4 CONSTRUCTION STRATEGY

4.1 Introduction

This chapter describes the indicative construction strategy for the proposed development. The design and operation elements of the proposed development are described separately in **Chapter 3**. The strategy is in line with that detailed as part of the previously submitted planning application, which was partially granted under ref. ABP-306569-20.

This chapter of the EIAR has been prepared in accordance with Part 1 of Annex IV of the EIA Directive[1] and with article 94 and Schedule 6 of the Planning and Development Regulations, as amended ("the Regulations" hereafter. This section has therefore been structured to describe the following:

- Land use requirements to support the construction of the proposed development;
- Indicative duration and phasing during the construction period;
- Likely activities required to prepare the site and undertake the enabling works to support the construction of the proposed development;
- Indicative methodologies to undertake demolition and construction activities (including works to structures/buildings of architectural heritage value);
- Likely activities required to undertake final finishes and landscaping;
- An overview of anticipated employment numbers, hours of working, and construction safety measures which will be enforced during the construction of the proposed development (see **Appendix 4.1**); and
- An overview of employment and typical site and environmental management measures associated with the construction of the proposed development (see **Appendix 4.1**).

A Construction Environmental Management Plan (CEMP) has been prepared to provide minimum requirements that appointed Contractors will be required to implement (see **Appendix 4.1**) for the proposed development.

This chapter was prepared by Cloragh Byrne. Cloragh is a Structural Engineer at Arup with broad experience in the design and delivery of a wide range of Structural and Civil Engineering projects from Masterplanning through to completion. She holds a BSc(Eng) and ME in Structural Engineering with Architecture.

Please refer to Chapter 1 for further details of her relevant experience and qualifications.

4.2 Land Use Requirements

The site of the proposed development is owned by the developer, Ruirside Development Limited. No acquisition of land will be required during the construction phase of the proposed development. The development area will also include the portion of landscaped area east of the existing ESB substation on Parkgate Street, and an area of footpath and pavement along Parkgate Street. All areas outside the site ownership boundary but within the red line boundary are owned or controlled by Dublin City Council (DCC).

[1] Council Directive (EC) 2014/52/EU of 16 May 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment Text with EEA relevance. Available: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0052

The red line site boundary remains the same as per the previous application and subsequent consented scheme ref. ABP-306569-20. The part of the site to which this development relates is highlighted in green in **Figure 4.1** below.

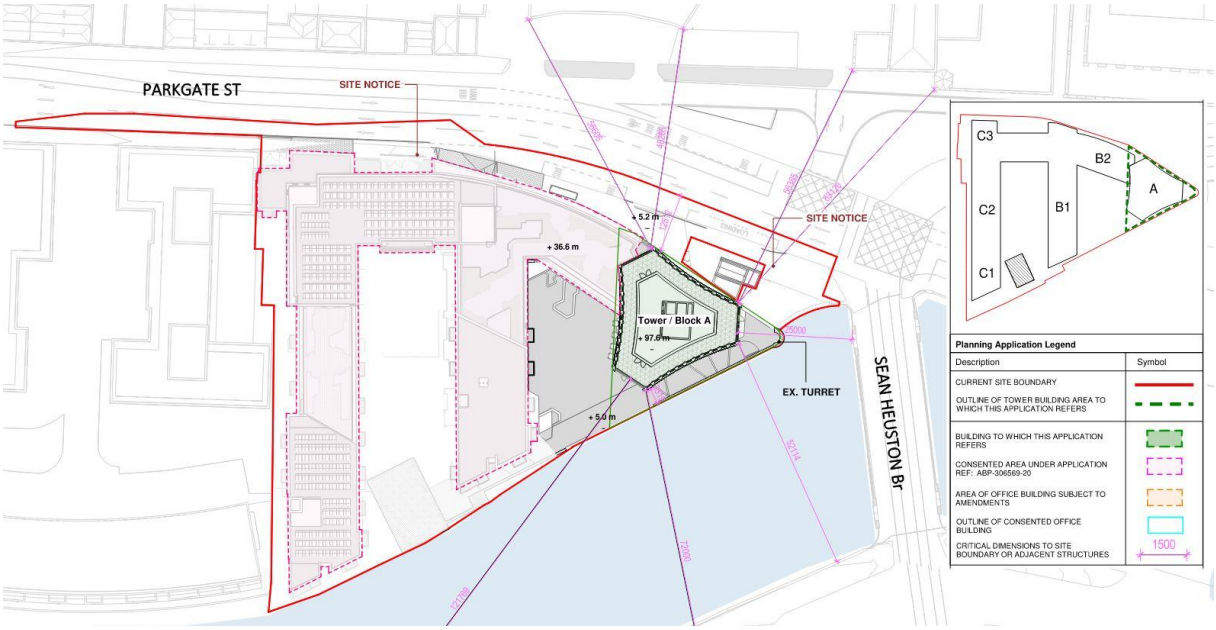


Figure 4.1: Proposed Development Area

The site was last occupied by Hickeys fabric company and had been since the 1970s. As part of a leasing agreement, Hickeys vacated the site in December 2019. These lands are currently in the control of Ruirside Development Limited, so no change in land ownership is required.

The works to take place within the land owned or controlled by DCC (but within the red line planning boundary) as part of the consented scheme under ABP-306569-20, for which the necessary licences and consents will be obtained, include:

- Minor works along the south footpath on Parkgate Street, including landscaping works to the existing green area East of the site by Sean Heuston Bridge;
- Surface water improvement works along the south kerb on Parkgate Street;
- Foul drainage connection on Parkgate Street;
- Vegetation removal, repointing of existing stonework, and the construction of a surface water discharge point to the River Wall; and
- Set up of site offices on the south footway on Parkgate Street, adjacent to the existing ESB Substation.

4.2.1 Construction Compound

The construction compound for the building to which this EIAR refers, Block A, will be part of the compound as described in the wider consented scheme, and be located on site within the planning boundary for the duration of the project. On-site accommodation will consist of:

- Adequate materials drop-off and storage area;
- Set down areas for trucks;

- Site offices; and
- Staff welfare facilities (i.e. toilets etc.).

As construction progresses, it will be necessary to move the location of the construction compound within the site.

Figures **4.5 to 4.11** indicate the location of the construction compound in the context of the proposed development site.

The construction compound will be engineered with appropriate services and will be hoarded or fenced off for security purposes. The compound will be used as the primary location for the storage of materials, plant, and equipment, site offices (which may be two to three stories in height), and worker welfare facilities. An access control facility will be provided to restrict compound access to site personnel and authorised visitors only.

Materials to be stored on site will be stored in a safe manner and will minimise the risk of any negative environmental effects and will be managed on a 'just-in-time' basis. All fuel storage areas will be bunded in the compound and will be clearly marked. Fuel will be transported from the offsite compound to the plant and equipment, on the Parkgate Street worksite, in mobile units based on need. A dedicated fuel filling point will be set up on site with all plant brought to this point for filling.

Temporary toilets and wash facilities will be provided for construction workers. These facilities may require periodic waste pumping and waste offsite haulage, which will be carried out by an authorised sanitary waste contractor. Alternatively, the Contractor may utilise an existing foul drainage connection for site welfare facilities, subject to license agreement with Irish Water.

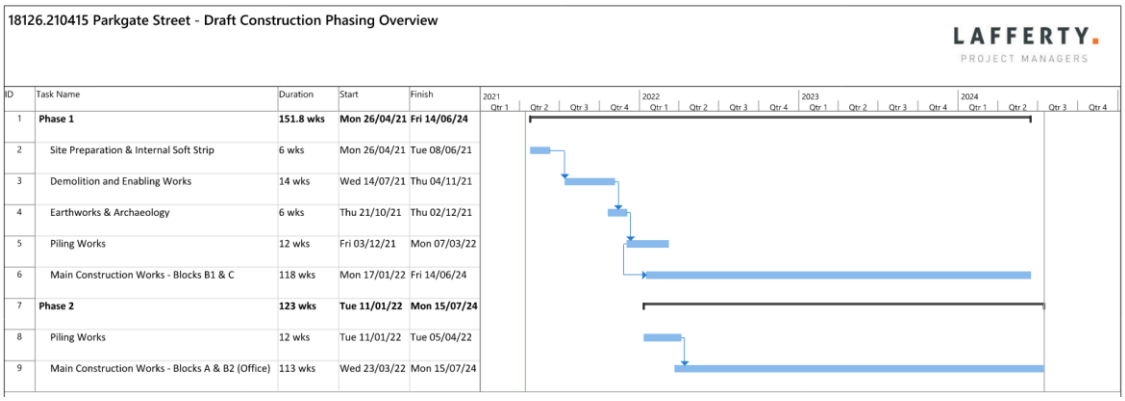
Appropriate lighting will be provided as necessary at the construction compound. All lighting will be installed to minimise light spillage from the site and will be temporary, i.e. confined to use during construction only. The Contractor may utilise existing electrical ducting at the boundary, with connection to be agreed with ESB Networks.

No car parking is envisaged to be provided within the site. Staff and visitors to the site will be encouraged to utilise non-vehicular means. Otherwise, there is on-street Pay & Display public parking in the environs of the site.

4.3 Indicative Duration and Phasing

4.3.1 Construction Programme

It is envisaged that construction of the overall proposed development will take approximately 34 months inclusive of the Block A development. Due to Covid-19 restrictions the programme has been and may continue to be affected. As a result the below proposed programme that may be subject to change in the event of prolonged Covid-19 restrictions on construction.



ID	Task Name	Duration	Start	Finish
1	**Phase 1**	**151.8 wks**	**Mon 26/04/21**	**Fri 14/06/24**
2	Site Preparation & Internal Soft Strip	6 wks	Mon 26/04/21	Tue 08/06/21
3	Demolition and Enabling Works	14 wks	Wed 14/07/21	Thu 04/11/21
4	Earthworks & Archaeology	6 wks	Thu 21/10/21	Thu 02/12/21
5	Piling Works	12 wks	Fri 03/12/21	Mon 07/03/22
6	Main Construction Works - Blocks B1 & C	118 wks	Mon 17/01/22	Fri 14/06/24
7	**Phase 2**	**123 wks**	**Tue 11/01/22**	**Mon 15/07/24**
8	Piling Works	12 wks	Tue 11/01/22	Tue 05/04/22
9	Main Construction Works - Blocks A & B2 (Office)	113 wks	Wed 23/03/22	Mon 15/07/24

Figure 4.2: Proposed Construction Programme

This section describes the indicative construction strategy and associated programme. The Main Contractor(s)[2], once appointed, will ultimately be responsible for the sequencing and implementation of the works in a safe and secure manner, and in accordance with all statutory requirements and the mitigation measures described in the EIAR. However, the approach outlined below is considered to represent a worst-case scenario as to how the proposed development may be constructed in its entirety. Some flexibility is required in the sequencing of construction, as set out in this Chapter, in case on-site problems be encountered.

4.3.2 Local Road Network

It is anticipated that the construction works for the development of the former Hickey's site will be divided into two separate phases. Phase 1 includes demolition and enabling works for the site, and construction of Blocks B1 and C. Phase 2 includes construction of Block B2 and subject to future planning consent, construction of Block A.

[2] Note: It is envisaged that the contract for the construction works will be divided into separate contracts for each of the phases detailed below. Therefore, any reference to the 'Main Contractor' in this document refers to the Main Contractor for each of the individual phases

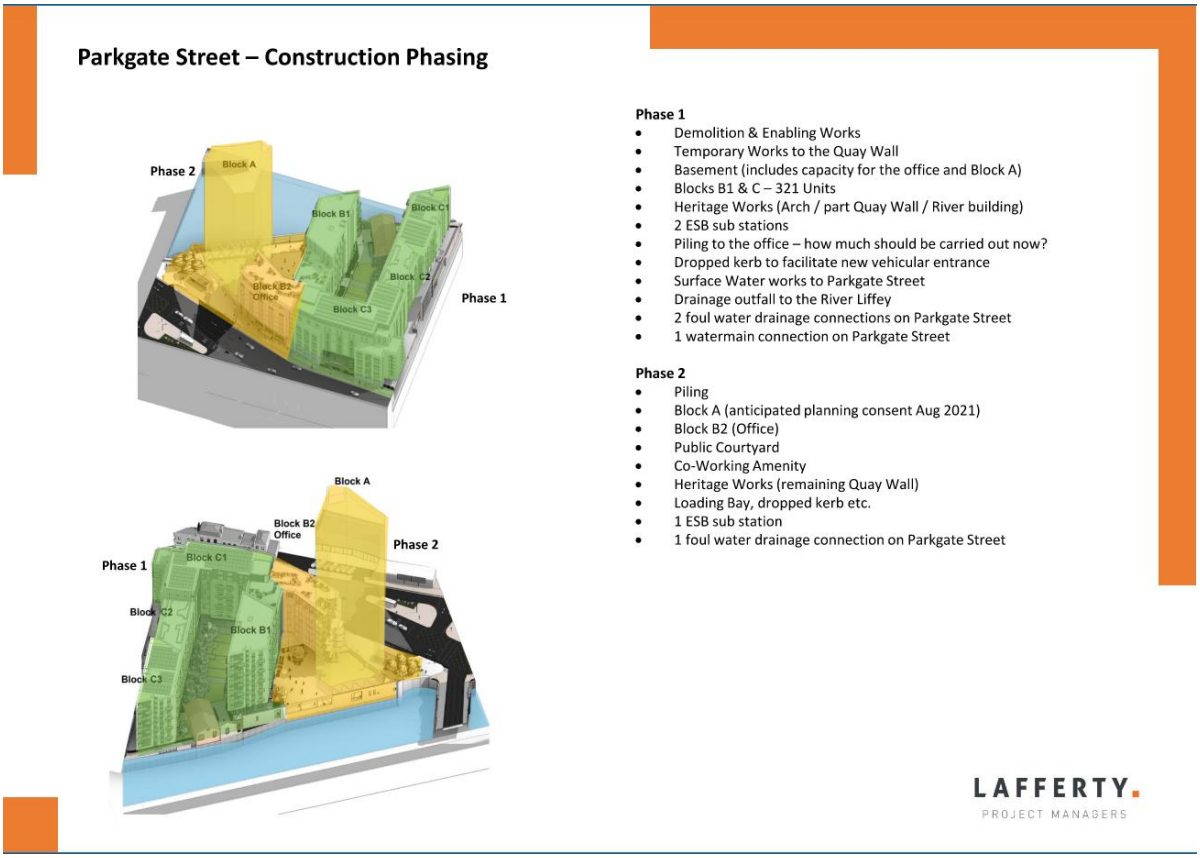


Figure 4.3: Proposed Construction Phasing

Figures 4.4 to 4.11 describe the indicative construction sequence for the development. There will be some overlap in phasing activities, as outlined in the sections below.

4.3.2.1 Enabling Works and Demolition

It is estimated that the enabling works and demolition for the site, including the area for Block A, will take approximately 4 months and will be carried out in Phase 1. The scope of these works is as described as part of the consented scheme under ABP-306569-20.

The following is a list of the main activities that are planned to be undertaken in the first phase that apply to Block A.

Enabling Works Site Set Up

- Site set up for the enabling works contract, including construction compound and erection of secure site hoarding and fencing along Parkgate Street and the neighbouring premises;
- Temporary re-location of Dublin Bus bus-stop outside front of site to facilitate installation of site hoarding for duration of construction works;
- Implementation of Contractor's Health & Safety Plan for the enabling works and demolition contract;
- Identification and cut-off, as required, to existing services;
- Protection of existing site features to be retained (See **Section 4.5.3** for further information); and

- Removal and disposal of asbestos, based on survey and site investigations, and in accordance with statutory requirements (See **Chapter 17**, Material Assets - Waste Management, for greater detail on construction and demolition waste).

Demolitions and Site Preparation

- Demolition of existing structures (see structures highlighted in red in **Figure 4.4**), with the exception of those to be incorporated in the development;
- Removal of all underground tanks and other buried structures in advance of piling mat construction;
- Removal of waste materials off-site in accordance with statutory permitting requirements and retention of selected material for re-use on site as fill; and
- Possible re-use of some demolition waste material (subject to suitability testing) to be crushed and graded on site for re-use in building sub-bases and landscaping.

The Contractor shall coordinate the Works with the Archaeologist.

4.3.2.2 Piling and Groundworks

The piling works will be carried out for the consented scheme i.e. Blocks B1, B2 and C in Phase 1, and for Block A, the building to which this application refers, piling works are proposed to take place in Phase 2. Refer to **Section 4.4.2** for further information on piling. The works below describe works relevant to Block A.

As part of Phase 1, the Piling Specialist will:

- Develop the preferred sequencing of the works;
- Conduct condition surveys of sensitive boundary structures and existing buildings that will be retained;
- Co-ordinate the design and installation of the temporary works required to implement the Main Contractor's preferred sequence of works;
- Relocate construction compound and welfare facilities within the site boundary; and
- Agree on the optimum location for stockpiling of material for re-use on site.

The Piling Specialist will undertake the following list of activities during Phase 2:

- Installation, and later removal, of pile working platform (possible re-use of site won material);
- Construction of permanent piles for Block A;
- Conduction of working load pile tests on a number of production piles;
- Conduction of integrity testing of all piles;
- Installation and removal of temporary piles; and

As part of Phase 1, the following is a list of the main groundworks activities that are planned to be undertaken that are relevant to Block A:

- Along with the rest of the site groundworks, removal of surplus excavated material in the Block A site area for off-site disposal;

- Along with the rest of the site groundworks, temporary stockpiling of excavated material in the Block A site area for disposal offsite (to be stockpiled for a maximum of 6 months) and appropriate temporary covering (refer to **Figure 4.7** for further information).

4.3.2.3 Main Construction Works

The main construction works include the construction of the new buildings (including Block A), the refurbishment of the existing structures, and the external site works. The works will take approximately 30 months in total. The footpath will remain open throughout the construction phase, with the exception of short, localised road closure licences necessary to complete service tie-ins as described in the consented scheme permitted under ABP-306569-20.

The following is a list of the main activities that are planned to be undertaken during the main construction works that apply to Block A. It should be noted that these activities are in line with the activities described in the consented scheme.

Site Set Up and Preparation

- Mobilisation and site set up for the main contract works, including the erection of the construction compound and secure site hoarding and fencing as shown in **Figures 4.6, 4.11 & 4.12**;
- Closure of the existing vehicular entrance and construction of a new site entrance between proposed Block A and Block B for construction movements as shown in **Figure 4.8**;
- Conduction of minor works along the south footpath on Parkgate Street, including:
    - Creation of a dished kerb at proposed vehicular entrance;
    - Relocation of recycling bins;
    - Relocation of street light;
    - Creation of loading bay;
    - Relocation of Dublin Bikes Station No. 92 (new location to be agreed with Dublin City Council); and
    - Creation of dropped kerbs for emergency access to the development, all subject to relevant permits and agreements;
- Surface water works along the south kerb on Parkgate Street (reference drainage report and drawings permitted under ABP-306569-20), comprising:
    - Installation of new manholes constructed in Parkgate Street pavement;
    - Installation of new sections of surface water concrete pipework to connect new manholes and gullies;
    - Connection into existing surface water outfall;
    - Diversion of existing road gullies into new surface water sewer; and
    - Construction of new trapped blockwork road gullies and connection into new surface water sewer;
- Protection of existing site features to be retained, including Protected Structures (See **Section 4.5.3** for details);
- Condition surveys of existing buildings and boundary structures that will be retained; and
- Preparation of site area for the construction of the new buildings.

Construction of New Development

It is envisaged that a number of construction activities will progress during Phase 1 under the consented scheme that are applicable to Block A, including:

- Installation of temporary structures, including tower cranes, needling, and stability measures to existing structures;
- Construction of all new site services;
- Connection to new foul drainage infrastructure;
- Connection to surface water drainage for discharge to River Liffey; and
- Connection to new site services, including Gas, Electricity Supply Board, and Telecoms.

During Phase 2, the following construction activities will take place for Block A:

- Construction of pile-caps and piled raft foundations in areas at grade;
- Installation of radon barrier/damp proof membrane/waterproof membrane, where appropriate; and
- Construction of reinforced concrete ground floor slabs.

The various buildings permitted under ABP-306569-20 shall be of concrete frame construction. The main construction works associated with the consented scheme are described in the Construction Management Plan.

For Block A, the rising superstructure is to be a concrete frame. The following is a list of the main activities that are planned to be undertaken during the main construction works for Block A:

- The main stability core is to be slip-form or jump-form construction, meaning the core will be constructed in advance of the rest of the superstructure;
- The superstructure to be cast-in situ reinforced concrete columns up to first floor. There shall be a thickened slab structure at Level 1 where columns shall change in profile and comprise either precast concrete or in-situ reinforced concrete structural form for the remaining building height. The floor slabs shall be flat slab construction, which requires formwork and temporary propping, to roof level;
- Installation of temporary works in area between Block A and Block B2 to maintain construction traffic movements during construction of superstructure overhead;
- Installation of stair flights and landings, with associated temporary propping as necessary;
- Installation of prefabricated bathroom ensuite pod units;
- Completion of external envelope. The façade comprises of precast concrete panels, and erection will start once groundworks is clear;
- External envelope insulation and detail to ensure air tightness in accordance with the Building Regulations;
- Installation of windows;
- Installation of building services (mechanical, electrical and sprinkler);
- Internal fit out, including partition walls, doors, joinery, and fire rated enclosures as required;

- Toilet and sanitary facilities installation, including disabled/accessible provision in accordance with the Building Regulations;
- Internal finishes (floors, walls, and ceilings) to various areas; and
- Fitted furniture installation.

Other site related works not listed above include:

- Provision of permanent lateral restraint to existing stonework wall along River Liffey upon completion of Level 1 of Block A, and removal of temporary retention structure;
- Construction of appropriate sub-base to non-trafficable and trafficable areas;
- Removal of vegetation, repointing to localised sections of stonework, and construction of a surface water outfall point to the existing quay wall; and
- Landscaping works.

Figure 4.4: Layout of existing structures (red reflects demolition; blue reflects to be retained)

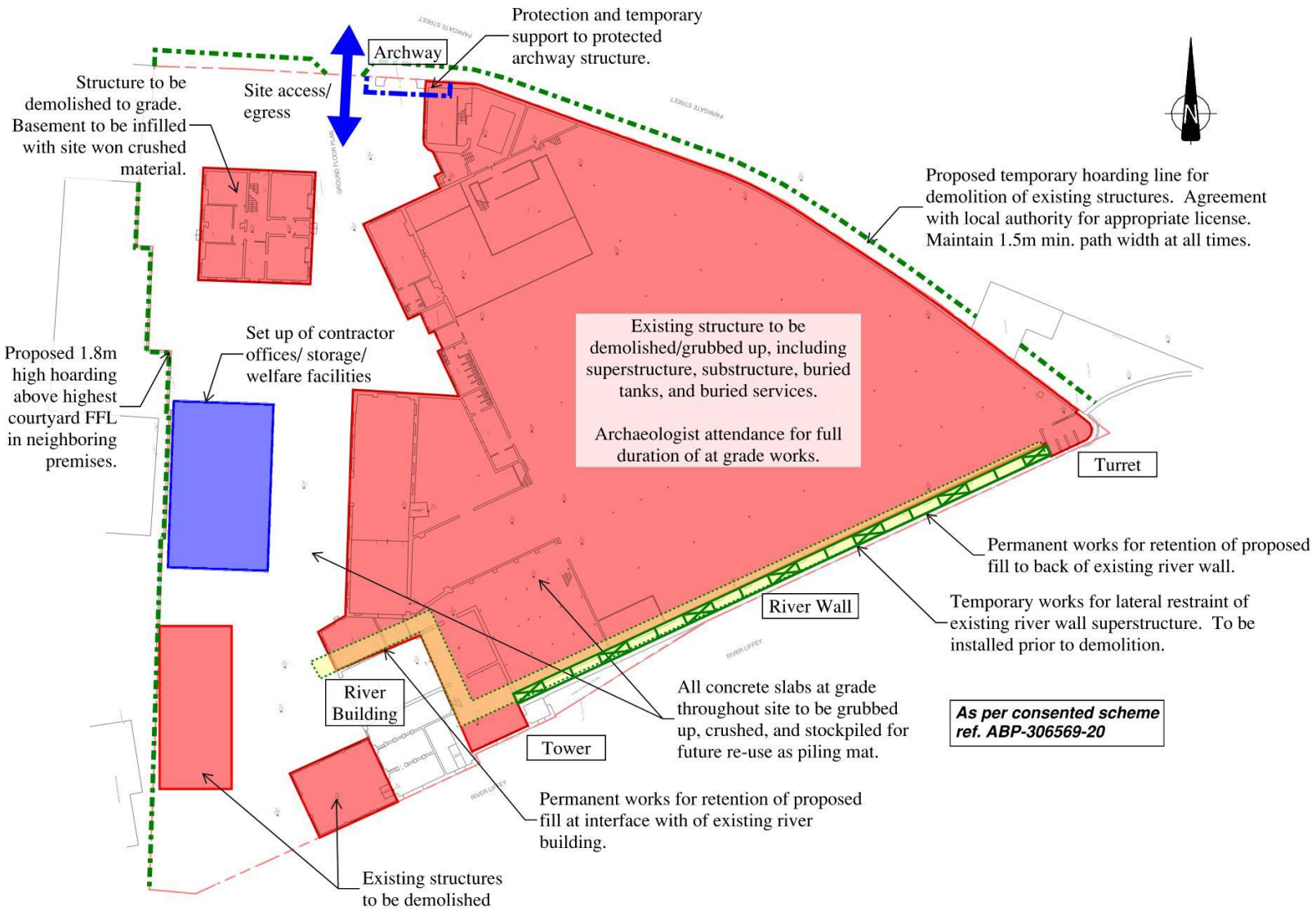


Figure 4.5: Overall Sequencing of Works (1 of 7)

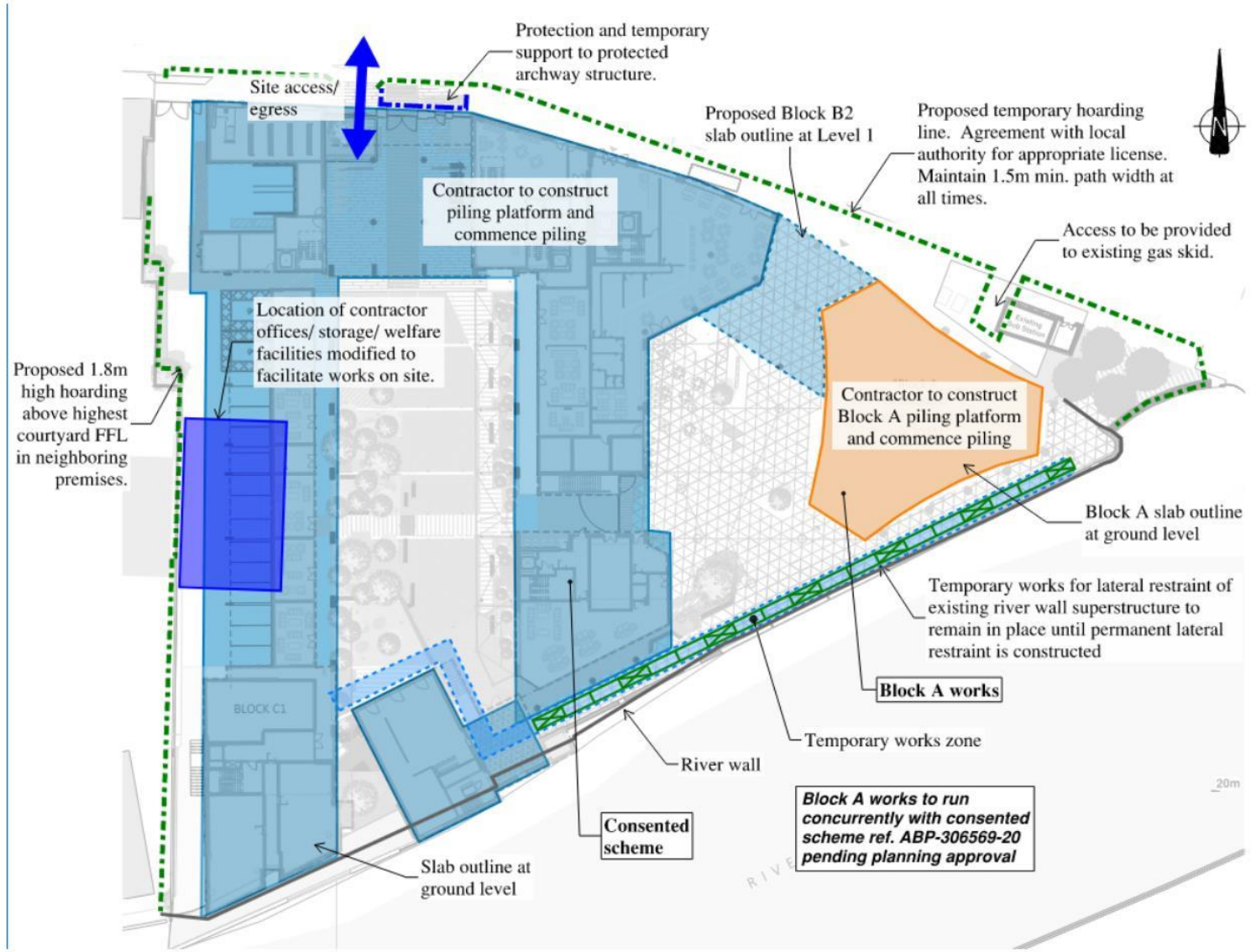


Figure 4.6: Overall Sequencing of Works (2 of 7)

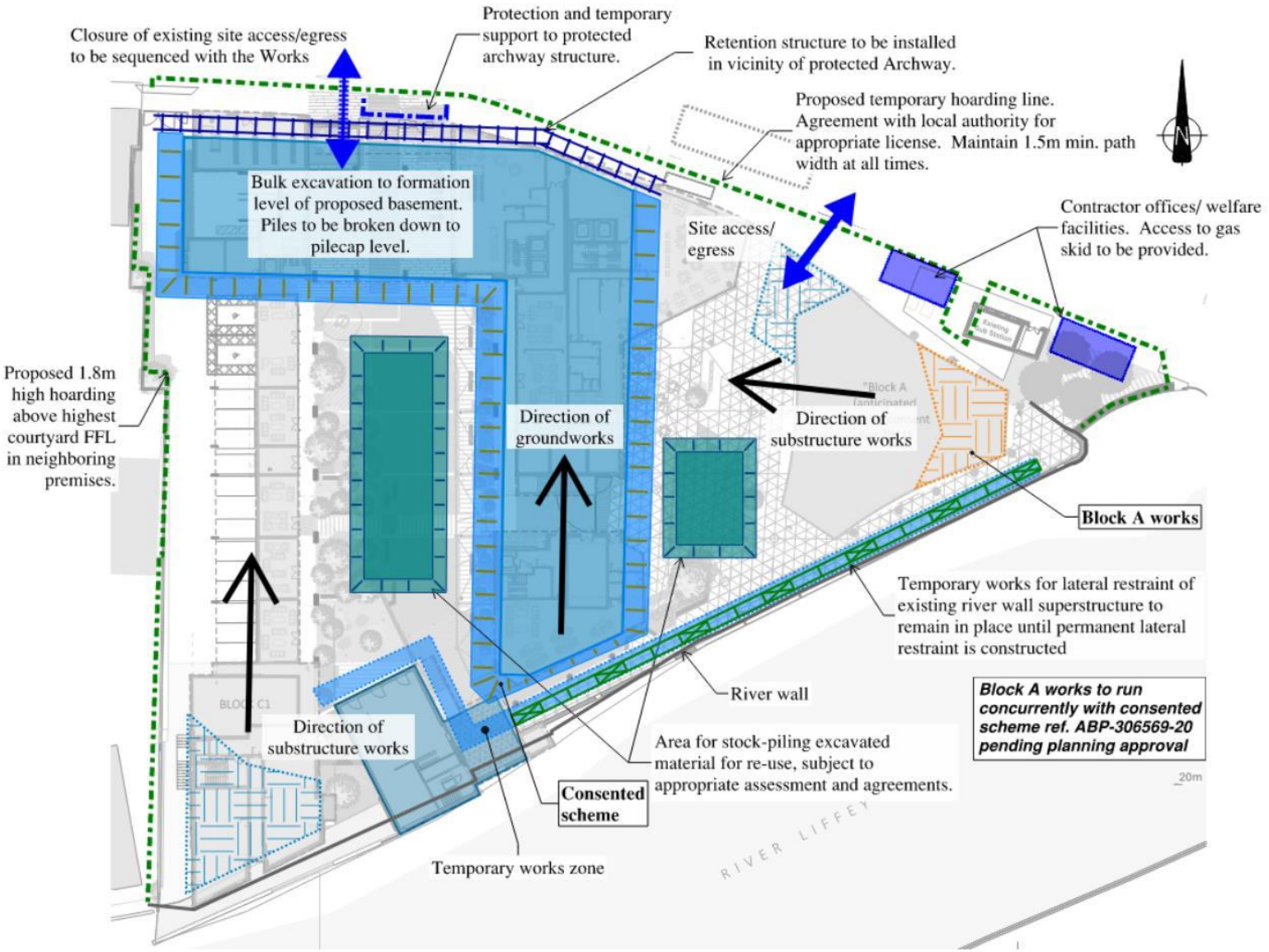


Figure 4.7: Overall Sequencing of Works (3 of 7)

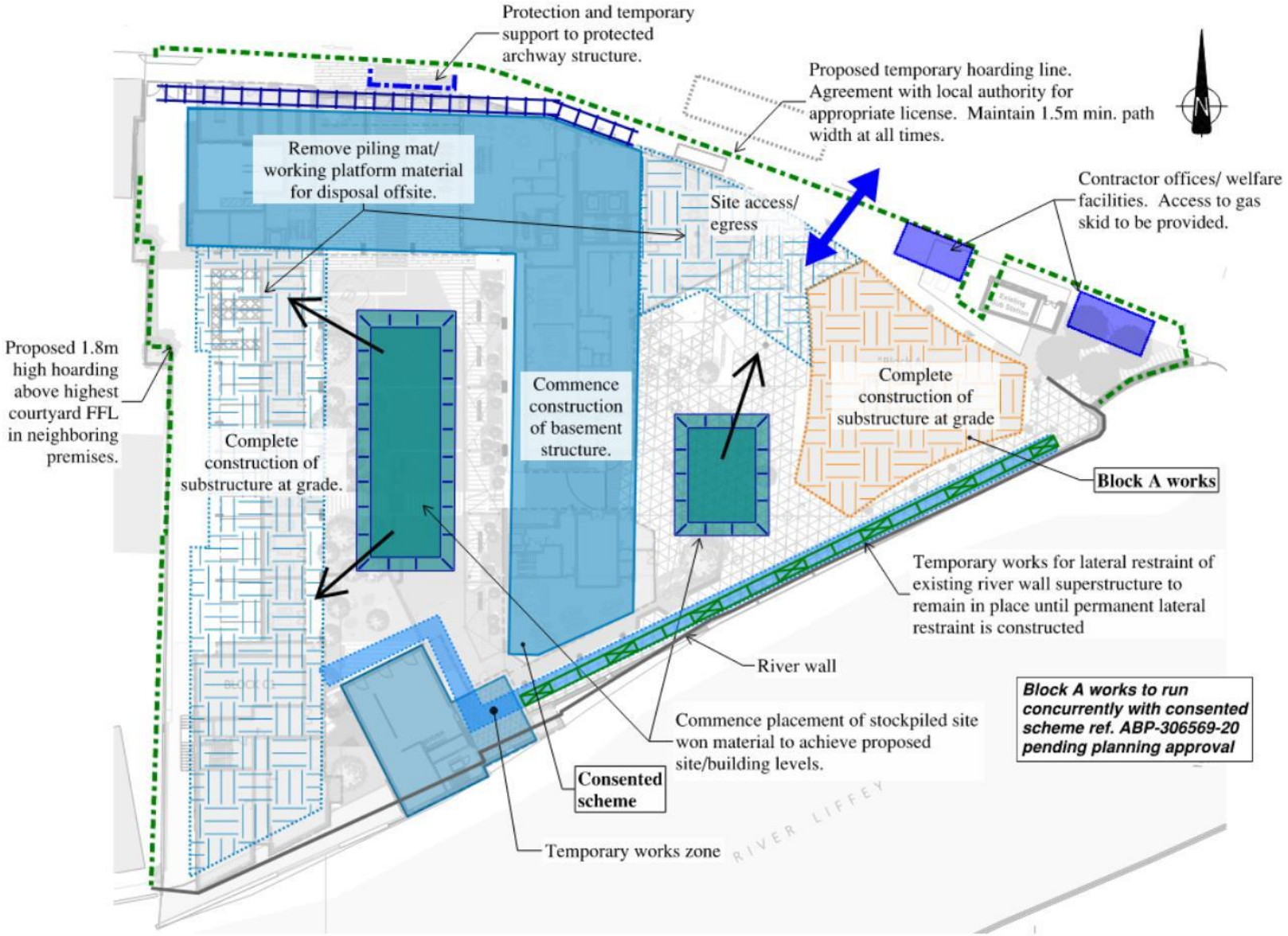


Figure 4.8: Overall Sequencing of Works (4 of 7)

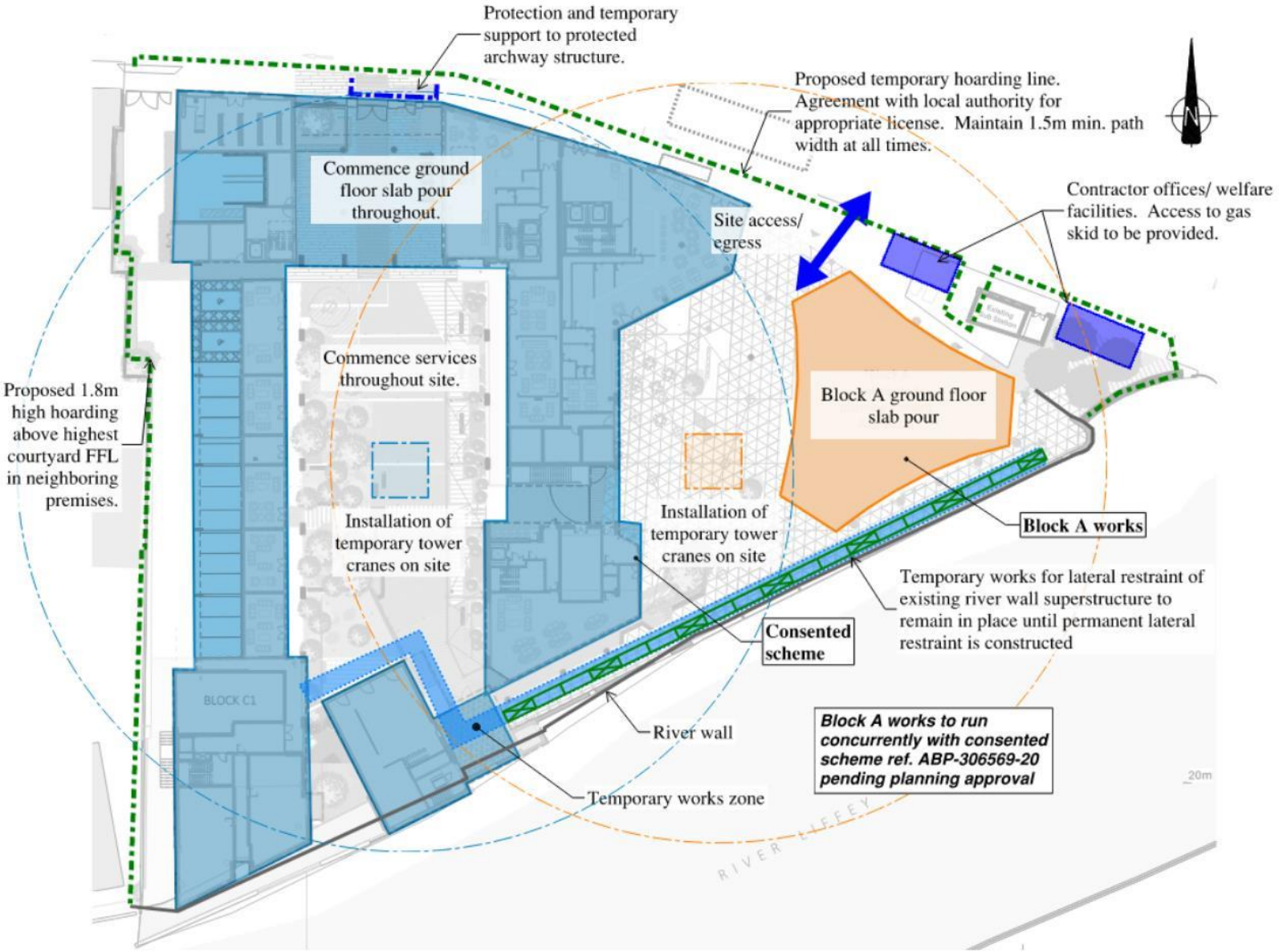


Figure 4.9: Overall Sequencing of Works (5 of 7)

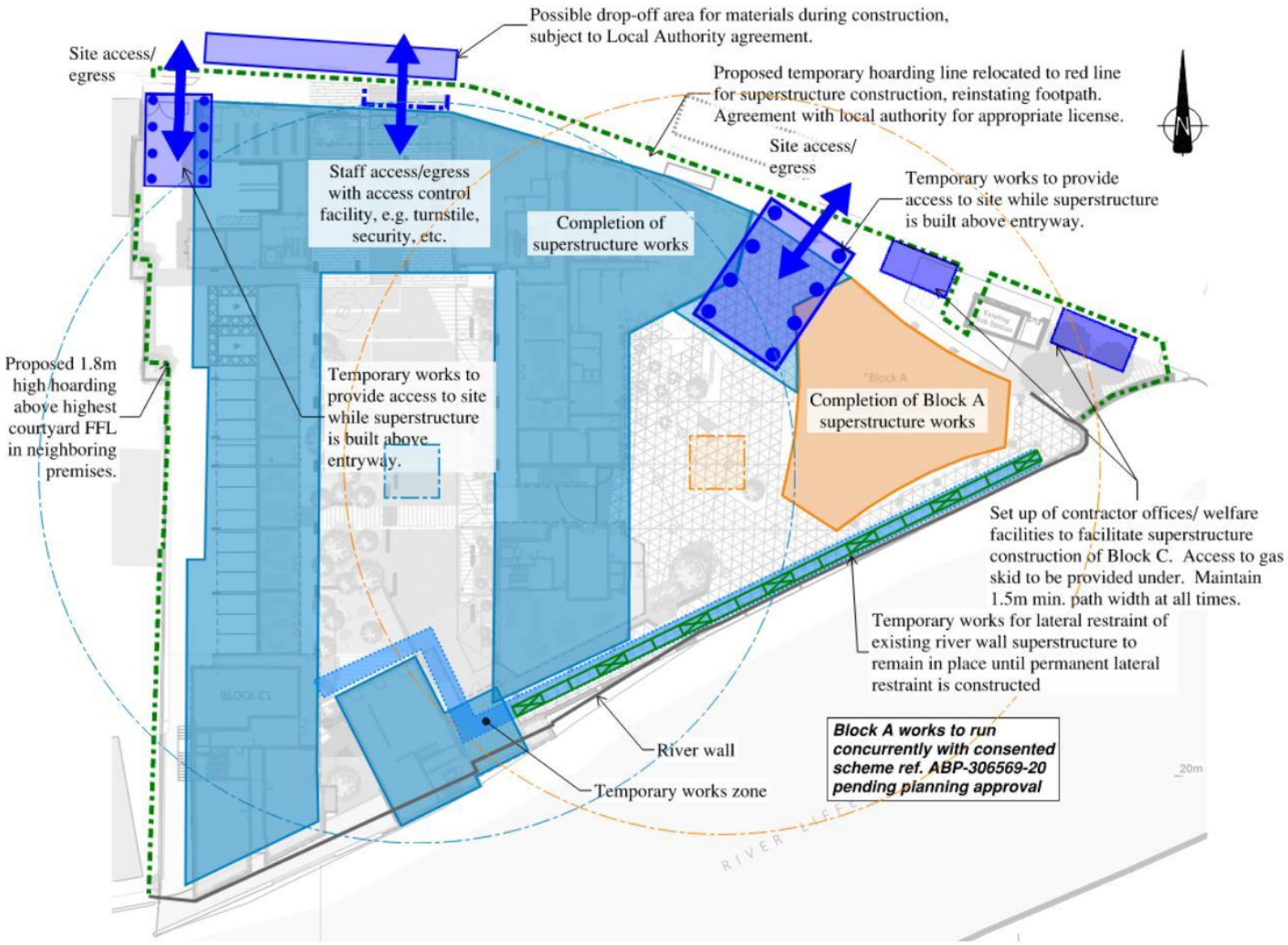


Figure 4.10: Overall Sequencing of Works (6 of 7)

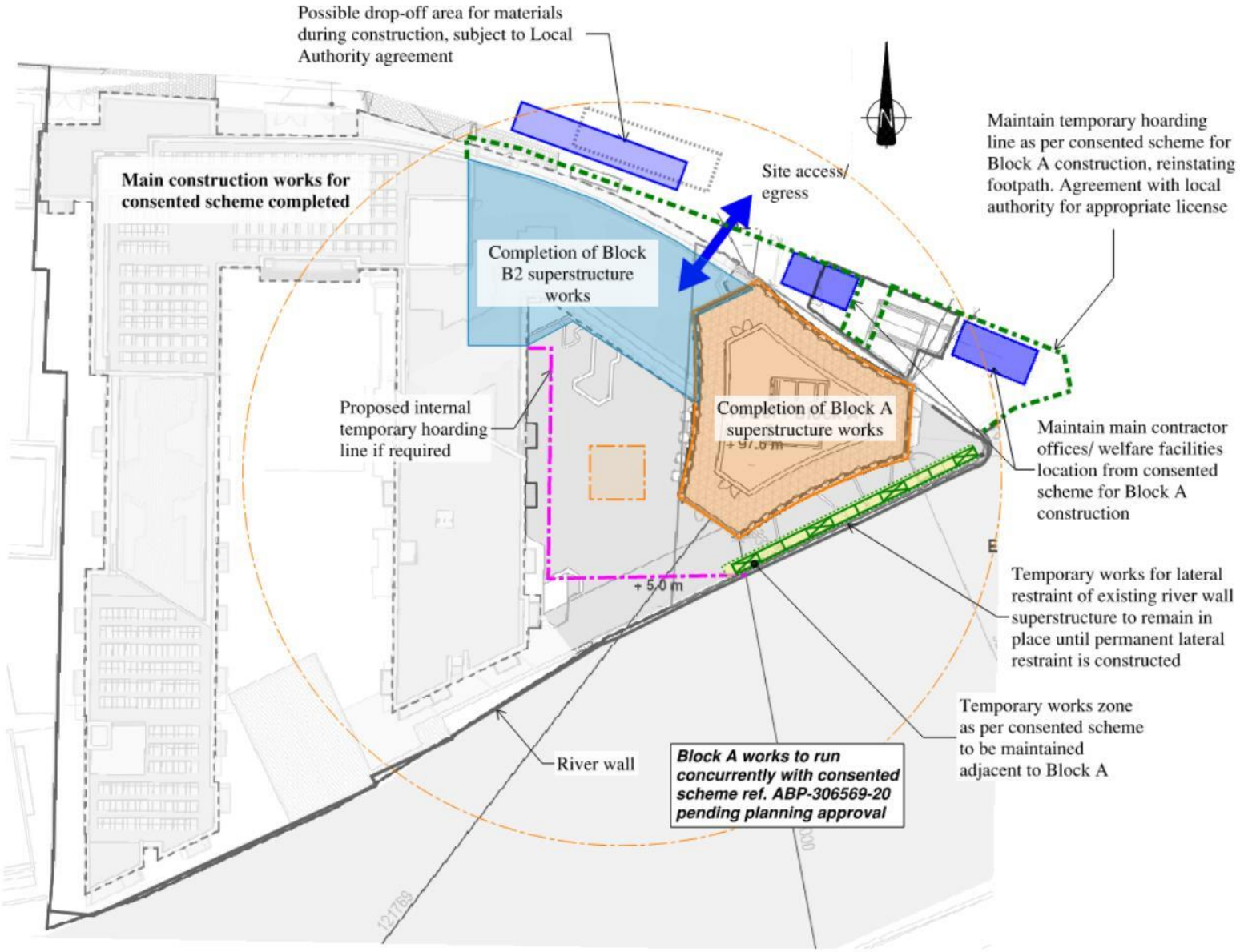


Figure 4.11: Overall Sequencing of Works (7 of 7)

4.4 Construction Methods

The following sections outline the indicative construction methodology for the main construction elements applicable to Block A. It should be noted that the methodology described in these sections is aligned with the construction methodology that was developed for the wider consented scheme.

4.4.1 Enabling Works and Demolition

All enabling and demolition works for the site have been approved under ABP-306569-20 and therefore are not part of this application. However, for completeness, information on demolition is provided in this chapter as the overall construction strategy for the proposed development is intrinsically linked to the consented development.

4.4.1.1 Preparation Works

A survey of the buildings and local surroundings will be carried out. This will identify the detail of the buildings' construction and all services on the site. Site investigation pits and boreholes will be taken to establish the soil condition.

Movement, vibration, and dust monitors will be put in place.

Refer to **Section 4.5** below for further information on site preparation works.

4.4.1.2 Service Disconnections and Diversions

Utilities such as ESB, Gas, IT, and Water will be disconnected, and the services terminated from entering the site. Disconnections will be phased corresponding to the proposed progress of demolition and construction works on site.

The existing sprinkler system within the Hickey's warehouse will be emptied with the water contained therein discharged to sewer at a controlled rate in agreement with Irish Water.

There are a number of above and under-ground fuel tanks located around the site. The tanks will be disconnected, and all associated pipework made defunct and stripped out during the demolition phase. Any fuel contained within the tanks and associated pipework will be emptied and disposed of appropriately.

The site is relatively free of services, with the services encountered within the site curtilage serving the buildings to be demolished. These services will be made defunct and stripped out during the demolition phase. Primary services and utilities are beneath the adjoining road network and not in direct proximity to the site.

Where the excavation strategy or temporary works require any temporary diversion of local services or utilities on the site perimeter, this would be undertaken with prior agreement of the relevant service provider.

The Contractor may seek agreement with Irish Water for a foul connection on Parkgate Street for the site compounds and welfare facilities. Alternatively, foul waste may be removed by tanker and disposed of off-site at an appropriately licensed facility.

4.4.1.3 Asbestos removal

An asbestos audit will be carried out on the buildings scheduled for demolition prior to demolition works. Any asbestos discovered will be removed by a Specialist Contractor in accordance *with Safety, Health, and Welfare at Work (exposure to Asbestos) Regulations 2006/2013*[3] , and disposed of by specialist contractors to an appropriately licensed facility. Traceable records of this activity, including the disposal licence, will be kept. Following the asbestos removal, a soft strip of the building will be carried out to remove wiring, ceiling tiles, electrical fittings, mechanical plant, fixtures, etc.

Construction and demolition waste is covered in greater detail in **Chapter 17**, Material Assets - Waste Management.

4.4.1.4 Erection of scaffolding along demolition perimeter

Scaffolding will be erected around each building to be demolished. This scaffolding will be clad in Monarflex to control dust, light debris, and light from the site.

There will be consultation with neighbouring stakeholders to agree measures along the western boundary and near the eastern boundary, where there may be certain requirements, e.g. type of netting to be used in lieu of Monarflex for visual impact.

4.4.1.5 Demolition of the existing buildings

A detailed demolition plan will be developed in due course by the appointed specialist demolition contractor which will take account of any particular requirements of the planning permission. Detailed proposals will depend on the expertise and plant available to the demolition specialists selected to undertake the demolition and will be set out in the Demolition Specification during the project delivery phase. It is envisaged that existing structures will be demolished in the reverse order from how they were constructed.

Following a soft strip of the building comprising removal of finishes, electrical fittings, wiring, mechanical plant, fixtures, fittings, etc., the structural frame will be demolished. All substructures and foundations will be grubbed up to an approximate depth of 1.8m below existing ground level. Underground tanks and other buried structures shall be removed in advance of piling mat construction.

4.4.1.6 Demolition waste generation

Demolition waste is expected to comprise of concrete, masonry, stone, metals and glass. These wastes will be segregated where possible for reuse or recycling in accordance with the relevant legislation and guidelines. In addition, it is likely that some plastics, cabling, and mixed non-hazardous demolition waste will also be generated.

Construction and demolition waste is covered in greater detail in **Chapter 17**, Material Assets - Waste Management.

[3] Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013). Available: https://www.hsa.ie/eng/Legislation/New_Legislation/SI_291_2013.pdf

4.4.2 Piling and Groundworks

Notwithstanding the works to be completed as part of Phase 1, the Contractor for subsequent phases shall carry out necessary residual works that may involve the following:

- Site preparation works (Refer to **Section 4.4.1.1** for further information); and
- Disconnection of services and diversions (Refer to **Section 4.4.1.2** for further information).

4.4.2.1 Piling Mat

The piling mat will be formed at existing site levels and will comprise of a combination of imported granular material and site-won crushed concrete and rock material. The piling specialist shall clearly delineate the areas of pile mat constructed in the different sourced materials to enable appropriate removal in future.

Prior to construction of the pile mat, the formation shall be prepared, and a separation geotextile membrane installed. The pile mat material shall be appropriately compacted in layers in accordance with the Piling Specialist requirements.

4.4.2.2 Piling

The foundations are envisaged to be bored rock socketed piles to Block A. The piles shall support reinforced concrete pile caps and piled rafts under the stability cores. It is anticipated that the piling rig shall install piles from a pile mat datum close to existing ground level. Arisings from the pile installation shall be appropriately disposed off-site to a licensed facility. Construction and demolition waste is covered in greater detail in **Chapter 17**, Material Assets - Waste Management.

A temporary retention structure is required in the vicinity of the existing Protected Arch to facilitate the bulk excavation of the basement. This will comprise of either sheet piles or king-post construction and will be monitored for movement throughout the substructure works. The retention structure shall be removed upon achievement of the appropriate concrete strength in the ground floor slab construction.

Subsequent to the bulk excavation of the basement, the constructed piles in this area will be broken down to proposed foundation datum level using an excavator with hydraulic breaker attachment.

4.4.2.3 Groundworks

The outline Construction Waste Management Plan (CWMP) contains more information regarding minimising stockpiling of excavated material on site. Excavated material generated by the construction works shall be appropriately assessed for possible re-use on site, where possible, through various accommodation works. Surplus material will be immediately removed from site. Refer to **Chapter 17**, Material Assets - Waste Management, for further information.

Refer to **Section 4.5.2.3** for information on vehicle movements during the bulk excavation.

Refer to **Section 4.6.1** for information on stockpiling of site site-won material.

4.4.2.4 Dewatering

Dewatering may be required for local excavations, such as pile cap or lift pit locations. Any local dewatering is to be discharged to the River Liffey by agreement with Local Authority, subject to any necessary agreements or consents and will include necessary treatment as required, such as silt traps and settlement tanks. Alternatively, dewatering may be reinjected to the subsurface through a number of wells or injection points across the site. Similar treatment measures will be adopted prior to reinjection. Local dewatering is likely to be necessary for only a portion of the construction programme, approximately 20 weeks.

4.4.2.5 Surface Water Run-Off

Existing surface water drainage on the site discharges to the River Liffey. It is envisaged that one of the existing surface water discharge points shall be maintained for the duration of the works, subject to obtaining any necessary agreement/consent. All other existing surface water discharge points to the River Liffey shall be decommissioned.

Appropriate settlement tanks and silt traps shall be incorporated to capture any excess silt in the run-off. The Contractor shall employ measures to ensure surface water run-off from Parkgate Street does not enter the site. Refer to **Chapter 14**, Water for further information.

4.4.3 Main Construction Works

The Contractor for the main construction works shall carry out necessary residual works that may involve the following:

- Site preparation works (Refer to **Section 4.4.1.1** for further information);
- Disconnection of services and service diversions (Refer to **Section 4.4.1.2** for further information);
- Asbestos and soft strip (Refer to **Section 4.4.1.3** for further information);
- Groundworks (Refer to **Section 4.4.2.3** for further information);
- Dewatering (Refer to **Section 4.4.2.4** for further information); and
- Surface water run-off (Refer to **Section 4.4.2.5** for further information).

The following describes the construction activities required for the construction of the new development.

4.4.3.1 Substructure

The substructure of Block A generally consists of a ground floor reinforced concrete slab supported on reinforced concrete pile-caps. The stability core walls are supported on reinforced concrete piled raft foundations. The pile caps and piled rafts for works at grade will be shuttered with formwork and the concrete cast. Upon removal of the formwork, the areas between the foundations will be built-up with site-won material where possible.

4.4.3.2 Superstructure

The superstructure of Block A is cast in-situ concrete. The stability core walls will likely be constructed by jump-formwork technique. Columns and slabs will be conventional reinforced concrete flat slab construction. The proposed external envelope comprises of precast panels, hence most of the fabrication will occur off-site at supplier premises.

The precast elements are large components and require substantial vehicle movement on site for deliveries. Vehicles will be standard multi-axle flat back trucks delivering less than 40 tonnes each trip and typical for a building of this scale. There will be in-situ concrete work requiring regular deliveries of premixed concrete and formwork materials. The construction traffic routing is covered in detail in **Chapter 6**, Transport.

The construction works will require the use of tower cranes on site. The cranes will be required for the moving of building materials on site, such as formwork for concrete, reinforcement, precast concrete, steelwork, façade, plant, and general building materials. The use of mobile cranes may be adopted to assist in the installation of the façade and plant.

4.4.3.3 Existing Structures

There are a number of structures within the site that are included in the Record of Protected Structures (RPS 6320) and are to be retained as part of the new development. These structures include the River Liffey wall; turret at eastern end of site; square tower on the riverfront; and entrance stone arch on the Parkgate Street frontage. The River Liffey Building to the west of the River Liffey wall (not a protected structure) is also to be retained and adapted for re-use within the scheme. The main works related to these structures are part of the consented scheme under ABP-306569-20 and are therefore not part of this application.

4.4.3.4 Parkgate Street Interfaces

Works along the south footpath on Parkgate Street will be carried out in phases as part of the consented scheme under ABP-306569-20. Refer to **Section 4.3.2.3** for proposed activities. These works will include relevant works for Block A. The Contractor will obtain road closure licences on at least two occasions for the Works. The first will be at the start of the main construction works to facilitate construction arrangements, and later licences will be necessary for minor reconfigurations of the south footpath on Parkgate Street.

Works associated with the surface water improvement works will take place on public property, including public roads and footpaths. The scheme will be installed by trench excavations. Approximately 20m of trenching will be open at any one time. Installation of pipework shall be carried out under traffic management at night, with all traffic lanes returned to traffic each morning. Manholes shall be constructed under traffic management at weekends. Gullies and local pavement resurfacing works may be completed under lane restriction during daytime hours.

The duration of the proposed works will be approximately five weeks. Excavated material will be removed off site to a registered waste facility. There will be no storage of chemicals on lands outside of the ownership boundary, and refuelling will take place at the Contractor's base compound. Refer to **Chapter 17**, Material Assets - Waste Management, for further information.

4.5 Site Management

4.5.1 Site Hoarding

The Demolition and Enabling Works Contractor will establish a site boundary with the provision of appropriate signage, construction of hoarding, and welfare facilities, site office, and establishment of appropriate access and egress.

The site hoarding (or fencing where appropriate) will be established around the work area before any significant construction activity commences.

Construction site hoarding is used to provide a secure site boundary to what can be a dangerous environment for people who have not received the proper training and are unfamiliar with construction operations. Site hoarding also performs an important function in relation to minimising some of the potential environmental impacts associated with construction, namely:

- Noise;
- Visual impact; and
- Dust.

The Contractor will be required to ensure at all times a clear demarcation with a safe and secure enclosure between areas in use as public facilities and areas of the construction site. Where possible, hoarding and fencing will be retained and re-configured from the Phase 1 works, and re-used for subsequent work phases.

The extent of compound and facilities required by the Contractor will vary throughout the duration of the works. The Contractor will likely require a small-scale compound and facilities located within the site compound. It is proposed that the hoarding line will incorporate part of the footpath during the works along Parkgate Street, where the appropriate licences will be obtained from the Local Authority in advance of the works.

The footpath will be closed for short periods to facilitate service connections, where minor diversion for pedestrians shall be provided along the carriageway of the road immediately adjacent to the footpath, closing off one lane of traffic to westbound vehicles.

Controlled access points to the site, in the form of gates or doors, will be kept locked for any time that these areas are not monitored (e.g. outside working hours).

The hoarding will be well maintained and painted and may contain graphics portraying project information.

4.5.2 Access Arrangements

4.5.2.1 Pedestrian access

During the construction phase, connectivity will be maintained for members of the public and adjoining landowners. However, it may be necessary in some instances to alter arrangements depending on the construction activities being undertaken at particular times. Should this be necessary, the appropriate licence will be required from the Local Authority and safe alternative routes will be made available. Construction traffic will be carefully managed to mitigate conflicts at all times during all phases of the works.

4.5.2.2 Construction Traffic Routing

It is anticipated that all construction vehicles accessing and egressing the site will do so from a construction access point on Parkgate Street. Construction traffic travelling to and from the site will do so via the Conyngham Road, South Circular Road, and Con Colbert Road/Chapelizod Bypass from where they will access the M50 and the national road network. This will keep trucks to an established HGV route, minimising their impact on residential areas. A temporary lay-by may be required for truck set down for management of deliveries to site. Further details of the access routes will be outlined in the Construction Environmental Management Plan (CEMP).

The construction traffic routing is covered in detail in **Chapter 6**, Transport.

4.5.2.3 Vehicle Movements and access during Construction

It is anticipated that construction on site for the consented scheme under ABP-306569-20 will commence in Q2 2021. Subject to the grant of planning permission, construction for Block A is anticipated to commence in Q4 of 2021.

The main construction works phase of the project will require closure of the existing vehicular entrance and construction of a new site entrance between Block A and B2 for access and egress construction movements. This will require relocation of Dublin Bikes Station No. 92 (new location to be agreed with Dublin City Council).

No car parking is envisaged to be provided within the site. Staff and visitors to the site will be encouraged to utilise non-vehicular means. Otherwise, there is on-street Pay & Display public parking in the environs of the site.

The most onerous construction period with regard to traffic generation is expected to be the excavation stage, which will include the removal of excavated material away from the site. The volumes of traffic generated during this period are unlikely to be in excess of approximately 28 trucks per day over the 2-month period. This equates to less than 2.5 trucks per hour on average. During peak construction periods this number could double to 5 trucks per hour.

Minimise Construction Vehicle Movements

Construction vehicle movements will be minimised through:

- Consolidation of delivery loads to/from the site and management of large deliveries on site to occur outside of peak periods;
- Use of precast/prefabricated materials where possible;
- Assessment of 'cut' material generated by the construction works for possible re-use on site through various accommodation works. This will reduce the amount of material for removal offsite. Information on the quantities of material to be re-used and removed offsite are outlined in **Chapter 17**, Material Assets - Waste Management;
- Provision of adequate storage space on site;
- Development of a strategy to minimise construction material quantities as much as possible; and
- Minimisation of construction staff vehicle movements by offering Travel to Work Scheme benefits to encourage car sharing and public transport use.

Construction Phase – Mobility Management Measures

The Contractor will be required as part of the contract to introduce a Mobility Management Plan for its workforce to encourage access to the site by means other than private car. The following section identifies some of the measures the Contractor will provide as part of the Mobility Management Plan. The Mobility Management Plan will form part of the Construction Management Plan and will be agreed with Dublin City Council prior to works beginning on site.

There is good connectivity between the site and public transport links.

There are buses within walking distance including Parkgate Street, Heuston Station, and St. John's Road West. The Luas Red-Line stop at Heuston Station is also within walking distance. The Contractor will issue an information leaflet to all staff as part of their induction on site highlighting the location of the various public transport services in the vicinity of the construction site.

Cycle parking spaces will be provided on the site for construction staff. In addition, lockers will be provided to allow cyclists store their cycling clothes. There are several Dublin Bike stations in the vicinity, on Parkgate Street and near Heuston Station.

Car sharing among the construction staff should be encouraged, especially from areas where construction staff may be clustered. The Contractor will aim to organise shifts in accordance with staff origins, thereby enabling higher levels of car sharing. Such a measure offers a significant opportunity to reduce the proportion of construction staff driving to the wider site area and will minimise the potential traffic impact on the road network surrounding this facility.

To oversee and implement the Mobility Management Plan for the construction works, the following mechanisms will be put in place:

- The appointment of a Mobility Manager to implement the Plan; and
- The establishment of a group to oversee the implementation and ongoing implementation of the Plan.

4.5.2.4 Removal of Materials from Site

Demolition of existing buildings and bulk excavation arisings will be the most intensive periods for removal of materials off site. Removal of materials off site will be managed effectively to ensure that there will be no queuing of trucks on the public roadways around the site. All trucks will have a built-in tarpaulin that will cover the excavated material as it is being hauled off site, and wheel wash facilities will be provided at all site egress points.

4.5.2.5 Deliveries to Site

Deliveries of materials will be planned and programmed to ensure that the materials are delivered only as they are required on site. Works requiring multiple vehicle deliveries to site, such as concrete pours, will be planned to ensure there will be no queuing on the public roadways around the site. For further detail refer to **Chapter 6**, Transport.

4.5.3 Protection of Sensitive Structures

Neighbouring and Protected Structures

The Contractor will carry out condition surveys of all neighbouring structures and Protected Structures on the site and will erect protective hoarding to the existing Arch on Parkgate Street and the Turret at the eastern corner of the site. Temporary works will be put in place to protect sensitive structures, and a cordoned off zone of influence will be maintained at all times, in particular to the River Wall, Arch, Turret, and Tower. The Contractor(s) of subsequent construction phases will keep all protection measures in good order for the duration of the works.

Luas Interface

The Luas line is approximately 21m from the site boundary at its closest point.

Demolition works on site are low rise and associated vibrations will remain within limits set in the *Code of Practice for Works on, Near or Adjacent to the Luas Light Rail System* which is available to download from https://luas.ie/work-safety-permits.html. Vibration during construction will also adhere to these limits.

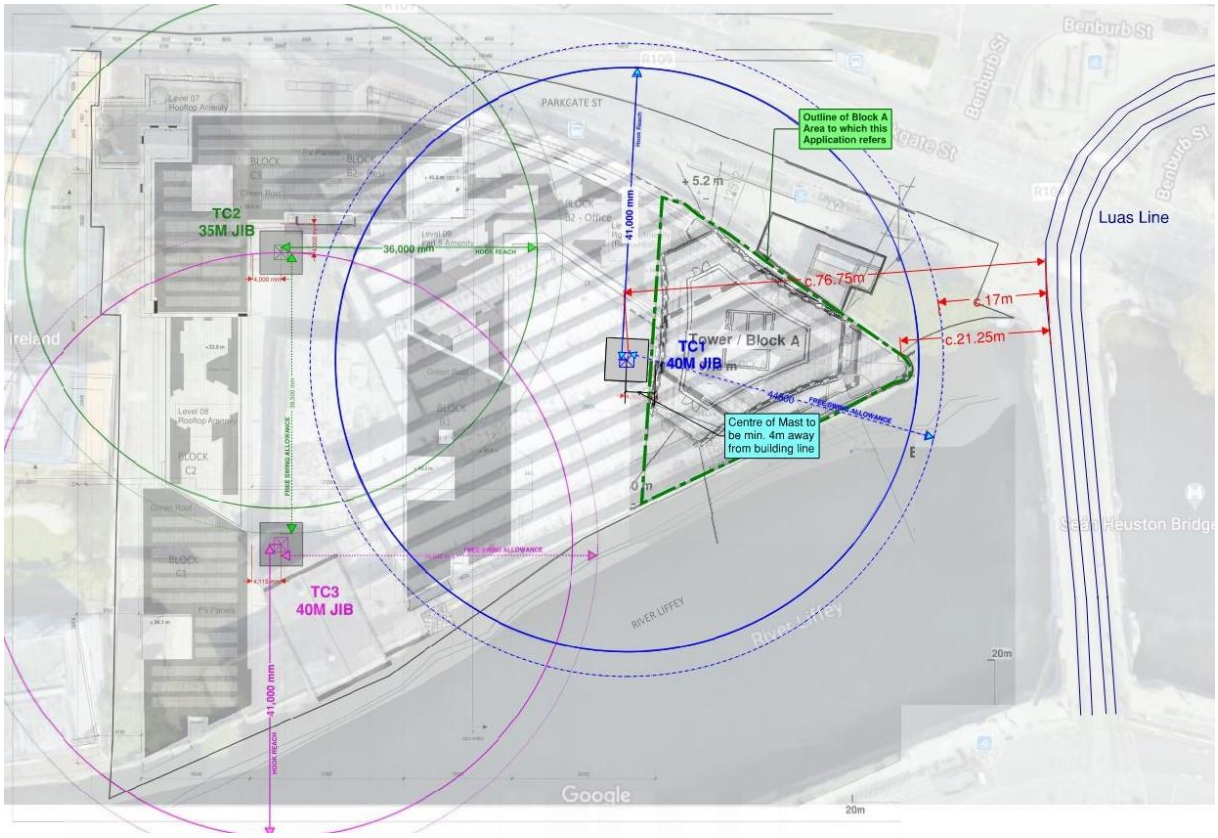


Figure 4.12: Crane Location Plan

With specific reference to page 5 of the code of practice, it can be confirmed that with respect to the proposed Block A works:

- Access will not be required to any part of Luas that is not on a public road;
- Works will not take place within the Luas swept path;
- Works will not take place above or within 2.75 metres of the Luas overhead power supply lines and their supporting wires and fixings;

- No hoarding or scaffolding will be erected adjacent to the Luas tramway;
- Cranes or other equipment will not be used at any distance over the Luas tramway;
- No excavation within 1.5 metres of the swept path on a public road will occur;
- No installation of any permanent structure or equipment within 1.5 metres of the swept path;
- No placing of plant, material or spoil within 1.5 metres of the swept path;
- No tunnelling / micro-tunnelling / thrust boring / pipe jacking beneath the Luas track and within 1.5 metres of the swept path; and
- No works causing vibrations that may affect the Luas tramway will be carried out.

Based on the above criteria as set out in the code of practice, the proposed works are not deemed to be "on, near or adjacent to the Luas". It is not anticipated that the proposed development will pose any major risks to the Luas infrastructure and operational services.

The Contractor's Demolition and Construction Management Plan shall include a section on the Luas interface demonstrating that:

- Works will not take place in the vicinity of the Overhead Conducting System danger zone or the general Luas corridor;
- Settlement and vibration remains within the limits set in the Luas Code of Practice;
- The Demolition and Construction Traffic Management Plan does not impact Luas operations. Site traffic will adhere to the controls and existing traffic management systems that are in place to manage the existing interface of the public R109 roadway with the Luas. The interface with the Luas comprises of the management of construction traffic from site using the R109 road which crosses the Luas line at Heuston bridge. Traffic exiting site onto the R109 will be managed by a gatesman to ensure the function of the public roadway traffic management system is not affected. This comprises the holding of trucks within the site until it is safe to allow their egress onto the public roadway. Other measures include tyre washing to control debris being deposited from the site on the roads and Luas tracks, and supervision of loads to ensure no overloading of trucks leaving site that cross the Luas line; and
- The Contractor shall communicate the above strategy with TII/Luas and address any queries raised and apply for Luas Transdev permits as required for the works.

4.6 Materials Management

4.6.1 Excavated Materials

Excavated materials as part of the construction works will generally consist of:

- Service yard and ground floor slab (i.e. asphalt and concrete);
- Topsoil and soil;
- Made ground; and
- Underground structures of various materials.

It is estimated that c. 14,400 m^3 of bulk excavation across the site will result from the works, including 220 m^3 of excavation outside the ownership boundary for the proposed surface water improvement works. Block A constitutes c. 1,665m^3 of the total bulk excavation for the site including substructure. It

is estimated that c. 6,100 m³ of fill material will be required across the site, c. 985m³ of which will be for Block A, assuming some re-use of excavated materials will be allowed. Refer to **Chapter 17**, Material Assets - Waste Management, for further information.

4.6.2 Demolition Materials

Materials will arise from the demolition and refurbishment of structures on the site. In the area of Block A, these will include concrete, steel, timber, and other materials that typically arise from the demolition of structures – refer to **Chapter 17**, Material Assets - Waste Management, for further details.

Any stockpiles of demolition material shall be temporarily stored on impermeable surfaces and covered using tarpaulin to avoid any contaminated run off entering the surface water system. Silt traps shall be placed in gullies to capture any excess silt in the run-off. All silos shall be bunded appropriately. Construction activities will have regard to CIRIA Good Practice Guidelines (C543 – Control of Water Pollution from Construction Sites).

The potential impacts arising from waste generation during the construction phase are assessed in **Chapter 17**, Material Assets - Waste Management. The Main Contractor(s) will be required to establish and implement a detailed Construction and Demolition Waste Management Plan as part of their Quality Assurance System. Further detail of this requirement is also set out in **Chapter 17**.

4.6.3 Construction Materials Requirements

The proposed Block A development will have a requirement for imported materials, primarily precast concrete, and steel for the new proposed construction.

It is estimated that the following approximate quantities of the main construction materials for Block A will be imported during the construction works:

- Concrete In-Situ (superstructure only)– 1,350 m³
- Reinforcing Steel – 1,400 tonnes
- Façade Glazing – 5,500 m²
- Concrete Precast for Façade – 7,400 m²