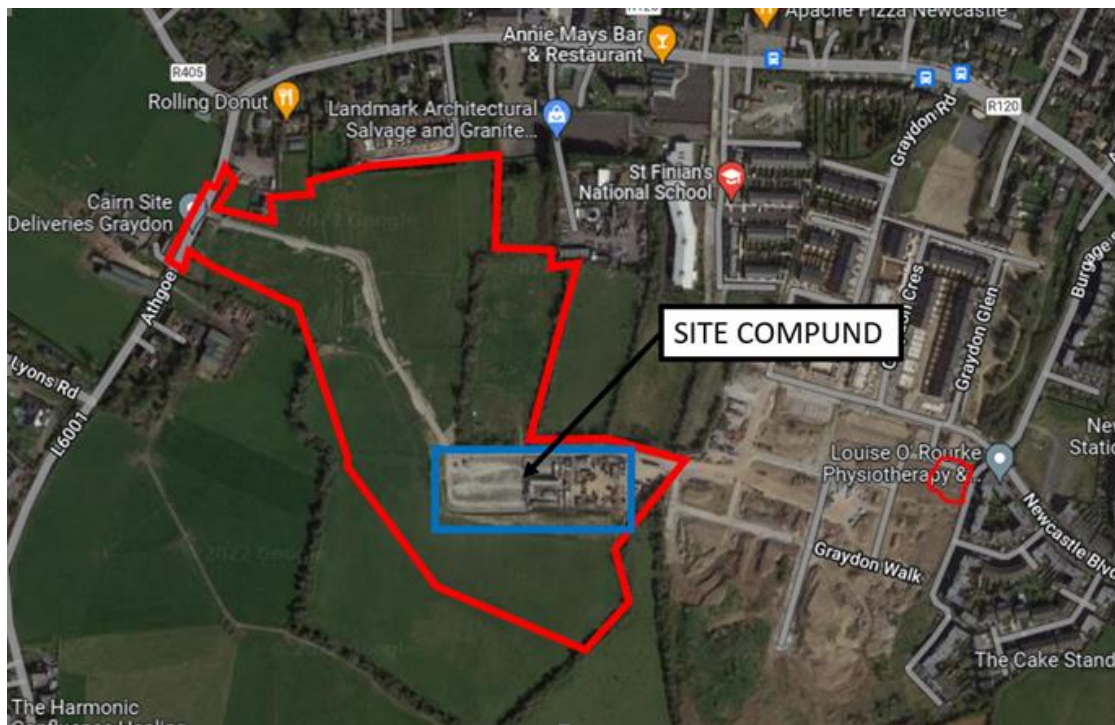


Figure 14.1 – Site Compound

15. AVIATION

The use of cranes will be required during the construction of the proposed development.

- Notice will be given 30 days' advance notice of any intended cranes to IAA and to Casement Aerodrome (either directly to Air Corps or via Dept of Defence), and to Weston Airport as per the statutory obligation.
- Also in this location the heights of any cranes will be of aviation concern. At about 30m above ground level (and varying across the site), Casement's "Inner Horizontal Surface" would be breached, and the site is also under Weston's "Conical Surface" (which has varying height limits). Being above these "Surfaces" is possible, but would need to be agreed with Casement (and with IAA in respect of Weston) and published in "Notices to Airmen" by the IAA; and aviation warning lights would be needed. This will be agreed and communicated with the IAA prior to the works.