Construction Management Plan (Rev 07)

For The Development

of

Spencer Place North, City Block 2
Spencer Dock, Dublin 1

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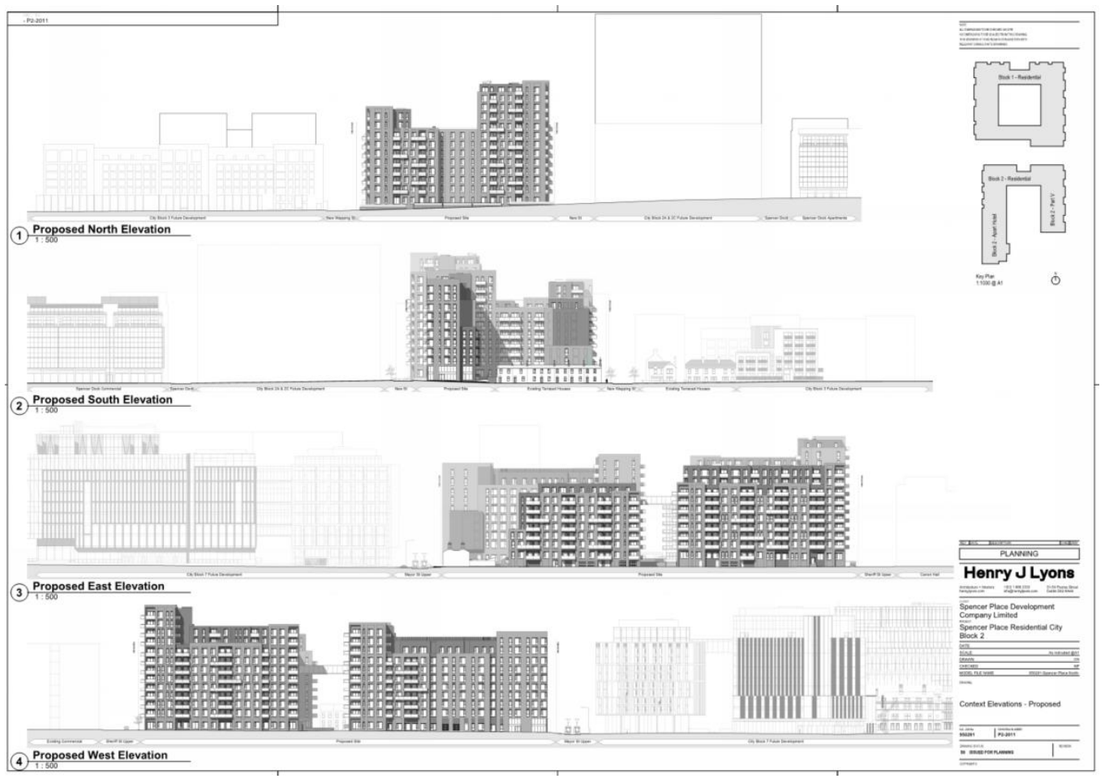


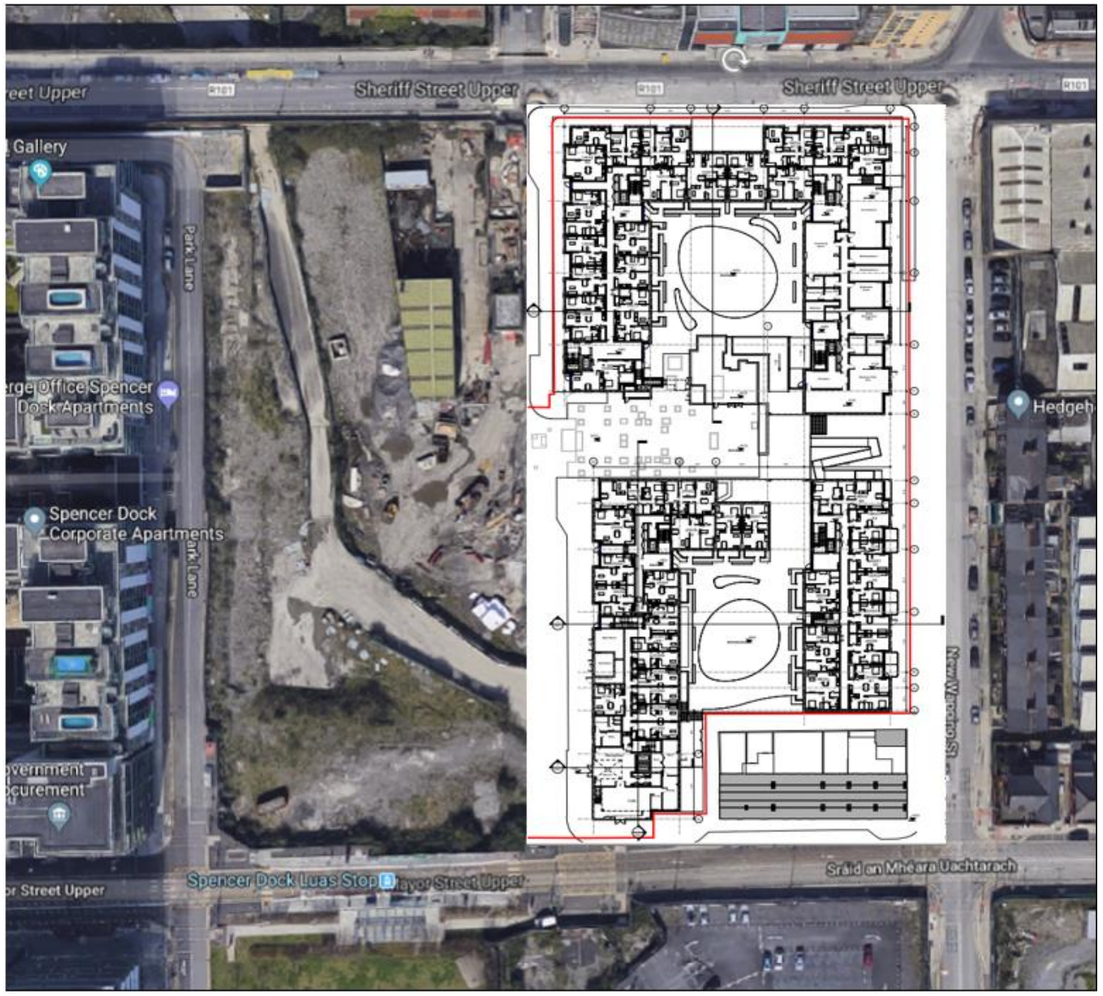
1. Introduction

Development comprising of an alteration to permitted development Reg. Ref. DSDZ2896/18 and as amended by Reg. Ref. DSDZ4279/18 at Spencer Place North, City Block 2, Spencer Dock, Dublin 1. The proposed development seeks revisions to the permitted Block 1 and 2 to provide for an increase in the number of residential units from 349 no. to 464 no. apartment units and the change of use of the permitted aparthotel development to shared accommodation.

The proposed development will increase the height of the permitted development increasing the maximum height of Block 1 from 7 no. storeys (27.5 m) to a maximum height of 13 no. storeys (46.8m) and increasing the maximum height of Block 2 (27.5m) to 11 no. storeys (40.5m). The proposed development will also include the provision of a link bridge between Block 1 and Block 2 at 6th floor level, landscaping, the provision of communal open space, revised under croft level, provision of roof terraces and all other associates site development works to facilitate the development.

This construction management plan is intended to set out the methodology and procedures to be put in place for the construction this project. The site is bounded by Mayor Street Upper to the South, New Wapping Street to the east, Sheriff Street Upper to the North and existing buildings on Park Lane to the West. The Spencer Place Development is to the south.

This construction management plan will provide Dublin City Council with an outline proposal of how construction will be managed, should the planning application be successful, to comply with Local Authority and statutory requirements and will be updated post award of planning to reflect specific planning conditions which may be applied to the development.



The development consists of two single storey undercroft areas:

- Block 1 – 2738m² of Car Parking and Plant Room
- Block 2 – 2239m² of Car Parking and Plant Room

Above ground, the development consists of:

- Block 1 – Residential – Total Gross floor area – 29,438m²
- Block 2 – Residential – Total Gross floor area – 15,659 m²
- Block 2 – Apart Hotel – Total Gross floor area – 6,927m²

Proposed Ground Floor Plan

Issues to be addressed during construction include:

- Site Setup
- Liaison with Third Parties
- Safety Management
- Traffic Management
- Environmental Management
- Construction methodology

2. Site Setup

2.1 Site Compound

The site compound with site offices and welfare facilities will be located at the Northwest corner of the site. Parking and storage areas will be located on the west side of the site.

The compound will consist of:

- Offices
- Meeting Rooms
- Toilet / Shower Rooms
- Drying Rooms
- Canteens
- Storage Containers

All cabins will be steel securi-type with steel lockable shutters to windows and steel lockable door outside the internal timber door. All cabins will come to site in good condition and will be maintained in good order throughout the project.

The compound area will be cleared of all debris and a layer of good clean compacted stone will be placed to prepare the site to receive cabins, vehicles and materials. Clearly designated areas will be set up for parking and storage and separate pedestrian routes to the compound area from the car park will be set up using fencing and signage. Designated pedestrian walkways will also be set up inside the construction site area

Double stacking of cabins will be required and safe stairs and walk ways will be provided to the upper levels of offices. Timber hoarding will secure the site.

A power supply will be obtained from ESB Networks to power both the compound and the construction site to avoid the use of diesel generators to prevent noise and odour pollution. Temporary site lighting will be installed to provide safe and well lighted walkways around the site compound and task lighting to the construction site.

The timeline for the superstructure, which is the subject of this planning application, is divided into phases as follows:

Phase	Building	Proposed Build Duration
Phase 1	North 1 Residential	134 Weeks
Phase 2	North 2 Residential	134 Weeks
Phase 2A	North 2 Apart Hotel	134 Weeks

Proposed Site Layout

2.2 Site Access

The site is currently enclosed by a mix of secure timber hoarding, concrete panelling, and stone & brick walls.

There is an existing site entrance located on Sheriff St. Upper. This entrance is in use by Dublin City Council to access the pumping station facility onsite. This entrance will be developed to become the main construction entrance. Arrangements can be made to ensure Dublin City Council retain 24 hour access to the Pumping Station facility. Dublin City Council will require access to the Pumping Facility and unhindered access to any of their manhole covers/hatches/doors etc. – this access is to be maintained at all times for any scheduled or emergency works.

A pedestrian access gate controlled by swipe card will be located at the Sheriff St. Upper entrance. The arrangement to use Sheriff St. Upper as the main construction ensures that the workforce does not have to walk or drive through the construction area thus avoiding unnecessary interfaces with construction processes.

There are two existing entrances on New Wapping Street which can be opened intermittently to assist in times of high volume deliveries such as during concrete pours or during excavated material transportation. On these occasion the gates will be manned and used for construction processes only.

The main construction entrance will be recessed off at Sheriff St. Upper so vehicles can turn into the site entrance before stopping at the entrance gate for security personnel to take their details. This will ensure vehicles will not protrude on to Sheriff St. Upper avoiding potential traffic disruption. On days of large vehicle activity, such as on days of concrete pours, arrangements will be put in place to prevent any queuing on public roads. Trucks will be brought into site and queued along the internal site road. Wheel washing will be provided at the site entrance.

All personnel will undergo a site safety induction upon their arrival on site. These will be held on Monday, Wednesday and Fridays at 08:30. The induction will be by appointment only so site management will know in advance who will be attending.

Once the induction is complete, workers will be issued with a swipe card that will allow them to access the main compound and the site. All workers will also be issued with a helmet stickers identifying that they have been inducted on this site and a name sticker will be required to be displayed on safety helmets so staff or security can identify workers by name. The pedestrian access will be a solid door in the hoarding line that will be controlled by magnetic lock activated by the swipe card issued after induction.

2.3 Site Security

The site is currently enclosed by a mix of secure timber hoarding, concrete panelling, and stone & brick walls.

The main construction entrance shall be on Sheriff St. Upper. This entrance will be manned by security during site opening hours and monitored PTZ CCTV will provide security during closed hours. Statutory requirements regarding CCTV will be strictly adhered to.

Occasional entrances on New Wapping St. will be controlled to strict allow access/egress for construction vehicles only.

Apedestrian access gate controlled by swipe card will be located at the Sheriff St. Upper entrance. The card will only be issued following the safety induction as previously outlined.

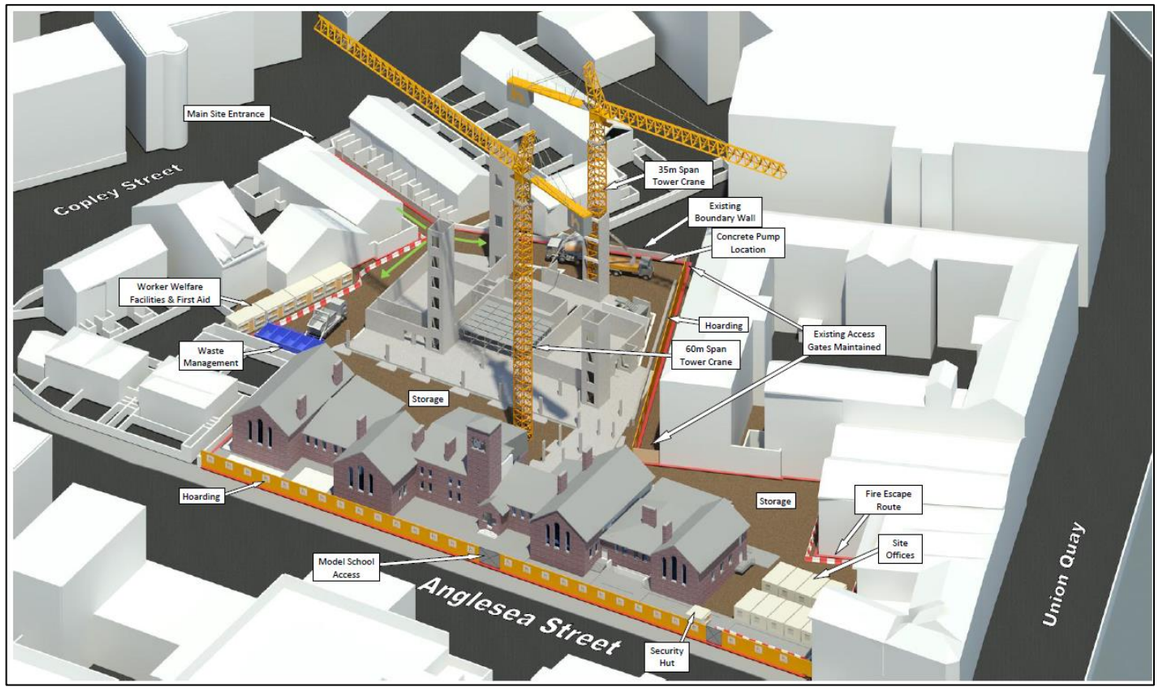
Issue of cards will be recorded at the induction and the swipe reader will record all swipes on computer so the access system will record who accesses or leaves the site and when. It will also serve as a database for roll call in the event of emergency and evacuation of the site.

An intruder alarm system will be set up to secure offices and a series of motion sensors will be set up along the inside of the site hoarding to detect trespass. These motion sensors will be connected to the CCTV monitoring control centre so security personnel will be able to direct the PTZ cameras at the location where the motion sensor has been activated and An Garda and the Project manager can both be contacted.

Security will be monitored on an ongoing basis and will be improved if required to both prevent trespass and to ensure the safety of the public passing by the site. The Main Contractor insurance company will audit the site to ensure site security systems are in place and functioning as required.

A full time security presence may be required as the project finishes and fit-out commences. This will be decided when the project reaches this stage.

Proposed Site Entrances



Sample BIM Generated Logistics Plans from Other Projects

2.4 Working Hours

The working hours will be dictated by the planning conditions and are expected to be as follows:

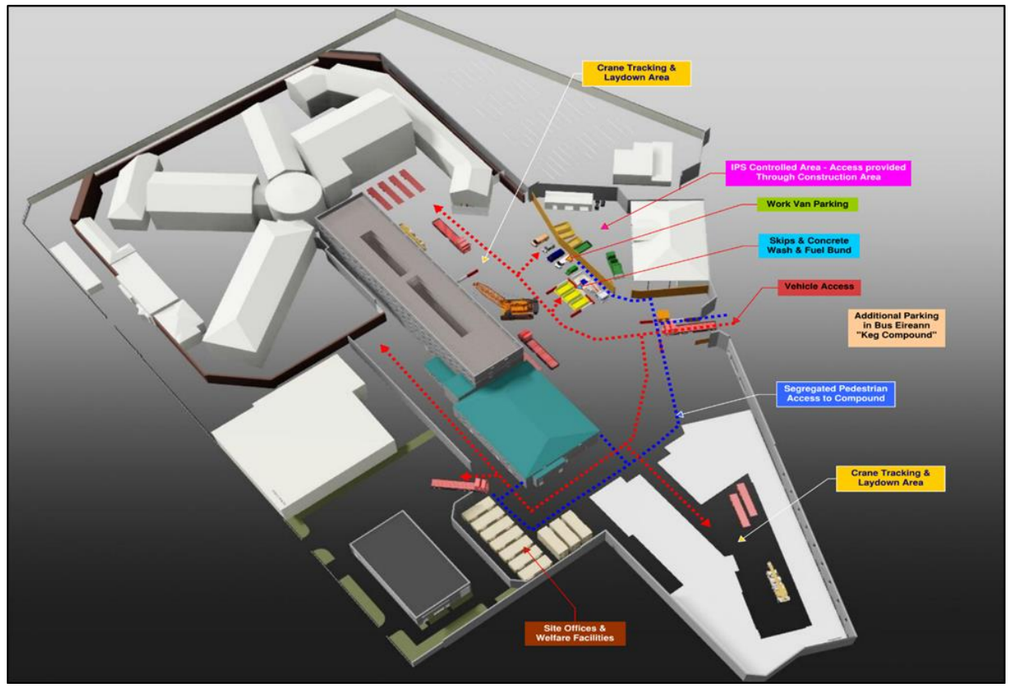
Days	*Start Time*	*Finish Time*
Monday –Friday	7:00	18:00
Saturday	8:00	14:00
Sunday	No work permitted	No work permitted
Bank or Public Holidays	No work permitted	No work permitted

We shall wherever possible work within the hours permitted by the Planning Decision for the development. It will be necessary to work outside these hours at times, for example for early morning concrete pours and late evening concrete finishing. Dublin City Council will be consulted about out of hours working and local residents and businesses will be informed of any out of hours works required.

2.5 Site Logistics

The new buildings will be a reinforced concrete frame construction which will require tower cranes to service the concrete crews, envelope, and fit-out lifting requirements. Four tower cranes (see fig. 7.2) are envisaged for the project complemented with teleporters, mobiles cranes, and concrete pumps as required. This is detailed further under the construction methodology section. Trucks will generally be off-loaded from the entrance road or from the laydown area in the west of the site. Trucks will be allowed to travel internal site roads and be controlled by a site specific logistics plan.

The logistics plan will be drawn up on site plans and will also be marked up on a Revit model of the site at various stages – typical examples are shown over. These will improve visualisation for workers during the site induction and in tool box talks.



3. Liaison with Third Parties

The PJ Hegarty Project Manager will be appointed as Liaison Officer to deal with third parties. As Project Manager, he will be in a position to immediately deal with any issues that may arise. Third parties may include:

- Members of the public
- Dublin City Council
- An Garda Siochana
- Ambulance Service
- Fire Brigade
- Transport Infrastructure Ireland (TII)
- Transdev

In the unlikely event that the public complain about nuisance caused by the works, the Project Manager will be responsible for immediately dealing with this complaint and ensuring that it is addressed to the satisfaction of the person in question. A contact number of the Liaison Officer will be exhibited on all construction site notice boards and on any other information or correspondence which may be distributed via leaflet drop or direct contact with local resident representatives from time to time. A system of recording all queries and complaints will be maintained.

We will ensure we operate as a 'good neighbour' throughout the Construction Period. The intention is for the project to add value to the neighbourhood, and will not detract nor be a nuisance. We will carry out the works in a manner which are sensitive to the adjoining owners and the wider local community. We will operate to an equivalent standard as the UK "Considerate Constructors Scheme" including their code of practice.

Interaction with Dublin City Council will be required prior to commencement. Planning conditions must be adhered to and clear lines of communication will be set up with the relevant persons in the Local Authority to ensure all planning conditions are complied with on an ongoing basis. As already stated in section 2, unhindered access to all doors/manhole covers/hatches is to be maintained during the construction period.

We will also ensure, in conjunction with the Client appointed Assigned Certifier, that the commencement notice along with the required information are uploaded to the Building Control Management System within the required timeframe before commencing the works on site.

The emergency services will be made aware of the site location and the access and egress points both for both the construction area and the site compound so they are familiar with the site if they are ever required in the event of an emergency.

LUAS Operation & TII

The traffic management plan was created with the aim of having no adverse impact on the LUAS operation and safety. As the project commences the traffic management plan will be developed further with the advice of TII and DCC to ensure this aim is achieved. The current established hoarding line around the perimeter of the development zone is within the site boundary. As a result, at this point in time, this is no requirement now or in the foreseeable future to protect OCS (overhead conductor system) poles. If conditions change and this is required, TII will be consulted well in advance of any works.

Prior to any works being carried out adjacent to the LUAS line, TII will be engaged/informed and their codes of practice and guidelines followed. These works will include activities such as piling. PJH will submit RAMS (risk assessment and method statements) for these work to TII well in advance of commencement.

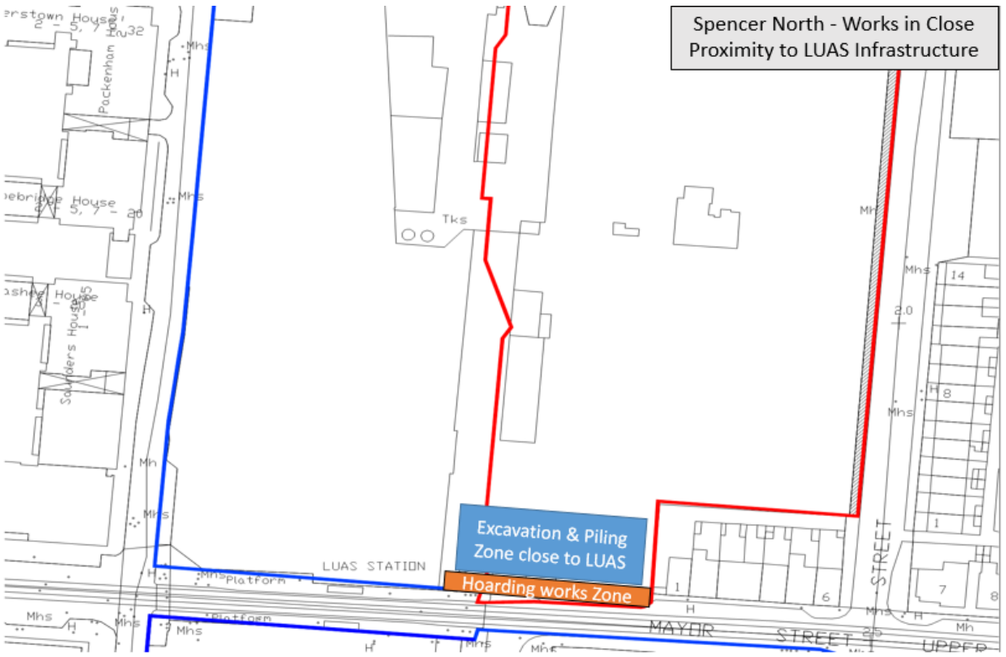
PJH will ensure that any works carried out that are deemed to be in close proximity to the LUAS Overhead Conductor System will be done so with the relevant permit(s) in accordance with the Light Railway Bye-Laws 2004 which regulates works occurring close to the LRT infrastructure.

PJH will ensure proposed foul and surface water drainage related to the development works will not utilise, discharge, surcharge or share common outfalls with existing LUAS infrastructure.

PJH's crane strategy (see section 7.2) was developed around the condition of having no adverse effects on LUAS operation. Before any crane lifts are carried out onsite, PJH will submit the Project's lift Plan to TII for approval.

Works that may be considered in close proximity to LUAS infrastructure include;

- Excavation/Groundworks
- Piling
- Perimeter/Hoarding works



The design and installation of landscaping elements directly involving LUAS infrastructure or its' immediate environs will be submitted to and agreed with TII before commencement of any works. PJH will ensure that any works relating to landscaping, planting and signage do not impede tram drivers' visibility of the road junction, associated signal or affect the footpath to the extent that pedestrians may walk into the swept path of oncoming trams.

4. Safety Management

Our Safe-T-Cert accredited safety management system will be implemented as soon as we commence on site. The Project Supervisor Design Stage and Project Supervisor Construction Stage will liaise with each other to ensure the relevant documentation is in place and that the safety management system to be implemented on site is fully agreed.

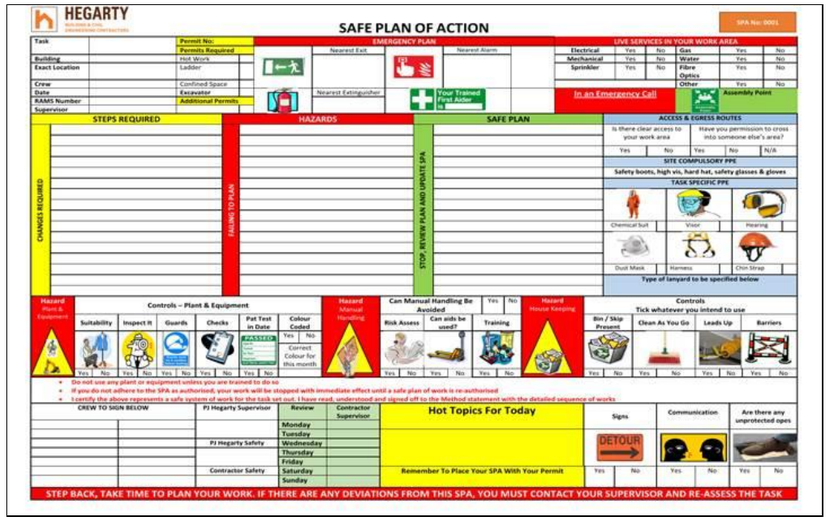
The Project Supervisor Construction stage will then work closely with our Site Management Team including the Site Safety Advisor to ensure safety is given the number one priority on site.

A safety induction will be given to all personnel and the site induction register will include details of safe pass and CSCS card. Tracking of expiry dates will ensure training is kept up to date and valid while workers are on site.

Method statements with comprehensive risk assessments will be prepared 2 weeks in advance of commencing a task on site to allow time for review and revision so that the method statement is approved 1 week in advance of commencement. This will allow time to organise any specific requirements or safety resources to carry out the work safely.

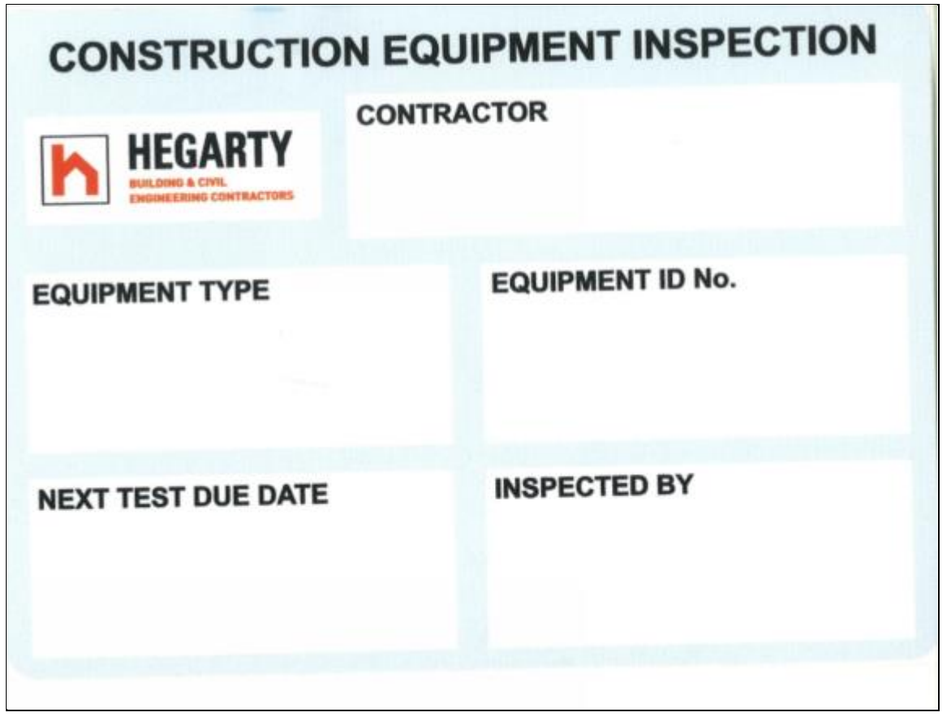
A site safety station will be setup to provide a location for sub-contractor foremen to gather each morning to complete their Safe Plan of Action and obtain their work permits. A spill kit, fire extinguishers and safety glasses lens cleaning kit will all be located here.

PJH Site Safety Station



PJH Safe Plan of Action Form

Plant and equipment will be inspected upon arrival on site. Their details including certificates and expiry dates will be entered on to a site plant register and tracking of this will identify when inspection and servicing is due. All plant will be provided with a plant sticker to identify dates of inspection and next inspection due.



Plant ID Sticker

Working at height will be a major requirement on this project with buildings reaching 8 floors above ground. Access systems will include scissors lifts, boom hoists, mast climber hoists, personnel / good lifts and scaffolding. Each of these will be inspected and signed off as being in good order and safe to use each day.

Training will be required to use the mobile elevated work platforms and this will be recorded at induction. Scaffolding will be built and inspected by qualified scaffolders.

The secure hoarding and existing boundary walls will prevent construction debris from site, which could cause damage or harm to members of the public or public property, escaping to public areas. Walkways outside the site hoarding will be covered to protect pedestrians in the event of falling debris. Cantilevered fans will be erected once the superstructure progresses above ground level to catch any debris and prevent this from falling onto public roads.

An **Emergency Incident Response Plan** will be prepared for the site. In the event of an emergency or incident of serious and imminent danger, the Safety Advisor will be immediately notified. This will be addressed at the safety induction and all workers will be provided with the contact details for the safety advisor. Alternatively, if any workers witness an emergency situation, they can immediately notify their supervisor who will in turn contact the safety advisor.

The Safety Advisor will then notify all persons concerned of the risks involved and the steps to be taken. The Safety Advisor or supervisor will instruct on how to proceed next depending on the nature of the incident. Work may be able to continue or it may have to stop work or immediately and workers would have to leave the place of work and proceed to a designated safe place.

Possible hazardous situations which may require evacuation are: - serious fire, explosion, rupture of gas or fuel line, serious accidents, collapse of building or structure, flooding, electrocution, chemical spills or articles falling on personnel. The following will be the emergency procedures.

- **Alarm**
  Alarm will be raised by contacting the Safety Advisor or Site Manager who will arrange the alerting of the emergency services immediately by phoning 999 and requesting the appropriate services – fire brigade, ambulance, etc. The person making this call will provide full details as requested by the dispatcher. The next call will be to the Site Supervisors so they can initiate emergency procedures outlined to all workers at site induction.

- **Control**
  The Safety Advisor will ensure immediate and accurate assessment of the situation, its seriousness and emergency services required and will exercise full control over the incident.

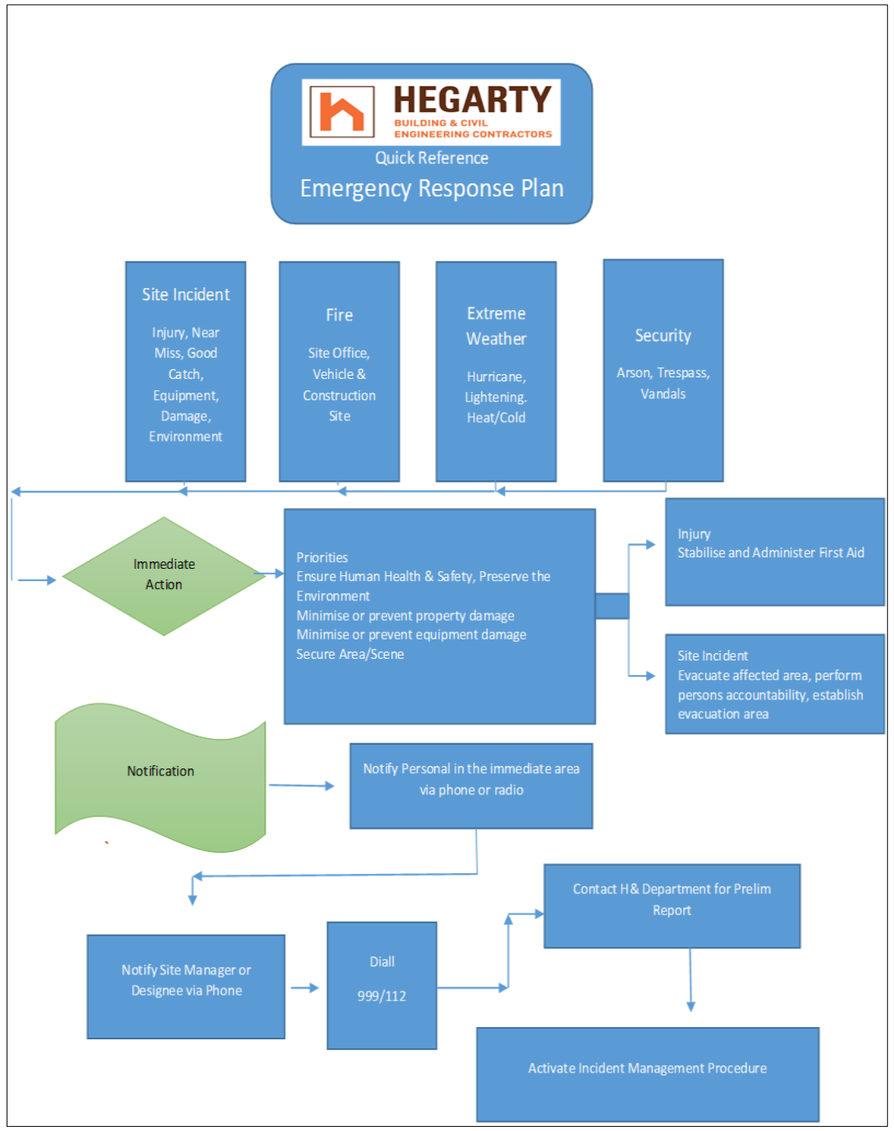
- **Communication**
  The Safety Advisor will keep his/her mobile phone clear throughout the emergency (if it is safe to do so) and will be responsible for communicating with the emergency services following the initial call from the Safety Advisor. Another member of staff, will be despatched to Sheriff Street Upper to direct emergency vehicles to the site and others may be arranged around the site to ensure the speedy arrival of the emergency services to the site of the incident.

- **Assembly Point**
  The main assembly point will be located at the site compound and will be pointed out to workers at the site induction. Tool box talks will be used to remind workers of this.

- **Treatment of Injuries**
  Only approach an injured person if safe to do so. Remove the person from further danger if necessary and safe to do so. Administer first aid if necessary until ambulance personnel arrive on site.

- **Environmental Incident**
  Minor spillages will be cleaned up using the spill kits that will be maintained in site. This may include hydraulic oil from burst excavator hose or similar minor spills. If the incident is hazardous in nature, wait for fire brigade / specialist clean up personnel – do not attempt clean-up of any hazardous waste.

Safety management systems will be inspected weekly and audited monthly by the Company Health & Safety Manager who will visit site to carry out these inspections and audits. A full time safety advisor will monitor safety continuously while site management and site supervisors will promote a safety culture to target zero incidents on site.

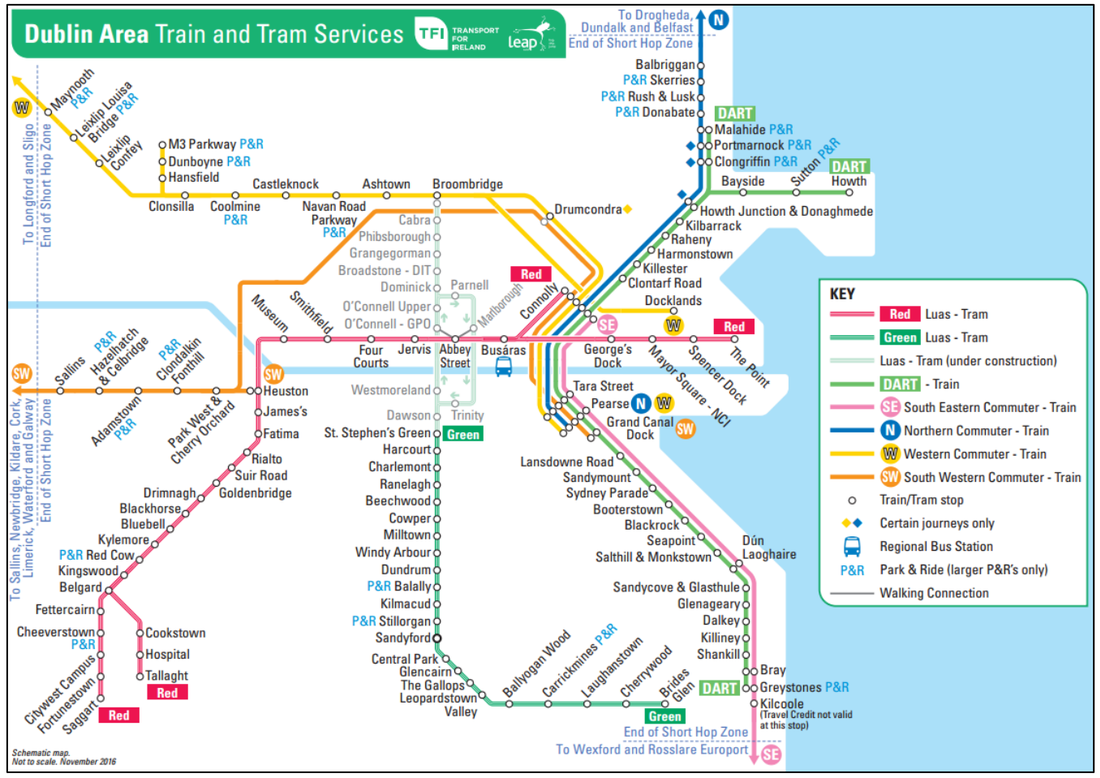


5. Traffic Management

The traffic management plan for the site will be developed prior to commencement and the provisions of this plan including erection of signage on public roads will be agreed with Dublin City Council in advance of commencement on site. The traffic management plan shall be updated appropriately to ensure coordinated and effective traffic management practices and arrangements are in place throughout the construction period.

External to the site, traffic will include construction workers travelling to site and materials deliveries which will include small delivery vans, large rigid trucks, articulated trucks and trailers, and concrete trucks. Excavated material will be removed off site during the first months of the project as bulk excavation.

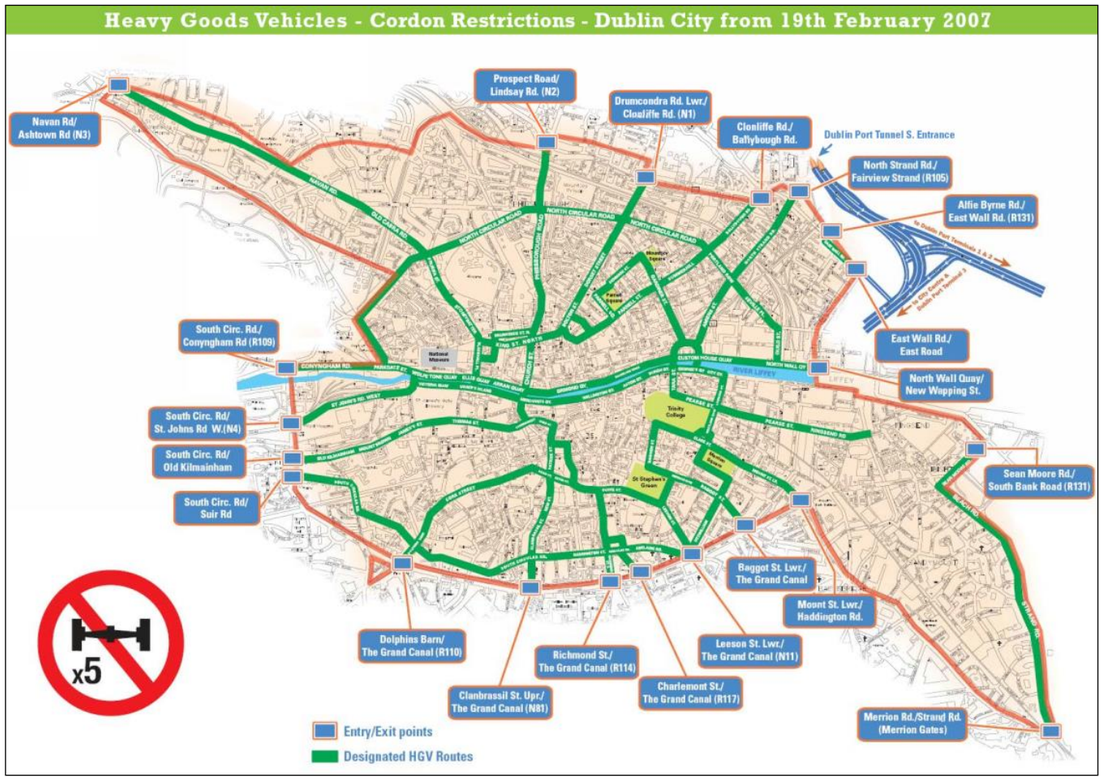
PJ Hegarty & Sons will organise deliveries to minimise congestion on public roads by avoiding peak traffic periods where possible. During particularly busy periods such as during concrete pours, trucks will be queued up inside the site as previously outlined to avoid queuing on public roads.

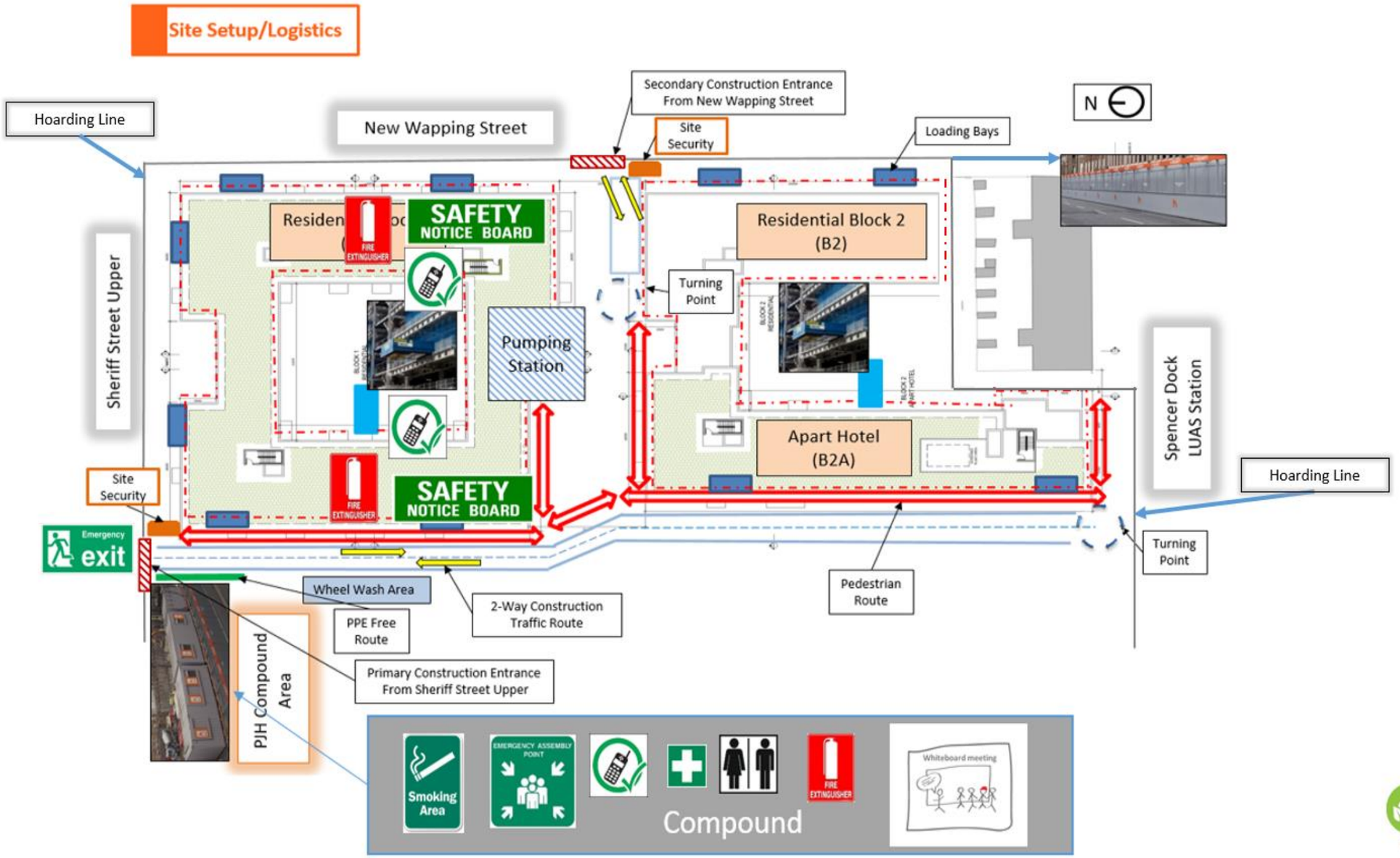


New updated version (December 2017) with the Abbey Street Luas completed.

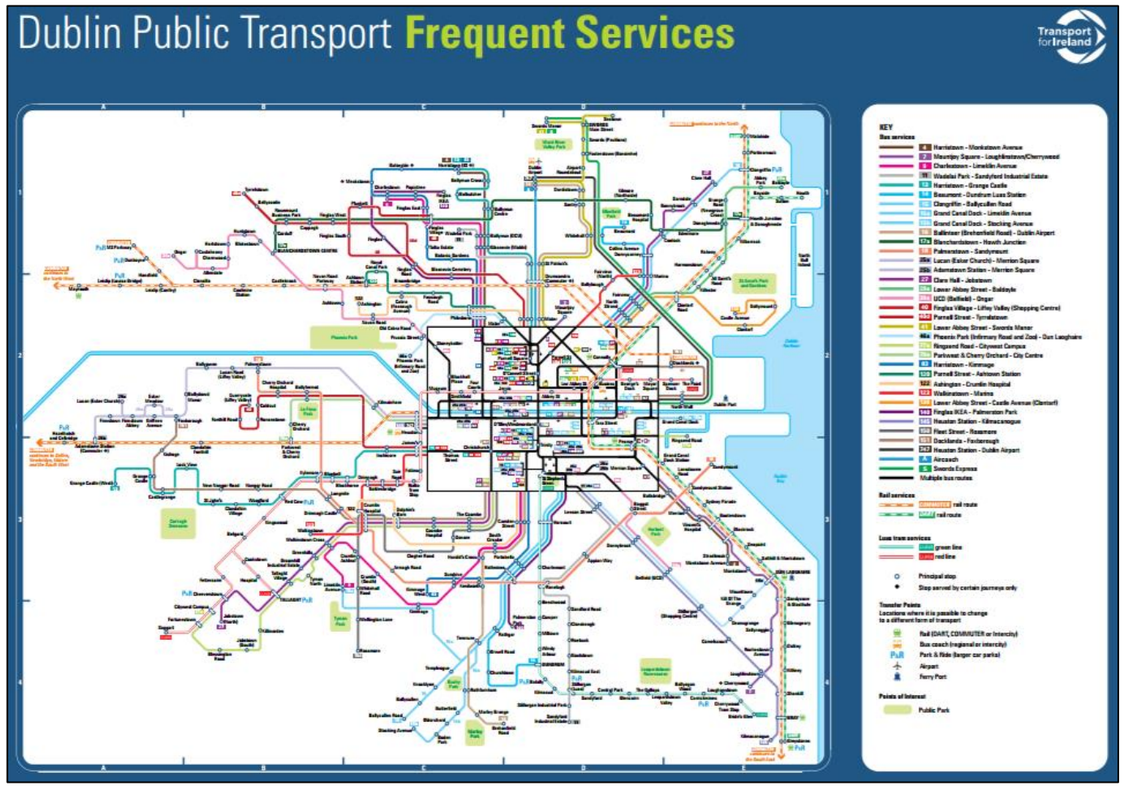
Deliveries will be on a just in time basis and this system will be strictly controlled between our Site Supervisors and our Purchasing Manager who will organise the deliveries. The purchasing Manager will provide the Site Supervisors with contact details for suppliers who will make contact to ensure drivers are made aware of the site location and the correct route to site in accordance with the Dublin City Council heavy goods vehicles cordon restrictions. It is expected that HGV's will approach from the M50 through Dublin Port Tunnel and from here directly to the site through the Entry / Exit point at Sheriff Street Upper and occasionally at New Wapping Street.

While parking will be available in the compound area to the west of the site, workers will be encouraged use public transport where possible to reduce congestion on public roads. Public transport options include LUAS and bus services as shown on the Dublin Area Train and Tram Services and Dublin Public Transport Frequent Services maps shown here.





Traffic Management within the site



6. Environmental Management

PJH are accredited to ISO14001: 2004 environmental management and environmental protection measures will be put in place to prevent damage to the environment and to comply with planning conditions. In addition to the following mitigation measures listed below please see Appendix A for revised Dublin City Council Construction Protocols which will be adhered to during the construction period.

6.1 Noise, Dust & Vibration Monitoring

Noise, dust and vibration monitoring will be dependent on planning conditions but are expected to be required and will be set up in locations with particular focus on areas that adjoin neighbours and TII infrastructure (South Elevation of Site). In addition, it is envisaged that environmental monitoring stations will be located adjacent to the pumping station in locations to be agreed with the client in addition to the standard site perimeter locations. It is expected that a number of Instantel vibration monitors together with the monitor enclosure, battery, and GSM modem to enable remote downloading and a dual alarm system will be set up on site.

The alarm system will alert us if vibrations exceed the allowable limit. If this happens, work will be stopped and the methodology will be revised to reduce vibrations. A monthly report will be prepared showing the actual vibrations recorded.

An agreed number of Larson Davis Noise monitors together with Enclosure, Battery, GSM Modem and microphone protection system will also be installed at locations agreed after planning conditions have been received. Reports will again be prepared showing noise levels generated by the construction works.

Dust monitoring locations will be set up as agreed and will follow the German TA-Luft Standard for deposition of non-hazardous dust.

6.2 Wheel Washing

On this site in a prominent city centre location, the main source of any environmental problem will be the visibility of debris or dust on public roads. Wheel washing will be implemented and road sweeping will be carried out as required. Power washing of wheels will be carried out as required. As traffic increases, an automated wheel washer may be installed.

Wheel Washing

6.3 Dust Control

Dry weather coupled with high winds can sometimes lead to dust being generated on site. In the event of this occurring, dust suppression will be implemented through water spraying. This will be carefully managed as application of too much water can lead to mud forming. Road sweeping will be carried out if required to control this.

Road Sweeping & Dust Suppression

6.4 Waste Management

A site specific waste management plan will be implemented on site to control waste generated. Lean construction techniques will be implemented on site to minimise waste.

- Accurately quantify materials to be ordered
- Ensure approved materials that comply with specification are ordered
- Arrange just in time delivery of materials to minimize possibility of damage
- All deliveries to be inspected and placed in appropriate storage areas
- Incorrect deliveries will be returned to the supplier immediately.
- Handle materials to avoid damage and waste of good materials.
- Completed work to be protected from damage and maintained in good order.

Waste Reuse and Recycling will be required and will be implemented as follows:

- Setup dedicated skip area
- Segregate waste into separate skips for recycling
- Ensure subcontractors use the various skips correctly

6.5 Storage & Use of Fuel

- Fuels will be stored in a dedicated bunded fuel storage area
- Fuels stored in approved storage containers within this area
- Fuel storage isolated from any source of ignition or impact
- Refuelling of plant at designated refuelling points or from bowser
- Spills are to be contained, reported and dealt with using an agreed method.

6.6 Energy Efficiency

- Electrical equipment to be will be switched off when not in use.
- Non-essential lighting will also be turned off when not in use
- Office equipment to be switched off nightly and at weekends
- All electrical equipment to be kept in good order by a qualified electrician.
- Ensure that water is not wasted; taps will be turned off, leaks repaired
- All plant and machinery turned off when not in use to conserve fuel
- plant such as generators, lighting towers not to be used unnecessarily

6.7 Management of Odours & Other Emissions

- Engines must be switched off when not in use.
- All equipment will be correctly operated & maintained.
- Burning of waste materials on-site is strictly prohibited.
- Refuelling will be in a designated area, away from the general public/sensitive residents.
- All organic wastes will be stored in covered containers or bins, prior to removal from site.
- Temporary and drains will be maintained so as to prevent emission of odours.
- Domestic and canteen bins skips will be emptied regularly in the designated skip.

6.8 Management of Noise

- Ear Protection Zones shall be clearly identified
- Ensure our employees are provided with, and use, suitable approved hearing protection when working in these zones.
- Ensure that noise levels produced by plant or machinery on the site are as low as practicably possible.
- All plant and equipment on site must comply with European Standards.
- Advise the Client if we anticipate excessive noise levels from our work operations so that all reasonably practicable precautions can be taken to protect persons who may be affected.

6.9 Management of Water Pollution

- We will comply with planning conditions regarding water pollution
- Construction related substances such as oil or diesel to be stored in secure bunded containers
- Spill trays to be used under generators
- Concrete lorries to wash their chutes only in a designated area and all wash will be collected and treated.
- Water from the dewatering system will be pumped to a settlement tank before discharge to the Dublin City Council sewer.

6.10 Management of Hazardous Waste

- Provide MSDS for hazardous materials in advance of being brought to site
- Comply with Safety, Health and Welfare at Work (Chemical Agents) Regulations
- Carry out risk assessments for the transport, storage, use and disposal of such substances
- Use suitable and secure storage in bunded areas

7. Construction Methodology

7.1 Introduction

The detailed design for the new development will commence after submission of the planning application with a view to commencement on site in late 2018 subject to planning approval. The expected duration of the project is 24 months.

The works will commence with an open dig process to the formation level of both North 1 and North 2 construction areas. Some dewatering is expected. This will be managed in a similar method but not to the same scale as used on the Spencer Place project.

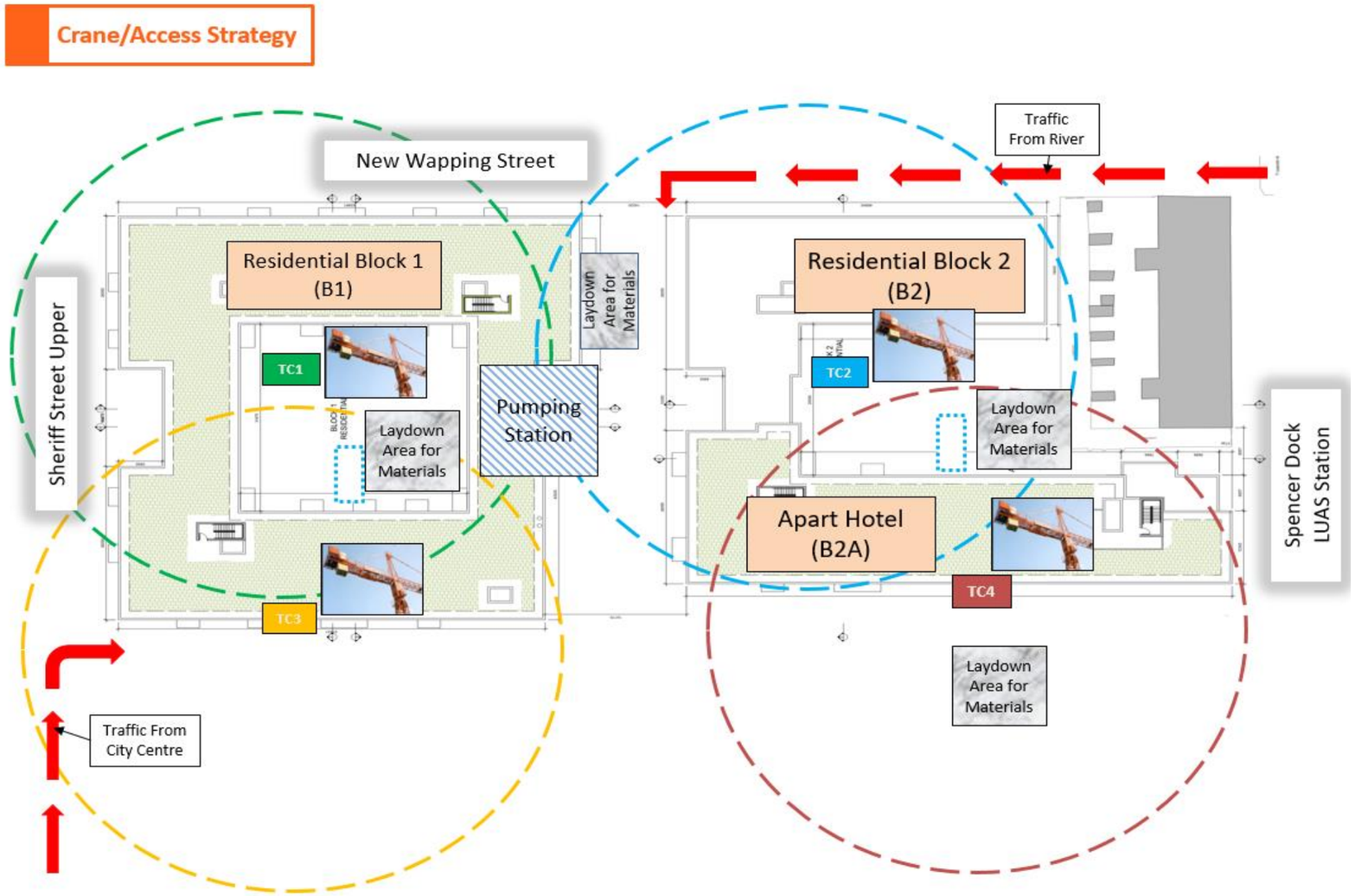
The individual buildings will then be constructed on a phased basis as shown on the draft construction programme on the following 2 pages. When the superstructure is completed, the envelope will follow and fit-out will overlap with the envelope.

Design will be phased to meet the construction sequencing.

Management of Hazardous Soil: Material which is to be removed and disposed of off-site will be graded and categorised for disposal in accordance with Council Decision 2003/33/EU

7.2 Tower Cranes

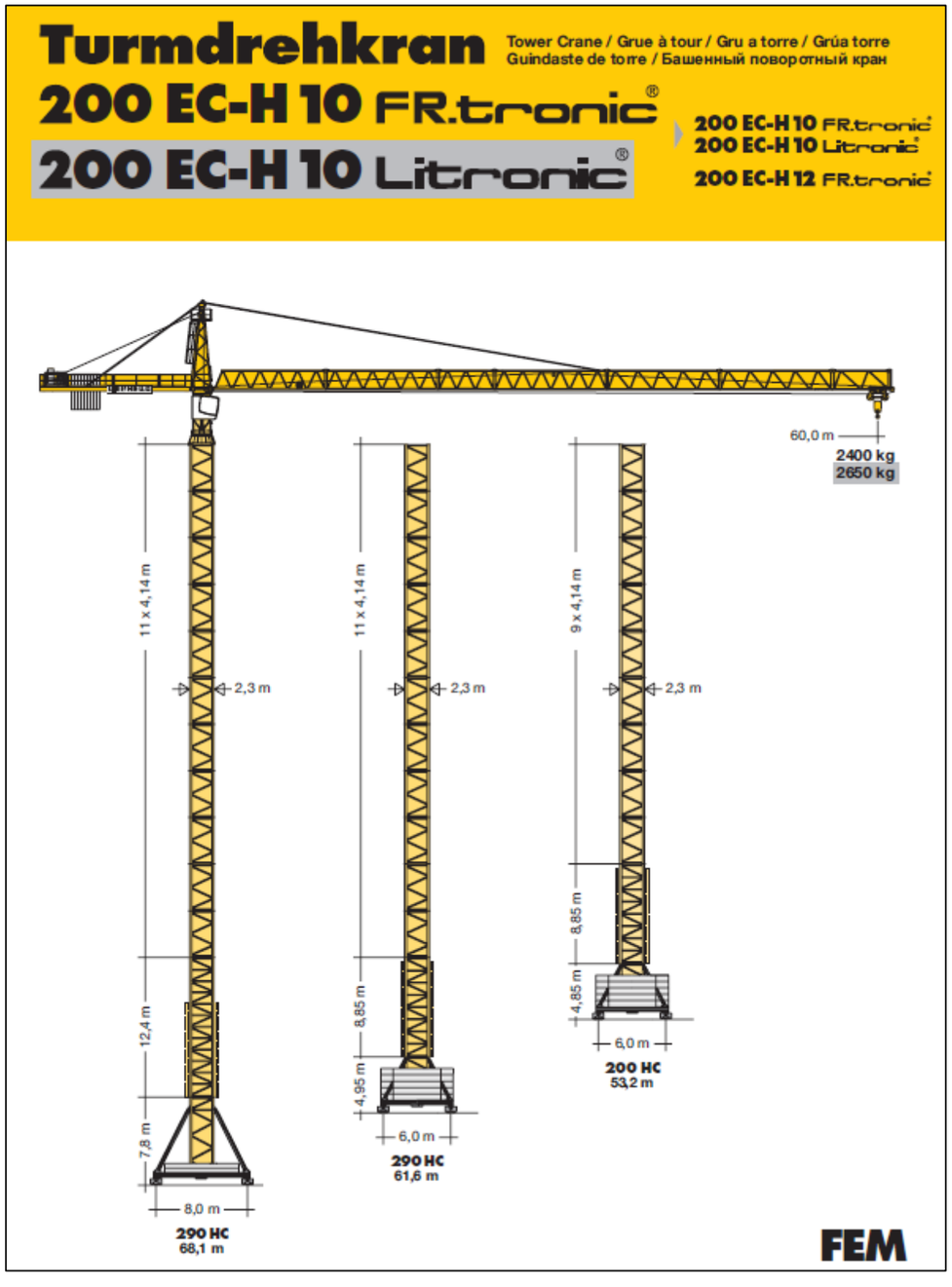
The construction of the new concrete frame buildings will require 4 tower cranes. These will be located as shown below.

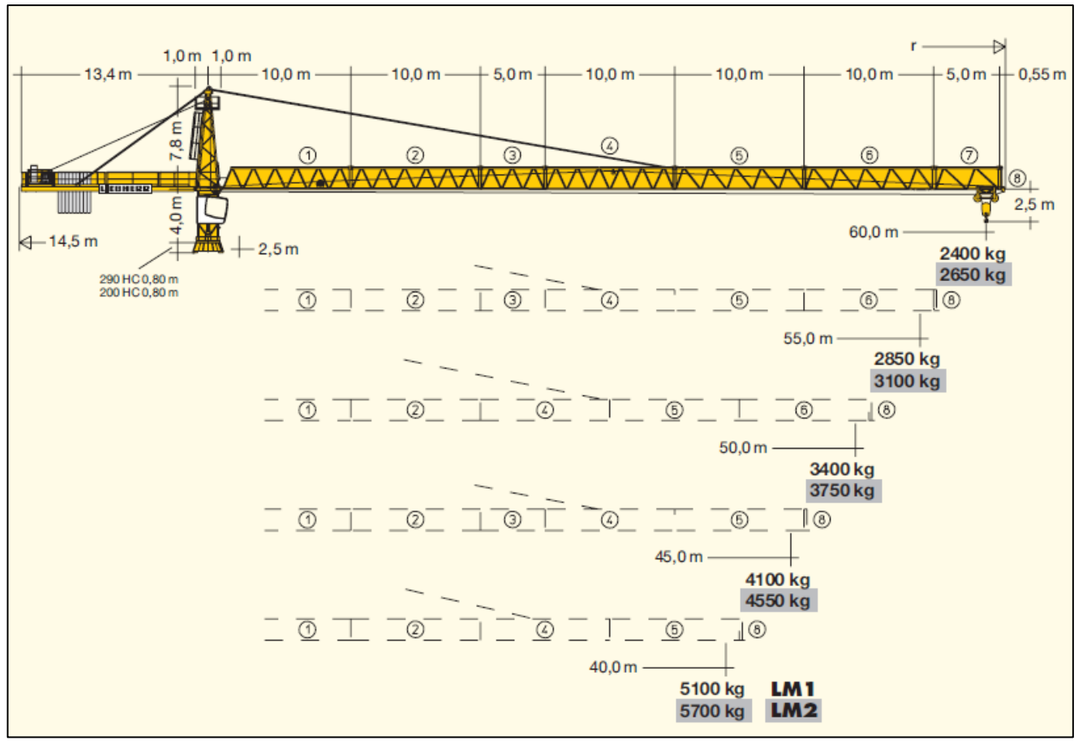


Tower Crane Appointed Person to control the erection, operation and dismantling procedures. Tower Crane coordination strategy to be developed in relation to adjacent properties/projects.

Tower Crane North 1 will service North 1 Residential and will be the tallest of the cranes in order to slew over the other crane. Tower Crane North 1 will be a Liebherr ECH 200 tower crane with a 50m jib.

Tower crane 2 will service North 2 Residential and North 2 Apart Hotel. This tower crane will be lower than Tower Crane North 1. This crane will have a 50 metre jib and will be a Liebherr ECH 200 tower crane.





Jib heights will be confirmed once building heights are finalised but are expected to be approximately 55m and 65m. A crane coordination plan will developed to manage crane operations when there are mobile cranes or concrete pumps in operation alongside the tower cranes to ensure there are no collisions.

Banksmen will control crane lifts and will be in radio contact to coordinate lifts. Beacon lights will be placed on the cranes for aviation purposes and flood lights will be placed on the crane shafts for site lighting. Drivers will be instructed to slew loads so that materials remain over the foot print of the site although jibs will oversail properties outside of the site.

Tower Crane North 1 and Tower Crane North 2 will use a standard ballast arrangement

The tower cranes will be used primarily for lifting decking and rebar and for small concrete pours such as columns. After superstructure, they will be used for lifting materials to the facade of the building for envelope installation and for lifting materials into the building for fit out works.

7.3 Other Plant

As already outlined, mobile cranes will be required from time to time on site. This is expected to be an 80 tonne mobile crane. Ground conditions will be checked to ensure a safe platform for the mobile crane to set-up upon.

Concrete pumps will be used for all large pours including floor slabs and walls. This will take pressure off the tower cranes and allow the tower cranes to concentrate of lifting of rebar and decking falsework and formwork.

Minor small plant will include vibrators, power floats, compressors, generators, etc. during the course of the concrete works. Boom hoists will be used in conjunction with scaffolding to access wall and column pours.

Plant required to install the building envelope will include scissors hoists, boom hoists and mast climber hoists.

Fit-out works will mainly require small electric powered scissors hoists suitable for use indoors. These will be required for installation of partitions and services during the fit-out period.

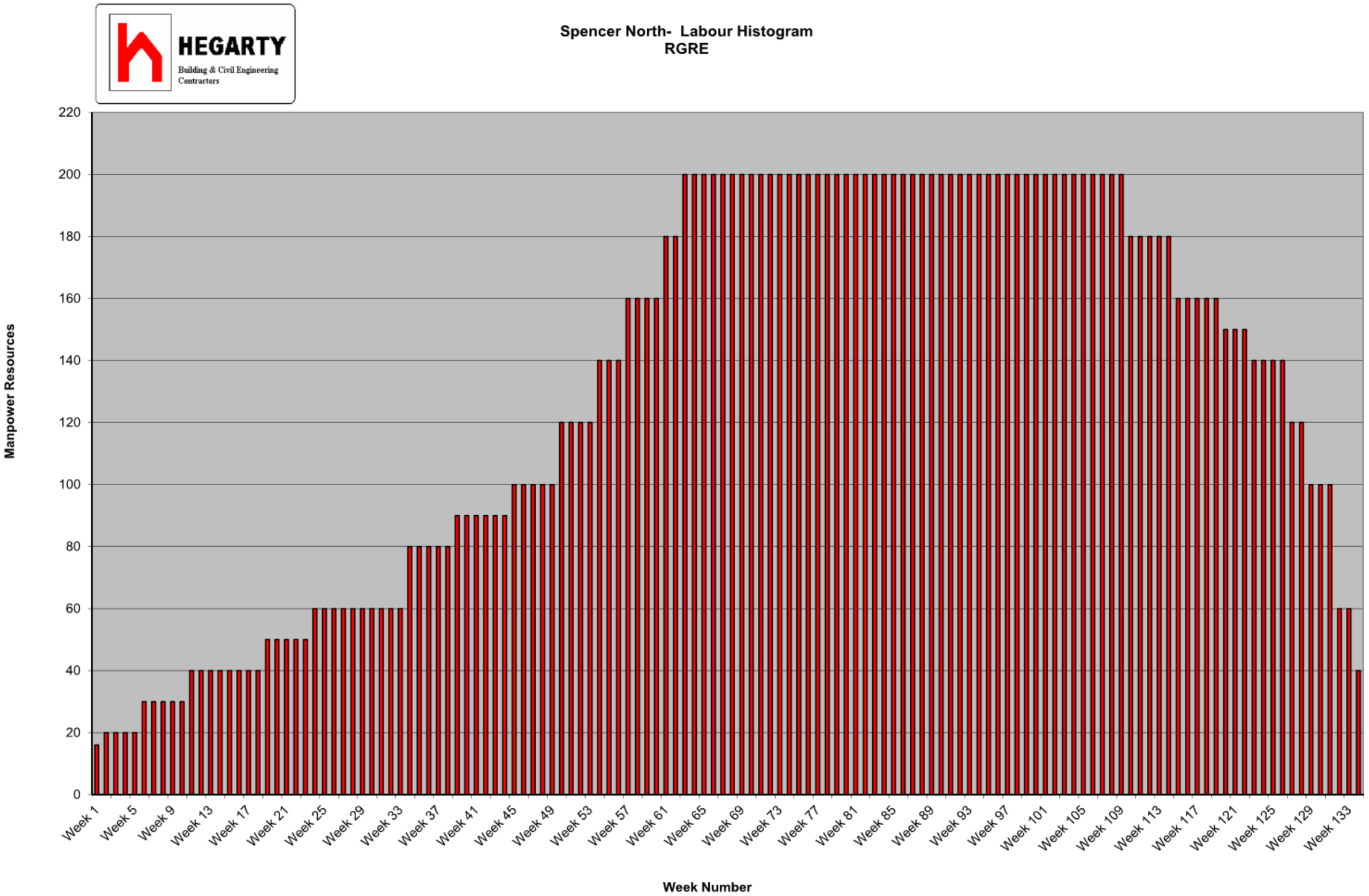
Proprietary decking systems will be used to pour the concrete frames consisting of both wall and floor shutters. Decking systems will be removed when concrete slabs have achieved reached their required strength and will be replaced with back propping. The decking will then be moved to the upper floors for reuse. This will reduce the amount of decking materials required on site and will reduce storage requirements.

Loading bays will consist of both scaffolding and super-deck platforms. Cranes will lift materials on to the loading bays where workers will immediately bring materials into the building. Fit out materials will be loaded into the building once decking systems and back propping are removed. This will ensure the materials can be brought into the building ahead of façade works which will close off access.

Concrete stairs will be precast and will be installed as soon as stair cores are ready to receive them. This will provide a safe access to each floor level. An electric hoist will also be used before stairs are in place.

Permanent lift installations will be used for the latter stages of fit-out to bring in furniture and equipment. Lifts will be protected to prevent damage.

7.4 Labour Resources



8.0 Public Relations

The communication systems in place on the existing PJ Hegarty & Sons managed Spencer Place Development will continue to ensure good relationships with the public and with neighbours.

PJ Hegarty & Sons will observe the Dublin City protocol outlined below:

Following the receipt of multiple complaints relating to large scale commercial development sites in Dublin Docklands Area relating to;

Alleged breaches of standard permitted working hours, excessive noise and dust levels, dirt and debris on approach roads, damage to surrounding footpaths, illegal parking, lack of courtesy from contractors and subcontractors to residents in the vicinity.

Alleged excessive hours of work extensions being sought by contractors and granted by Dublin City Council which is allegedly causing undue disruption to the lives of residents in the vicinity of certain sites in the area.

The following updated protocol has been produced (with reference to the London Good Practice Guide: Noise and Vibration Control for Demolition and Construction produced by the London Authorities Noise Action Forum, July 2016) to alleviate/mitigate some of the issues that are being raised by existing residents in the Docklands Area.

1. General Considerations

All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.	All sites
Site hoarding should be erected to maximise the reduction in noise levels	All sites
The contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours, including any special permissions given for out of hours work	All sites
The site entrance shall be located to minimise disturbance to noise sensitive receptors	All sites
Internal haul routes shall be maintained and steep gradients shall be avoided	All sites
Material and plant loading and unloading shall only take place during normal working hours unless the requirement for extended hours is for traffic management(i.e. road closure) or health and reasons(application must be made to DCC a minimum of 4 days prior to proposed works)	All sites
Use rubber linings in chutes, dumpers and hoppers to reduce impact noise	All sites
Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements	All sites
No materials shall be burned on site	All sites
Adequate dust/debris screening should be in place at the site boundary to contain and minimise the amount of windblown dust. This must be maintained in good condition at all times.	All sites
All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers must be covered during transit on and off site.	All sites
The site shall be dampened down as necessary to minimise windblown dust when necessary or during periods of dry weather.	All sites
Dust suppression equipment must be used when point source emissions are likely.	All sites
The entry and exit points to the site should be constructed of hard standing which is regularly dampened to minimise dust emissions.	All sites

2. Plant

Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC	All sites
Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer	All sites
Use all plant and equipment only for the tasks for which it has been designed	All Sites
Shut down all plant and equipment in intermittent use in the intervening periods between work or throttle down to a minimum	All sites
Power all plant by mains electricity where possible rather than generators	All sites
Maximise screening from existing features or structures and employ the use of partial or full enclosures for fixed plant	All sites
Locate movable plant away from noise sensitive receptors where possible	All sites
Investigate into the use of rubber track machines when in close proximity to resident's properties	All sites

3. Vehicle activity

Ensure all vehicle movement (on site) occur within normal working hours. (other than where extension of work requiring such movements has been granted in cases of required road closures or for health and safety reasons)	All sites
Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public highway, if unavoidable engines should be turned off	All sites
Minimise the opening and closing of the site access through good coordination of deliveries and vehicle movements	All sites
Plan the site layout to ensure that reversing is kept to a minimum	All sites
Where reversing is required use broadband reverse sirens or where it is safe to do so disengage all sirens and use banks-men	All sites
Rubber/neoprene or similar non-metal lining material matting to line the inside of material transportation vehicles to avoid first drop high noise levels.	All sites
Wheel washing of vehicles prior to exiting the site shall take place to ensure that adjoining roads are kept clean of dirt and debris. Regular washing of adjoining streets should also take place as required by road sweepers	All sites

4. Demolition Phase

Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished.	All sites
If working out of hours for Health and Safety reasons (following approval by DCC) limit demolition activities to low level noise activity unless absolutely unavoidable)	All sites
Use low impact demolition methods such as non-percussive plant where practicable	All sites
Use rotary drills and 'bursters' activated by hydraulic or electrical power or chemically based expansion compounds to facilitate fragmentation and excavation of hard material.	All sites
Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings	All sites
Consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off site.	All sites
Demolition of the existing stone wall and concrete panel fencing. Structural bracing to prevent collapse of neighbouring structures.	All sites

5. Ground Works and Piling Phase

The following hierarchy of groundwork/piling methods should be used if ground conditions, design and safety allows; • pressed in methods, e.g., hydraulic jacking • Auger/bored piling • Diaphragm walling • Vibratory piling or vibro-replacement	All sites
The location and layout of the piling plant should be designed to minimise potential noise impact of generators and motors	All sites
Where impact piling is the only option utilise a non-metallic dolly between the hammer and driving helmet or enclose the hammer and helmet with an acoustic shroud	All sites
Consider concrete pour sizes and pump locations. Plan the start of concrete pours as early as possible to avoid overruns	All sites
Where obstructions are encountered, work should be stopped and a review undertaken to ensure that work methods that minimise noise are used.	All sites
When using an auger piling rig do not dislodge material from the auger by rotating it back and forth. Use alternate methods where safe to do so.	All sites
Prepare pile caps using methods which minimise the use of breakers, e.g., use hydraulic splitters to crack the top of the pile.	All sites

6. Monitoring

Establish pre-existing levels of ambient noise by baseline monitoring or use of the noise maps.	All sites
Carry out regular on site observation monitoring and checks/audits to ensure that BPM is being used at all times. Such checks shall include; • Hours of work • Presence of mitigation measures • Number and type of plant • Construction methods Site reviews must be recorded and made available for inspection	All sites
Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format.	All sites
Appraise and review working methods, processes and procedures on a regular basis to ensure continuous development of BPM	All sites
The 'ABC' Method detailed in Paragraph E.3.2 of BS 5228-1:2009 shall be used to determine acceptable noise levels for day, evening and night time work.	All sites
Vibration levels must be kept below 1.0 mm/sec (PPV) where possible. Where levels are expected to exceed this value residents must be warned and an explanation given.	All sites
Appropriate dust suppression must be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways	All sites
Street and footpath cleaning must be undertaken during the demolition and ground works phase to minimise dust emissions	All sites
Continuous dust monitoring along the site boundary should be undertaken during any demolition or ground works	All sites

7. Communication and Liaison

A Community Liaison Plan should be developed by the developer in consultation with local residents/businesses and a single point of contact nominated to engage with Dublin City Council and the residents/businesses and to handle complaints and communication of site information	All sites
Contact details for the site manager and liaison officer should be displayed prominently on the site hoarding	All sites
All site staff should be briefed on the complaints procedure and mitigation requirements and their responsibilities to register and escalate complaints received.	All sites
Send regular updates at appropriate intervals to all identified affected neighbours/ businesses via a newsletter and post relevant information on the site hoarding. Also make the information available via email/website	All sites
Arrange regular community liaison meetings at appropriate intervals (including prior to commencement of the project in the future).	All sites
Meet regularly with neighbouring construction sites to ensure activities are coordinated to minimise any potential cumulative issues.	All sites
Confirmation that there are no invasive species local to the area, impacted by the works.	All sites
Confirmation from a qualified licenced archaeologist of any implications during the site clearance, demolition or construction methodology.	All sites

8. Extensions of Working Hours in <u>exceptional</u> circumstances

Ensure at least 4 days' notice is given to Dublin City Council when applying for extensions to normal working hours. Do not undertake out of hours work unless permission to do so has been granted.	All sites
The applicant must demonstrate in writing that the works required cannot be carried out during normal working hours. The documentation sent in must be accompanied by a detailed engineering or traffic management or safety case as to why the works are required outside normal hours. The application must give the times and dates of the proposed work, and the mitigation measures that are to be used to minimise noise/disturbance	All sites
Advise neighbours about reasons for and duration of any permitted work s outside of normal working hours, following receipt of approvals from DCC.	All sites
All complaints will be referred directly to the site liaison person and a reply must issue to the complaint within 3 hours of receipt of the complaint.	All sites
A log of all complaints and a summary of how they were dealt with should be kept and be made available to DCC, as required.	All sites
No more than two work extensions will be considered per week to facilitate required concrete pours. Power floating after 6pm is the only activity that will be permitted during the extensions relating to large concrete pours. Measures such as the use of electrical power floats should be considered to minimise noise associated with this work.	All sites
Any breaches of permitted working hours or permitted extended working hours or developers or subcontractors not carrying out their requirements under this protocol will lead to enforcement action and may also result in the withdrawal of any extension of hours of works for a period that will be at the discretion of Dublin City Council.	All sites
Auditing and compliance, incident reporting and emergency response	All sites