

Station Hill Reading

Demolition of Garrard Street Car Park

Method Overview

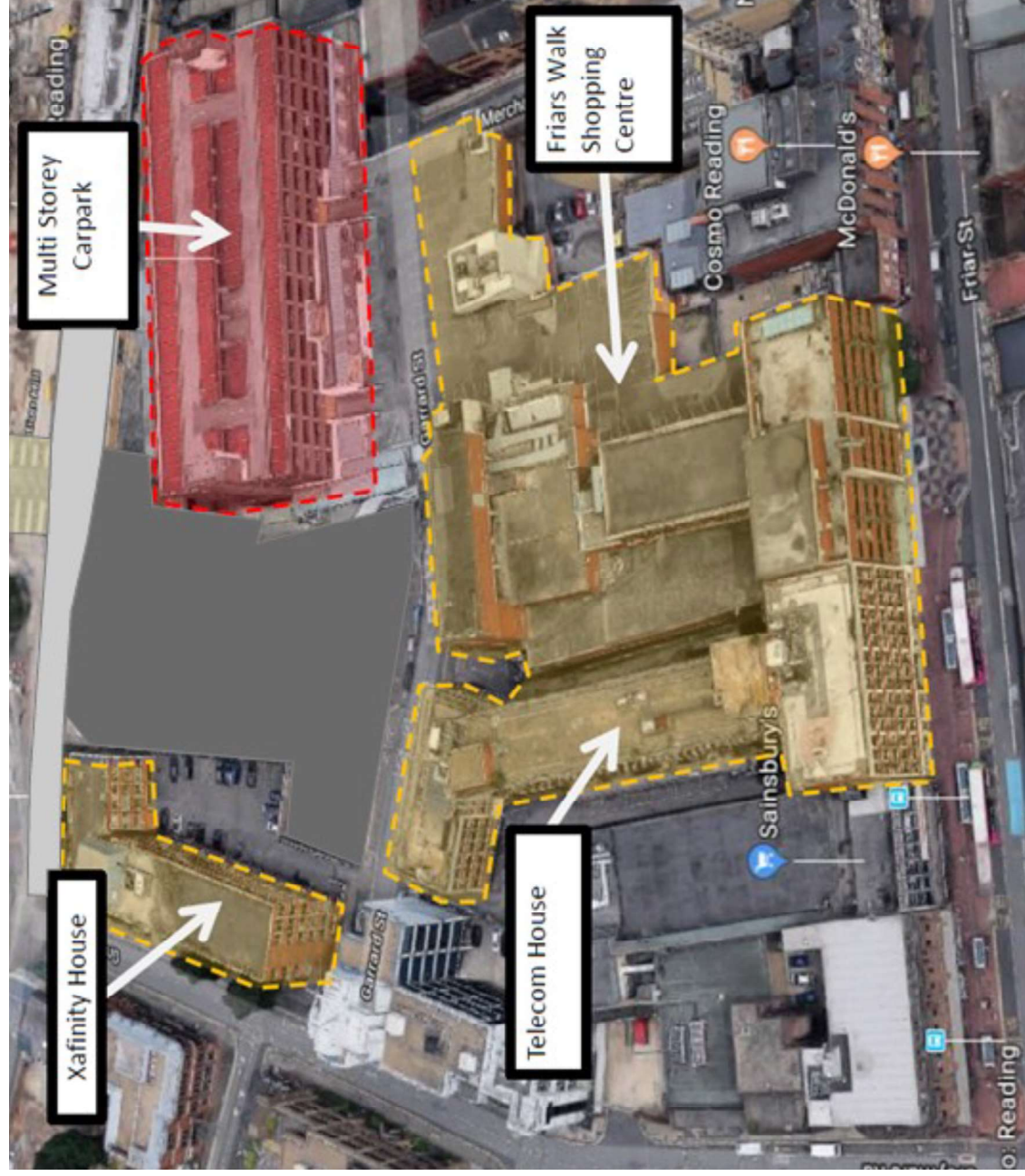


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1. Overview





Site Location

The **Garrard Street Multi-Storey Car Park (MSCP)** sits to the north of the former Friars Walk Shopping Centre and Telecom House and to the east of Xfinity House.

The MSCP remains in operation by NCP but will be vacated prior to demolition commencement, with sufficient time to allow pre-commencement investigations and surveys to be undertaken.

The Works

- Services Isolations
- Temporary Services
- Soft Strip
- Temporary works to facilitate demolition
- Structural Demolition to ground bearing slab/s
- Community Liaison
- *All asbestos will have been removed prior to our possession for demolition*

2. Site Investigations



Existing Building

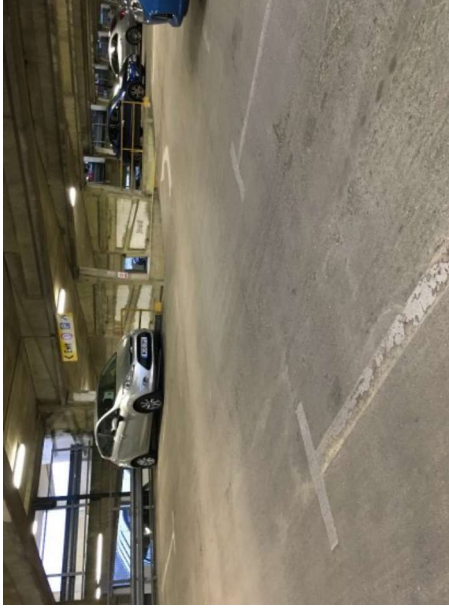
The MSCP structure comprises a large reinforced concrete building constructed in the 1970s, and currently operated by NCP.

The carpark is arranged in a typical 'split deck' multi-storey carpark with Levels 1 and 2 bearing on ground, with Levels 18 and 19 as the top levels which are topped with a waterproofing membrane. In total 8 true full footprint levels with an overall height of approximately 30 metres excluding lift motor rooms.

The structures appears to be conventionally cast reinforced concrete columns, with approximately 15m long precast pre-cambered steel reinforced beams, which support the pre-cast deck slabs, covered by a structural screed topping. Stair and lift cores are conventionally cast reinforced concrete structures.



Precast Beam & Corbel Joint



Significant alterations have taken place in terms of removal of sections and in effect a reduction in the size of the carpark, including and most notably on the south elevation where the carpark overpass has been previously removed, separating the Friars Walk shopping centre carpark, in mid 2015

Site Constraints

It is understood that the MSCP is independent of any substations and telecommunication feeds, so commencement of demolition to ground floor should not be contingent on third party involvement.

The temporary telecommunications tower (shown below) is located approximately 10 metres to the south-west corner of the MSCP, and the methodology chosen assumes a similar exclusion zone is sufficient (to be confirmed with the utility authorities)

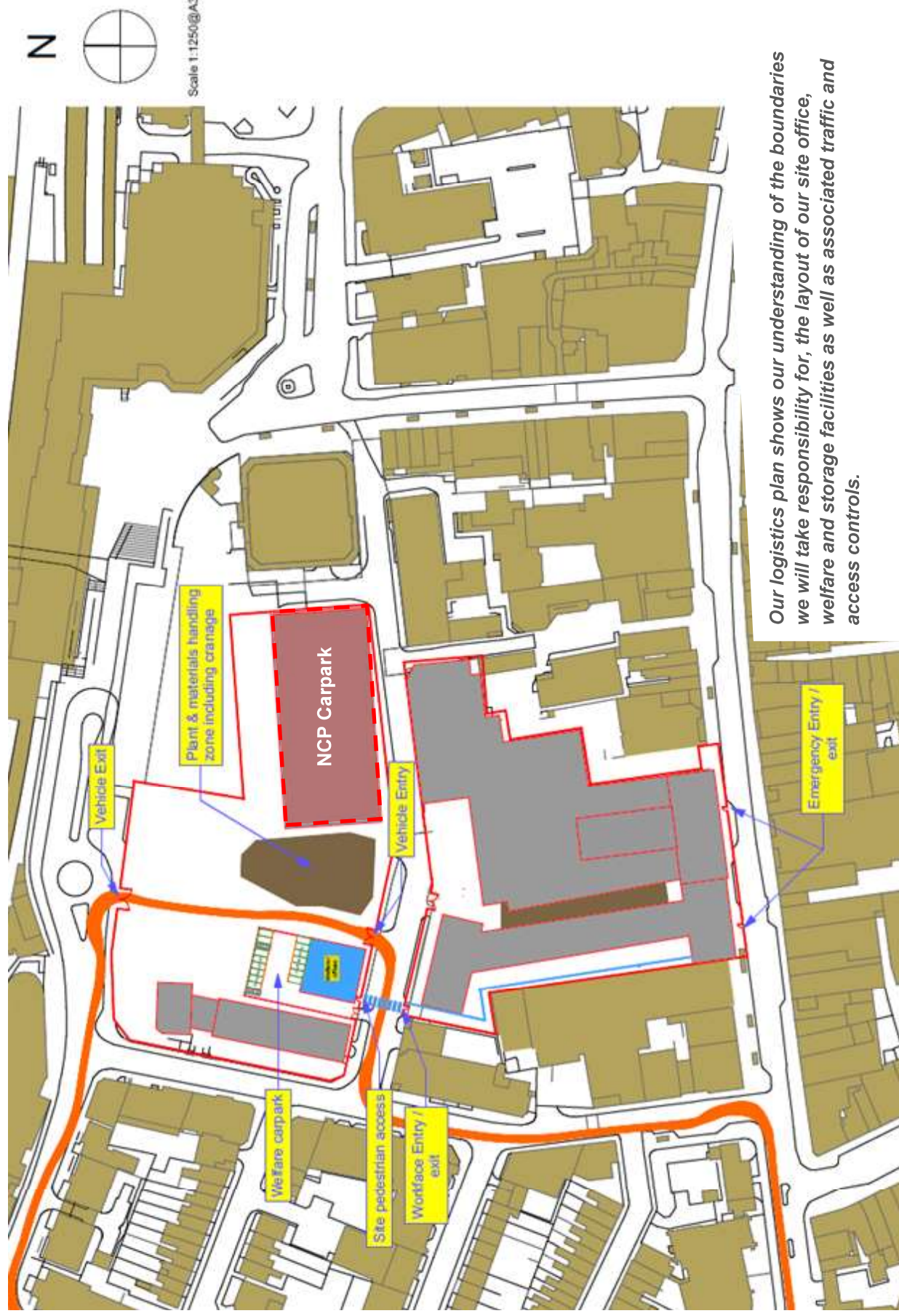


Telecommunications Tower

Garrard Street will remain operational during the demolition, however it is envisaged all parking bays will need to be suspended to facilitate demolition.

3. Site Layout Plan





Our logistics plan shows our understanding of the boundaries we will take responsibility for, the layout of our site office, welfare and storage facilities as well as associated traffic and access controls.

4. Site Establishment and Set-up



Site Establishment & Set Up

Hoarding, Access and Egress

The site will be completely protected by 2.4m high timber hoarding or protected pedestrian tunnels. All pedestrian walkways will have fully boarded soffits, upstands with the external legs and foundations boxed in with openings. Pedestrian walkways will be lit sufficiently.

Pedestrians will access the site via security controlled pedestrian gates. Access will be strictly controlled using a biometric bi-directional turnstile and finger print scanner. This enables all site personnel and visitors' movements to be accurately logged and ensures no unauthorised persons enter the site.

No construction vehicles will be permitted to enter site before 08:00 or after 18:00 Monday to Friday, unless they are granted express permission.

Site personnel will maintain warning signs, barriers and safety measures, and report any defects to the Asbestos Contracts Manager Project Manager and walkways to be repainted as necessary to maintain a smart appearance.

Site on completion

As the project nears completion, the project team in close consultation with the client, will take the necessary steps to ensure a safe and secure site is handed over. Excavations will be made safe, any live edges protected, retained services clearly identified and hoarding fit for purpose. Any close out actions required, would be tabled during the site walk, for close out and final authorisation of project completion by the client.

Site Security



During the works the following provisions will be put in place to safeguard the project, the public and the surrounding stakeholders:

- CCTV cameras with facility to record live footage, monitors movement around the site and is



accessible remotely via a broadband connection

- Scaffold intruder alarms to prevent unauthorised accesses via the demolition falsework or temporary works
- Turnstile at the main entrance gate with biometric scanners—our provider is Donseed, who were finalist in the Technology Supplier of the Year category of the Construction News Specialist Awards 2017
- Logistics gang with trained traffic marshals/banksmen to manage pedestrian and vehicle movements
- All areas of the site shall be inspected daily and prior to any work commencing to ensure no unauthorised intrusion or other suspect activity has taken place
- No unauthorised person will be allowed access to the site at any time and all visitors will be directed to Contracts Manager's office only.

Welfare

It is proposed to make full use of all existing areas of hard stand adjacent in the northern site, sitting adjacent to Xfinity House (west of the NCP carpark)

All welfare will be in line with our Company Safety Standard No. 2 'Site Welfare Facilities' which exceeds legislative requirements under CDM 2015 by specifying the number of facilities required according the number of people onsite.

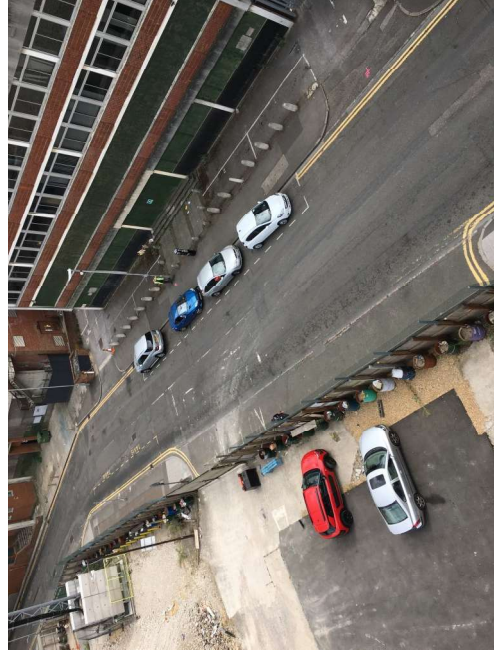


Cranes

By the methodology proposed, the works would be serviced by mobile or crawler cranes. Due to the availability of vacant land to the west of the carpark, access approvals are not envisaged.

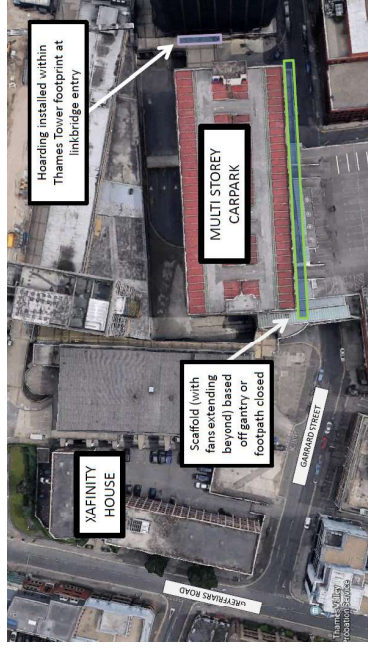
Parking Bay Suspension

Garrard Street acts as the main thoroughfare for servicing the demolition works and therefore all parking bays along the site frontage on either side of Garrard Street are required to be suspended. We will commence full notification with the local community in advance of suspensions to minimise disruption, and display signage offering alternative parking areas.



Gantry & Scaffold

Gantry, scaffold and fans are only shown for external elevations (where third party access approvals are



required)

Transportation

There will be limited parking on site and all site operatives will be encouraged to utilise public transport.

Wheel washing facilities will be provided at vehicle exits to control the emissions of dirt on the road. All waste will be covered and sheeted prior to leaving site.

A waste loading area will be created within the site compound during the demolition works, there will be no waiting to access or after egress of site, with delivery schedules adhered to strictly to avoid clashes.

Site Rules for Delivery Drivers

The rules below will be issued when we place an order with our suppliers, along with any site-specific rules, to

help ensure compliance. For an auditable trail all deliveries are logged on our Deliver Drivers Attendance Sheet (SMS-018-3).

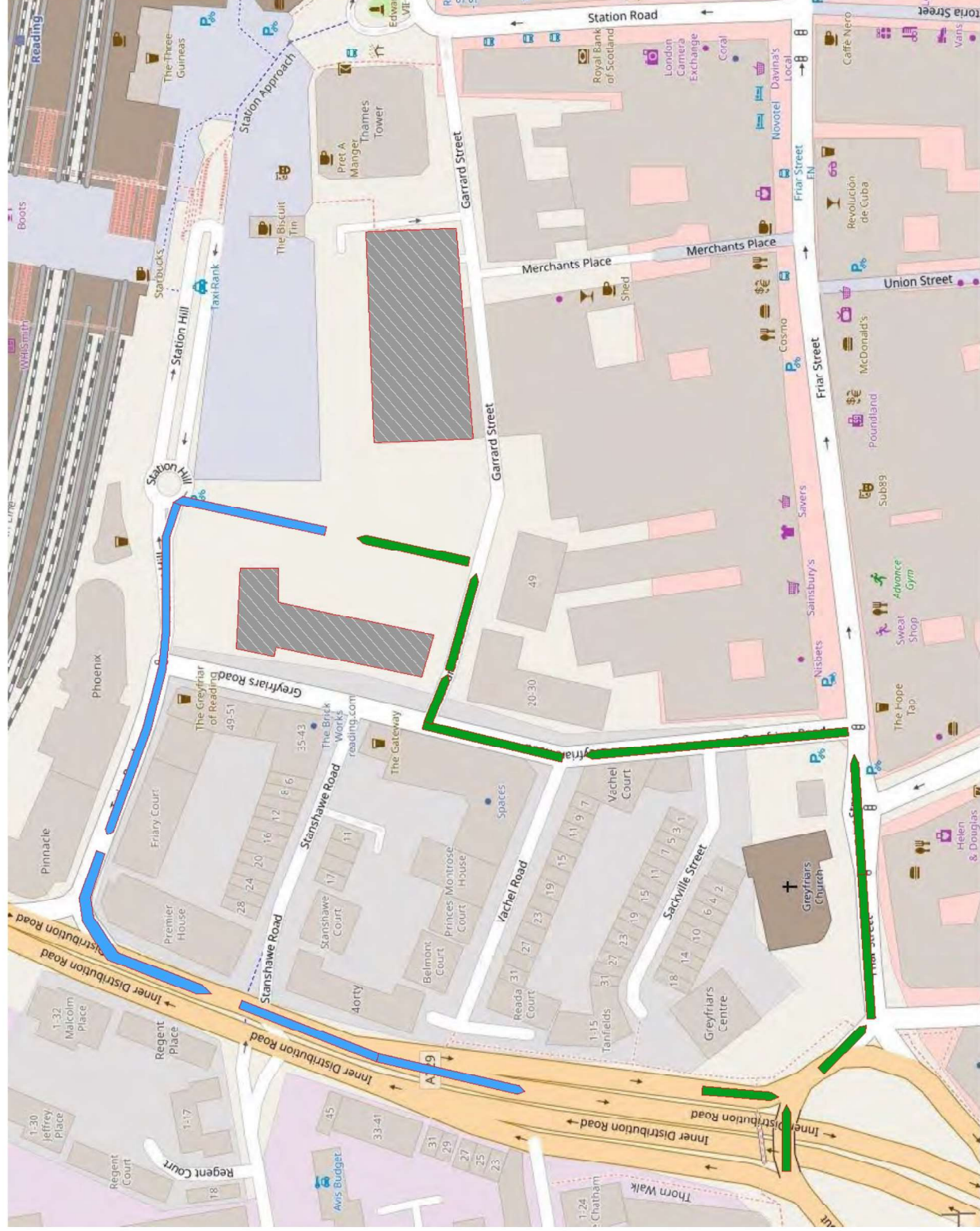
- Site speed limit is 5MPH
- Only pre-booked deliveries arriving at the correct time will be accepted
- Drivers remain in their vehicles at all times, unless otherwise instructed and wearing Hi-Viz PPE
- Vehicles must be disabled, switched off with the breaks applied if left unattended and driver must register at the site office; they must be escorted round the site
- All vehicles are to STOP at the exit gate and prior to moving out onto the public highway
- Do not unload vehicle without Banksman present or mechanical assistance
- No parking/waiting adjacent to site

All vehicles from our in-house divisions including Plant Hire and Lifting are FORS Bronze or Silver and in line with CLOCS. We will require the rest of our supply chain vehicles to be compliant to FORS Bronze at minimum.



5. Traffic Management and Access





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Swept Path Analysis—Tipper Lorry

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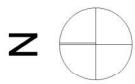
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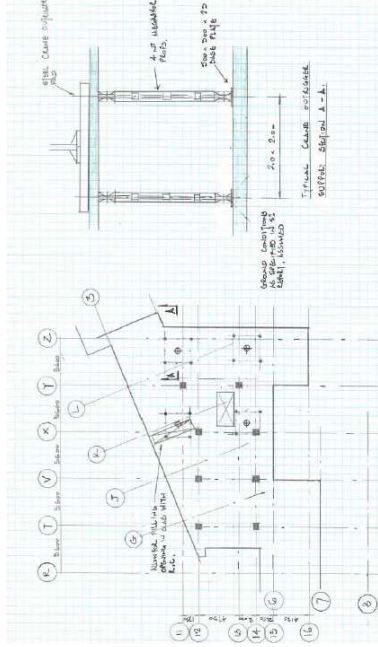
6. Demolition Sequence



Enabling Works

Due to the construction of the car park, the precast beams will be propped at each end adjacent to the column corbel, for stability before any works commence.

This is in addition to any other temporary works propping required to support plant and equipment on suspended slabs



The link bridge connecting Thames Tower to the carpark will be demolished back to first column line with suitable bracing install prior.

As scaffold is erected, any minor soft strip will be undertaken and the western lift core will be established as the demolition chute / drop zone

Top Down Demolition

Demolition of the MSCP will be undertaken in a top down manner, with use of a mobile or crawler crane to

lift beams.

A 160-250T crane will be used to lift 5-15T excavators, bobcats and tools/equipment to the roof to commence top down demolition.

Demolition will only commence once all controls and safety measures are in place including:

- Full scaffold encapsulation including monarflex sheeting
- Carpet/ply to the scaffold decks
- Temporary water points for dust suppression
- Fire blankets and extinguishers in place
- External emergency access points
- Ground floor void catch decks (to internal stairs and existing risers)

Arboricultural Considerations

There are a number of trees to be retained, pictured right. These are understood to be remote from the core of demolition activity and may be excluded from the site by hoarding. However, maintaining their health will be considered as a priority during these works.

First we will carry out an Impact Assessment. Dust and emission controls (as detailed within the Environmental Management section), together with continuous air monitoring, will be implemented to mitigate any potential impact on trees near the demolition site.



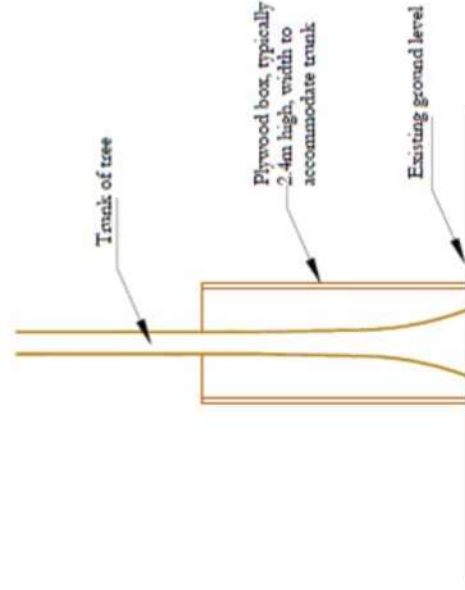
If retained within the site hoarding then the stems can be protected by timber boxing. The rooting system can be protected by retaining the paving and/or bedding layer to provide a stable platform for work.

Once an arboricultural method or impact statement is prepared, a pre-commencement meeting should take place on site attended by the appointed arboricultural consultant, the local authority arboricultural officer, the client and demolition contractor to ensure full understanding of the requirements.

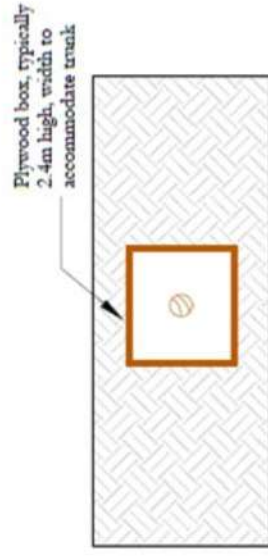
Sequencing of Works:

A logical sequence of events is to be observed as follows:

1. Erect protective barriers as shown (option 1 or 2)
2. Undertake demolition and construction works
3. Take down protective barriers and complete landscape works.



Section of tree protection detail



Plan of tree protection detail

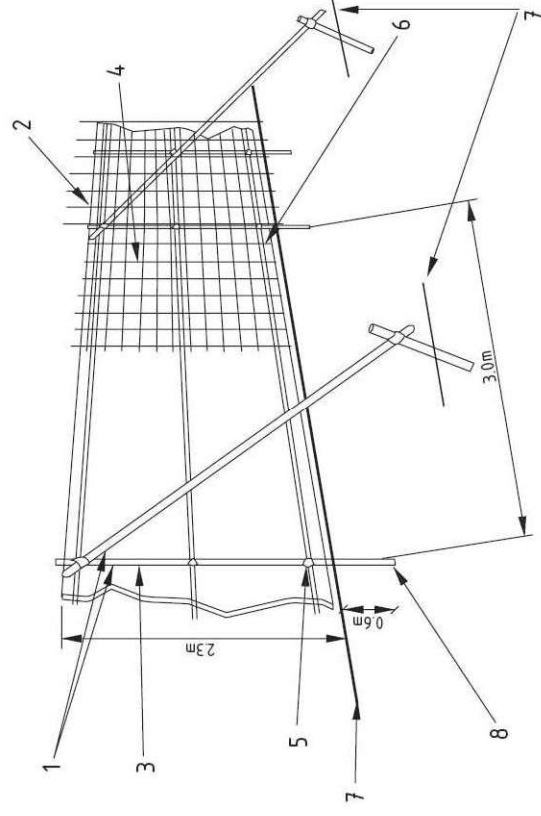
TIMBER BOXING TO PROTECT TREE TRUNK

THIS DOCUMENT IS COMPLETED IN CONJUNCTION

General Site Care

To ensure that the trees to be retained are afforded an adequate degree of protection during the works, the following general precautions will be observed:

- No fires will be lit on site
- No access will be permitted within areas demarcated by protective barriers, unless and only where otherwise approved herein. Ground levels will not be changed within them.
- No materials, equipment or debris will be stored within any of the protected areas and no chemicals, petrol or diesel will be allowed to spill where they may contaminate the root protection areas of retained trees
- All heavy plant, machinery, cranes and delivery vehicles shall be excluded from the areas demarcated for protection on the Tree Protection Plan.
- Roots often exist in the substrate below hard surfaces and extreme care must be taken to avoid damage to them. Therefore existing hard surfaces should be retained to ensure the underlying rooting environment is protected, or if required, removed by less intrusive methods than conventional large machine demolition and civil works.
- No excavations are proposed within the root protection area of retained trees.



- 5 Standard scaffold poles
- 6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
- 7 Ground level
- 8 Approx. 0.6 m driven into the ground

Demolition Sequence

Excavators will demolish level by level in a reverse construction sequence utilising hammer and cracker/ rotating pulveriser attachments, with the mobile or crawler crane to trail closely behind removing beams:

- Step 1 - Non structural walls
- Step 2 - Slabs
- Step 3 - Beams (by mobile crane)
- Step 4 - Columns



As each level is complete, all plant and equipment will be mobilised to the next level using the existing ramps, restarting the cycle.

There will be a small overlap between finishing one

This document is commercial in confidence

Open Face Demolition

Subject to engineering review, top down demolition may cease at Level 3 slab, allowing larger machinery (30-45T excavators) to walk through the remaining structure.



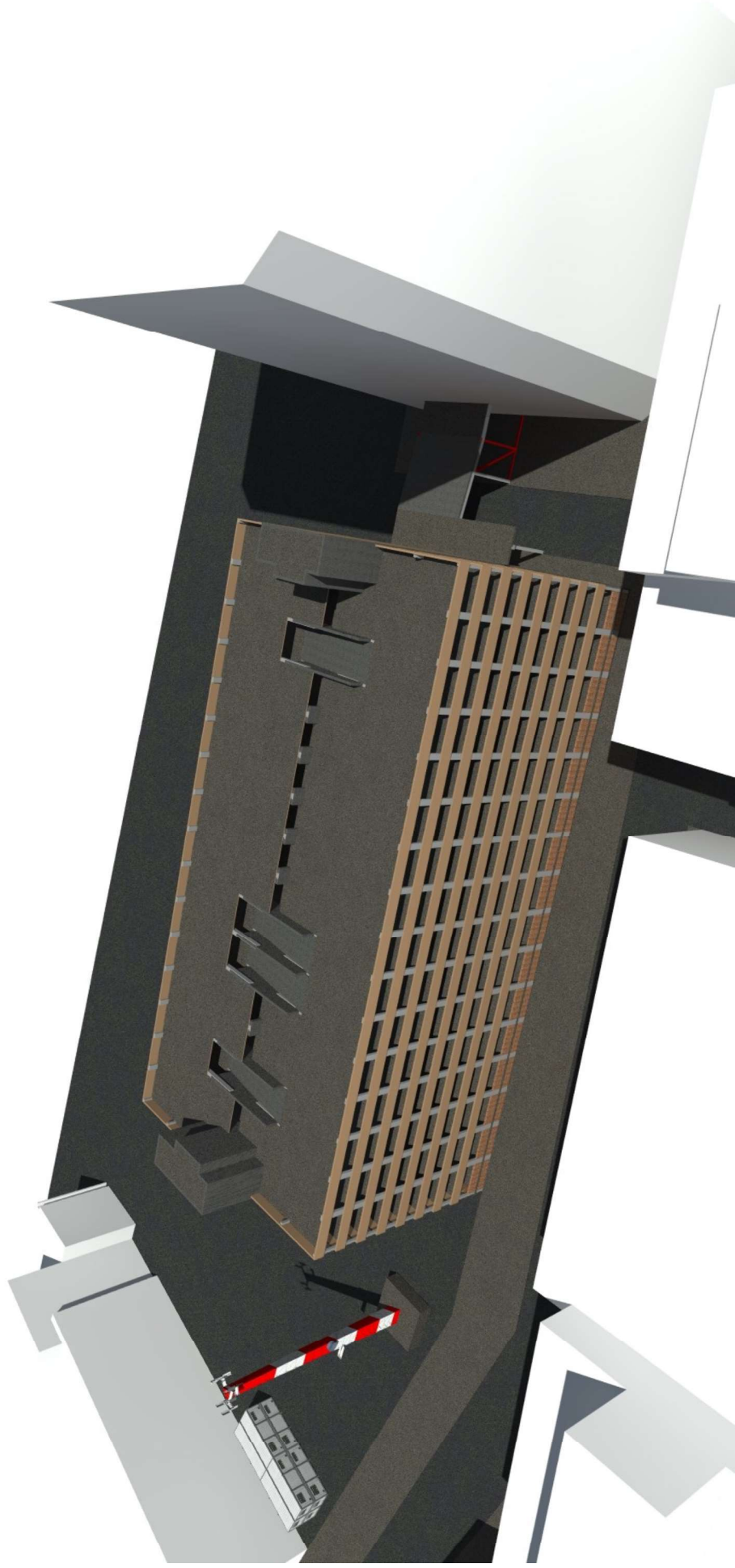
floor and beginning the rest to help drive the programme.

Ongoing controls

- Hot works adjacent to the perimeter scaffold requires a spotter at all times (including fire watch), wetting down scaffold protection (ply and carpet), fire extinguishers, and fire blankets
- No excessive stockpiling on suspended structures
- Noise, dust and vibration monitoring

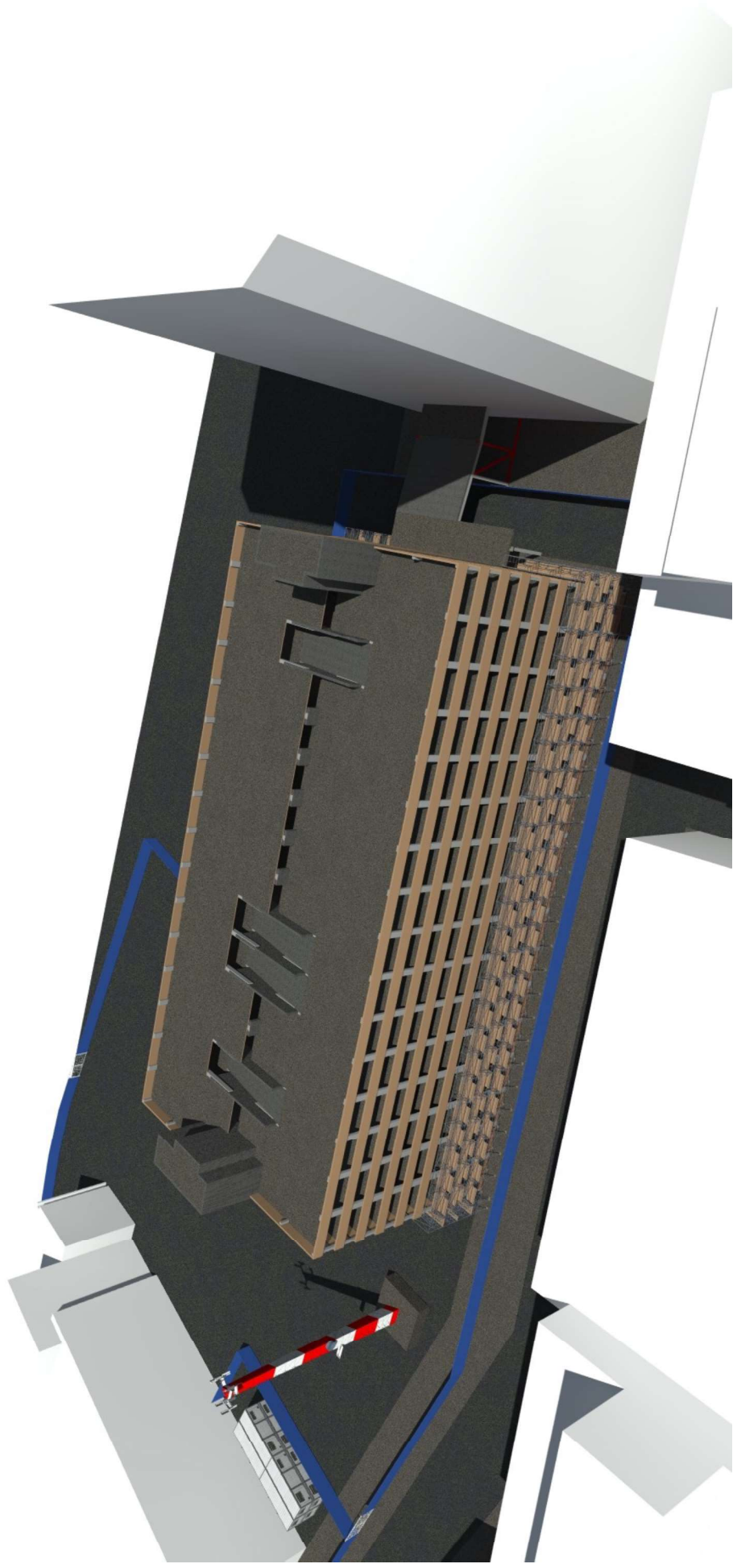
Sequence 1—Existing Structure

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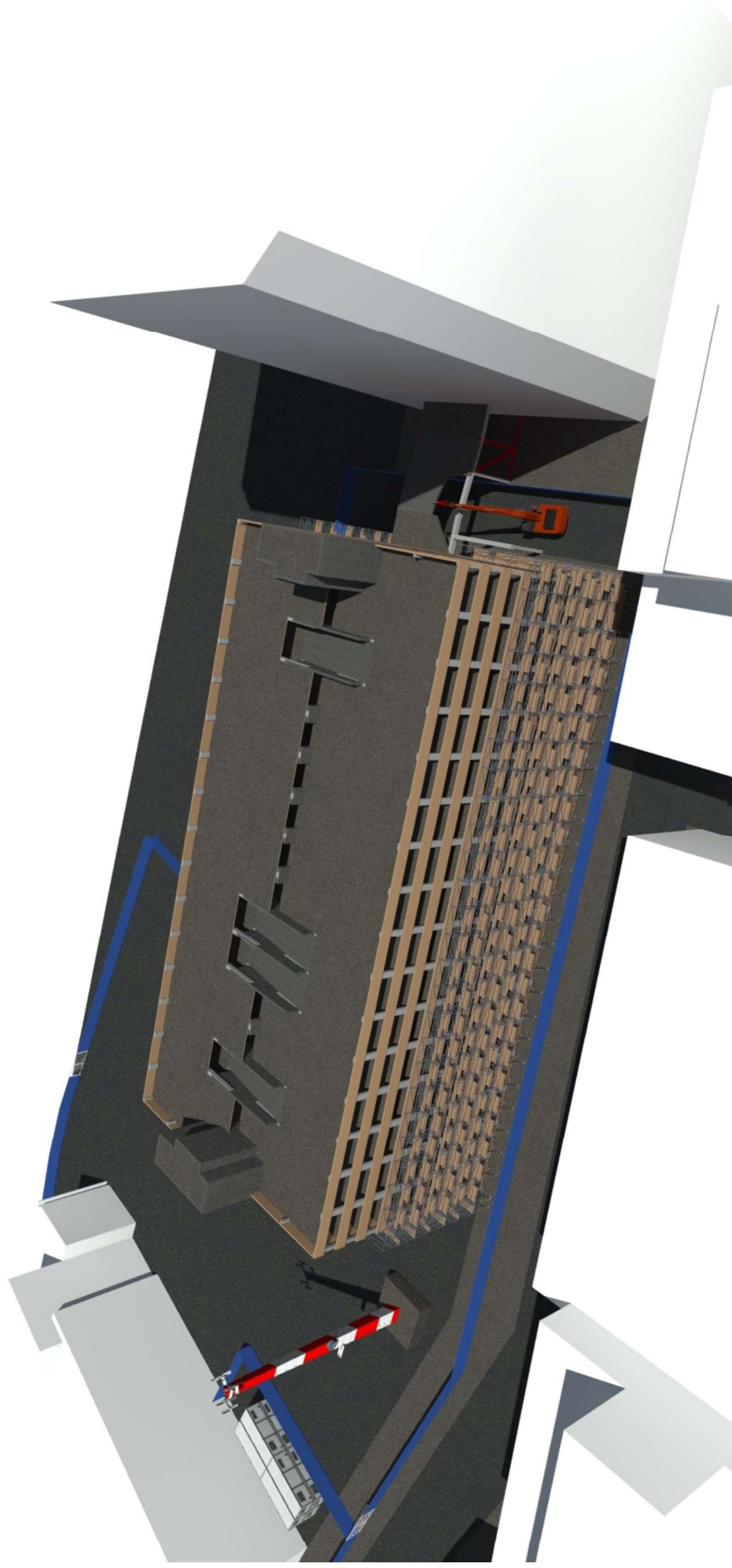
Sequence 2—Site Establishment

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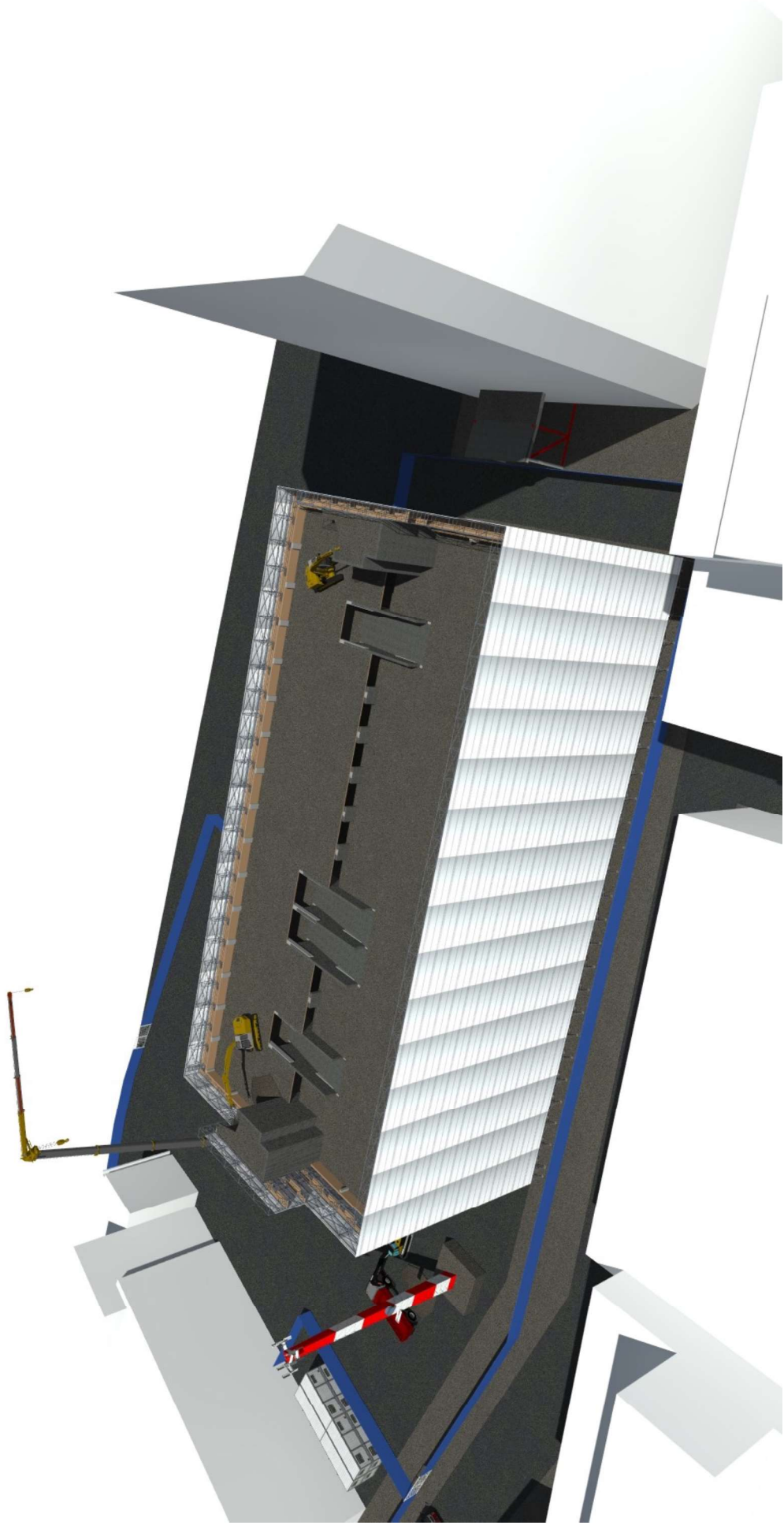
Sequence 3—Link Bridge Separation & Scaffold Commencement

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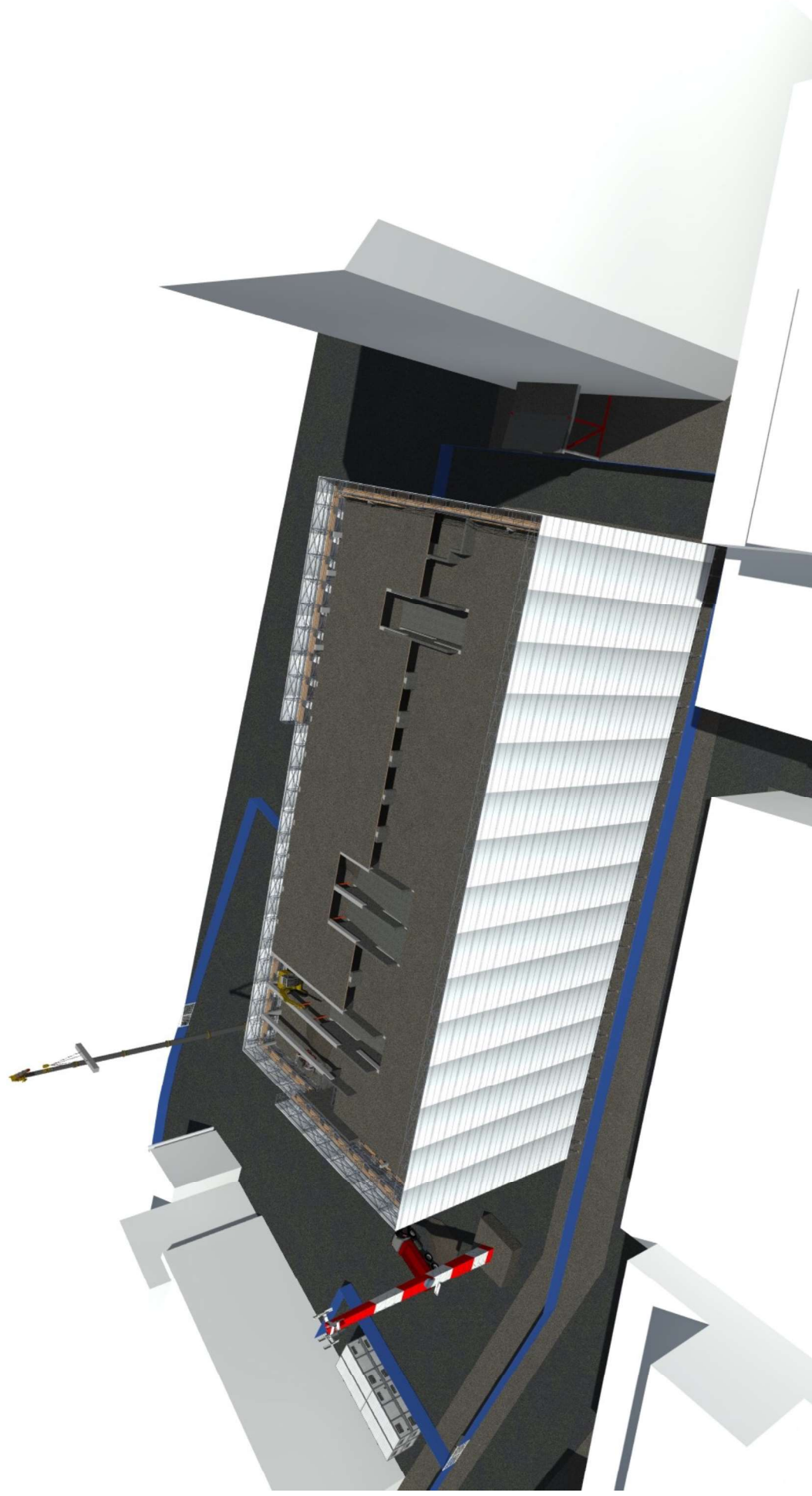
Sequence 4—Scaffold Completion & Plant Rooms Demolition

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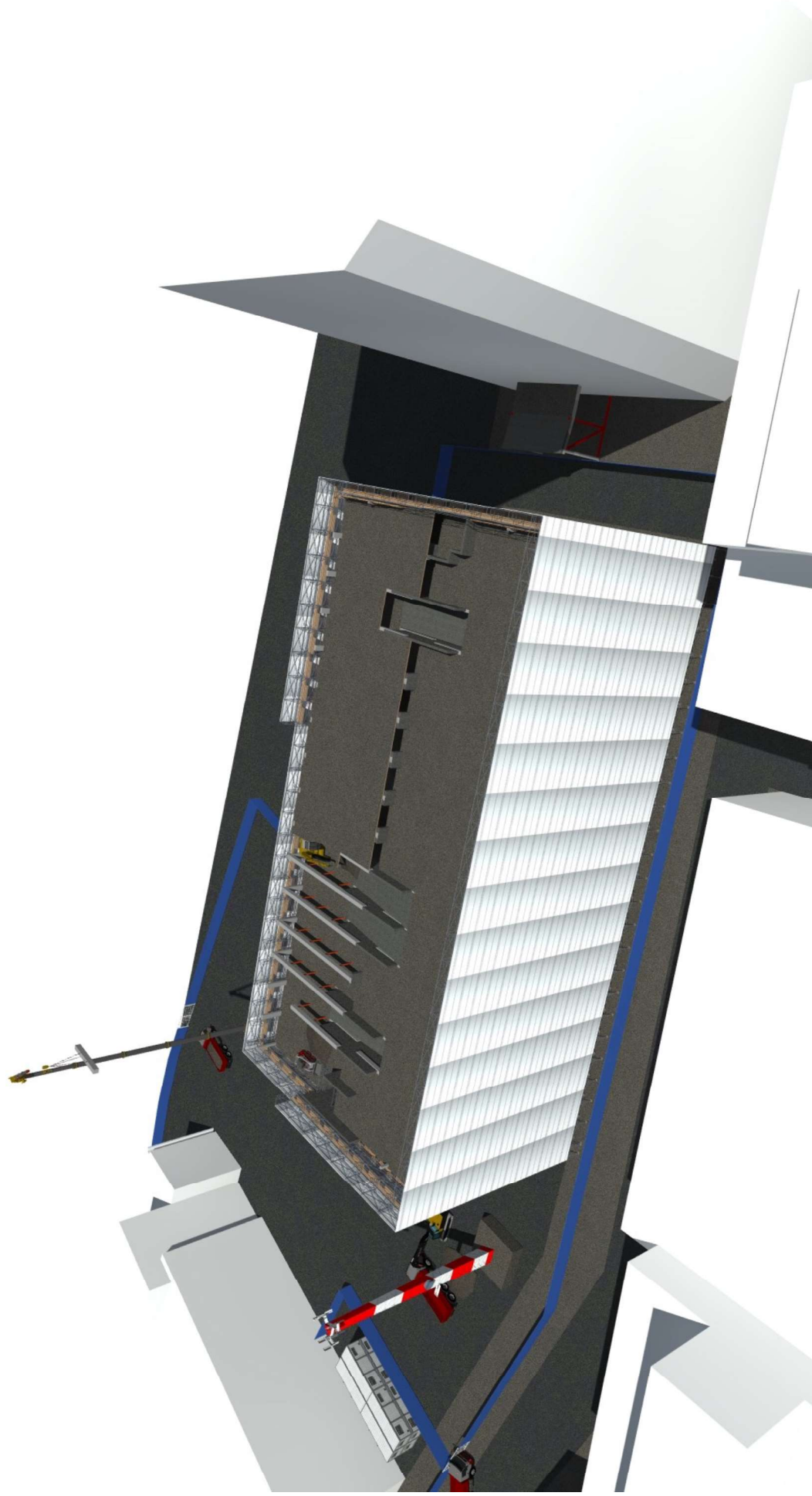
Sequence 5— Initial Slab Demolition & Beam Removal by Crane

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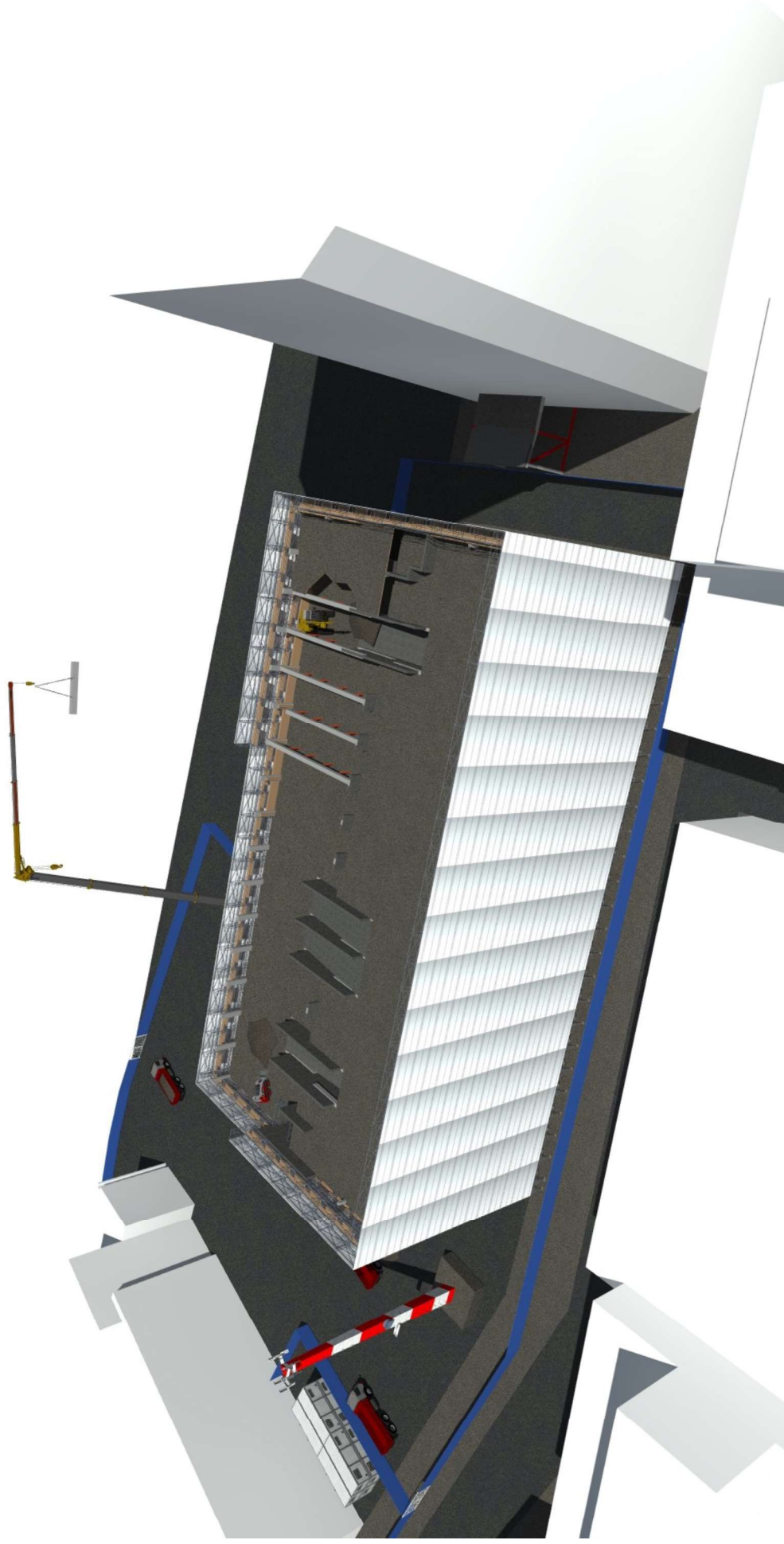
Sequence 6— Demolition Progress

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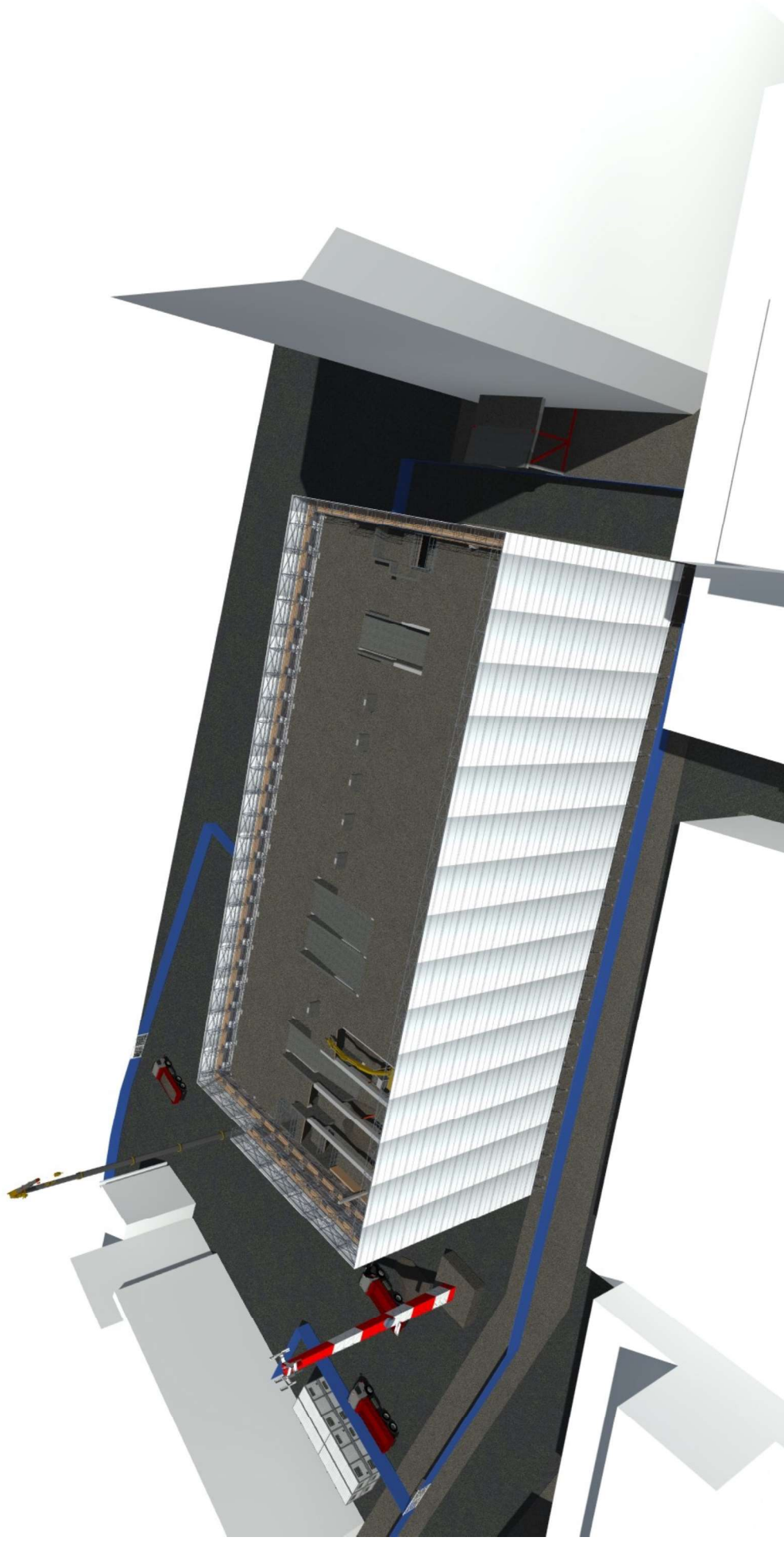
Sequence 7—Demolition Progress

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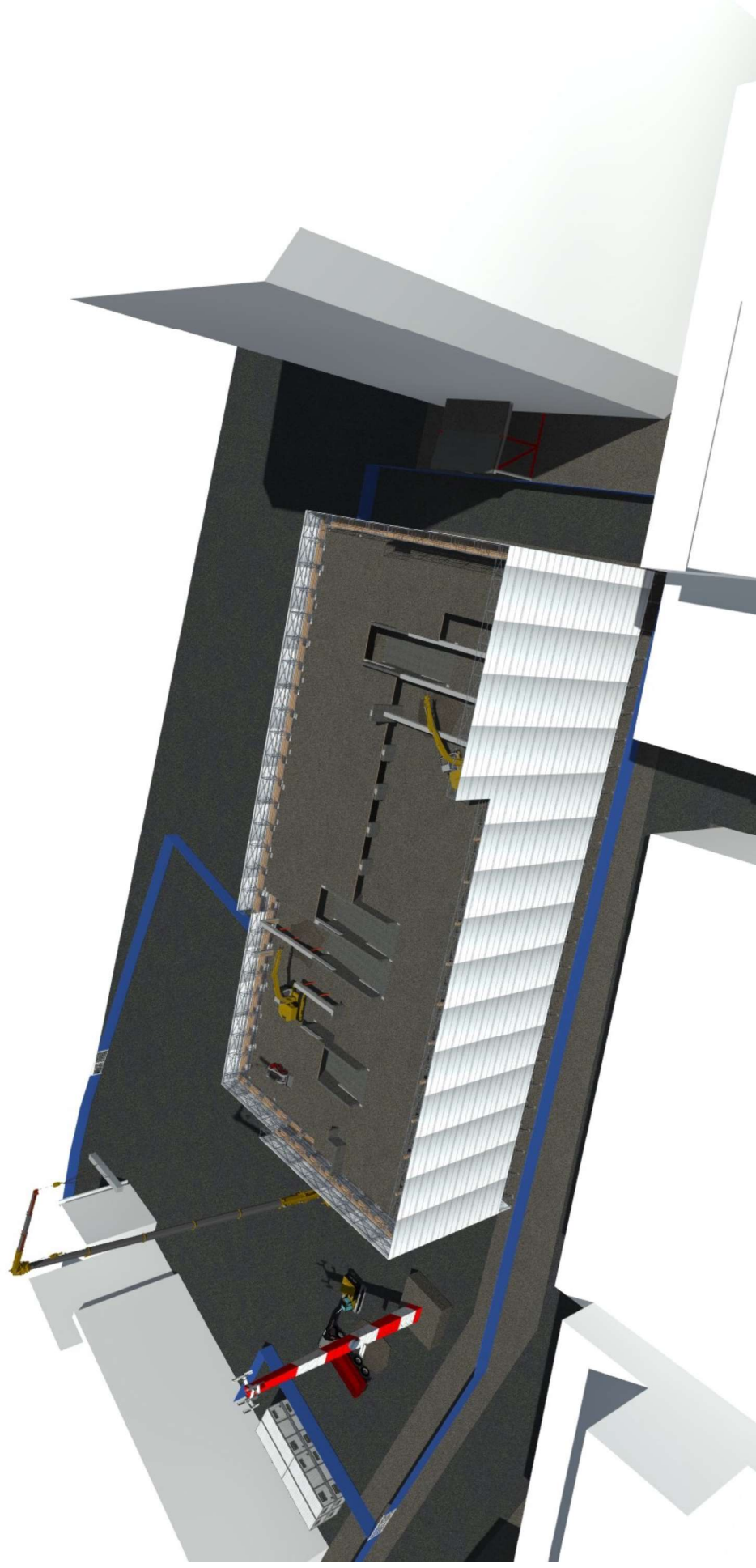
Sequence 8—Demolition Progress

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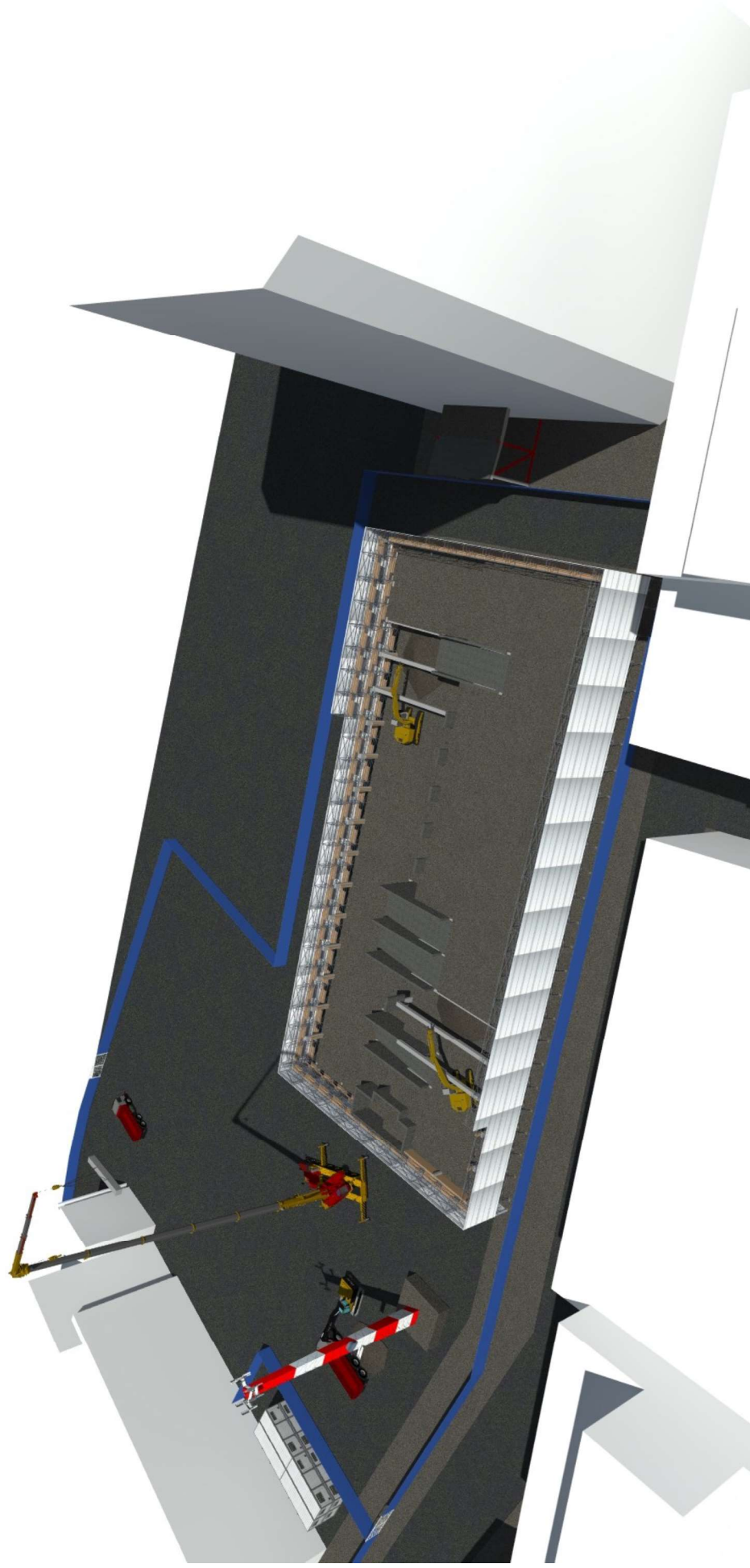
Sequence 9—Demolition Progress

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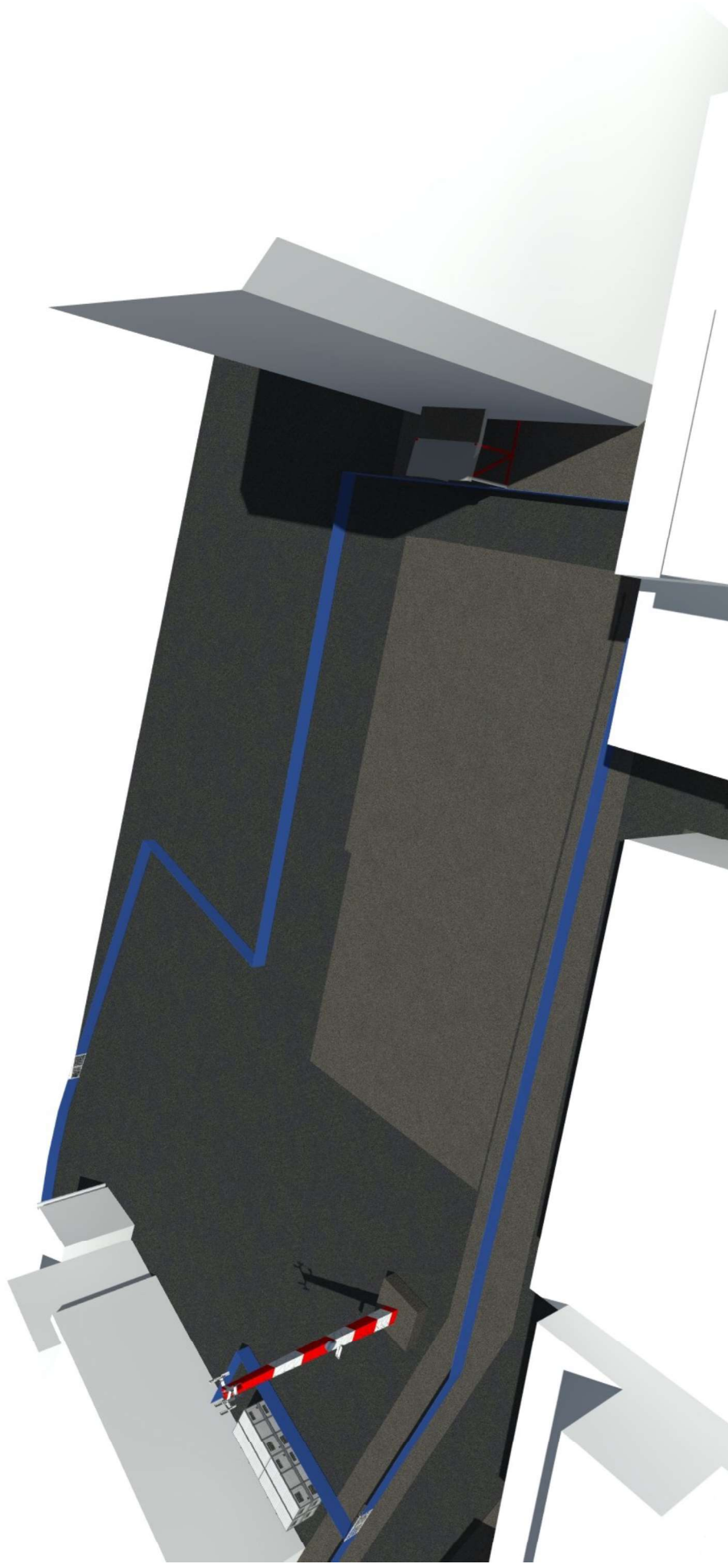
Sequence 10—Final Stages of Demolition

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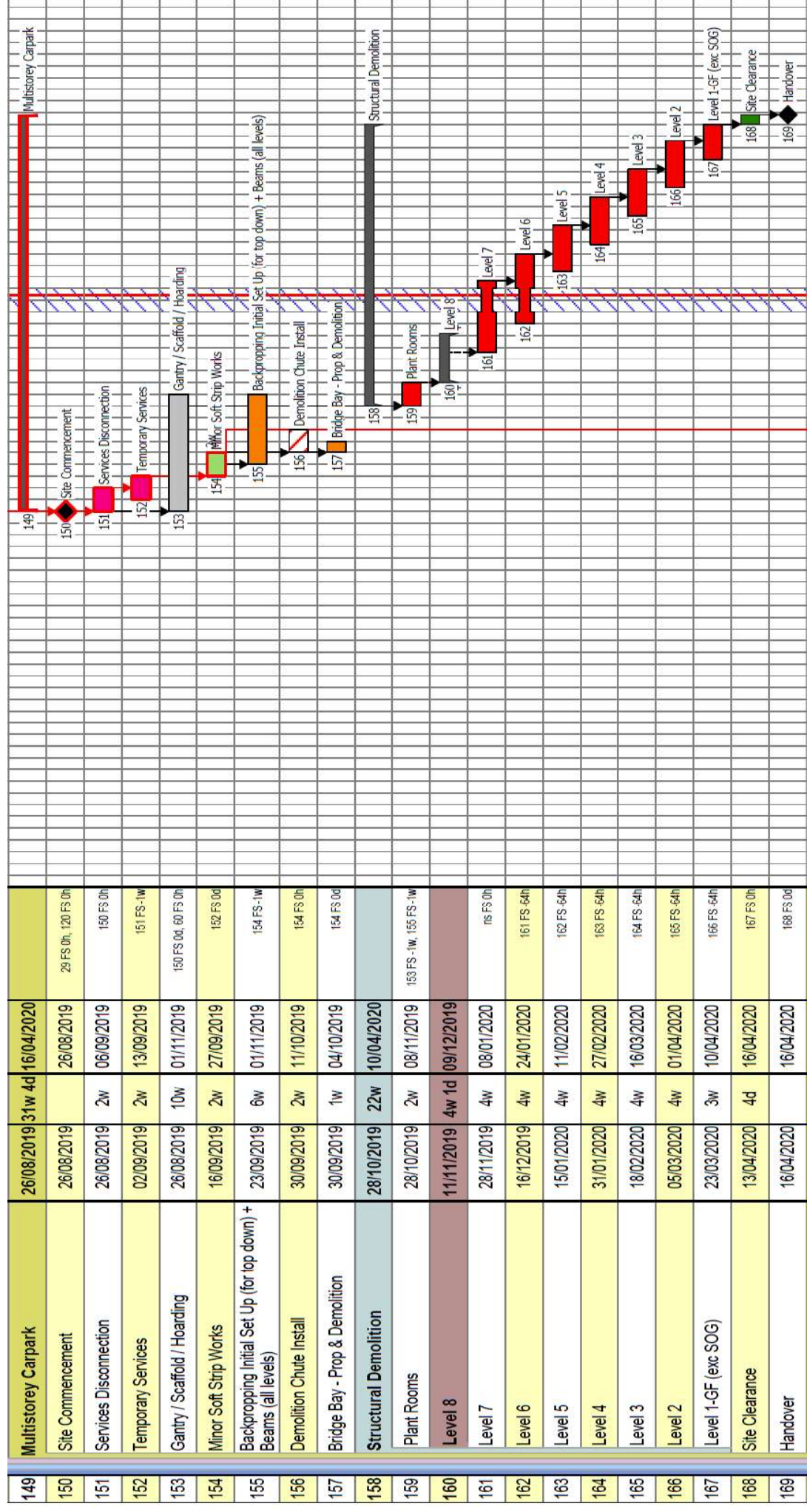
Sequence 11—Project Completion

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7. Programme and Timescales





8. Temporary Works



Designing and Managing Temporary Works

All design management will be in accordance with our **Temporary Works Procedure SMS-020**, ensuring compliance with BS5975:2008.



Following a **Structural Appraisal Assessment** and provision of **Design Brief** from the Temporary Works Coordinator, a full design will be completed for each temporary works element used to facilitate works and included on the **Temporary Works Register**. A **Site Control Assessment** during installation verifies it has been built to design before use.

SMS-020 sets out requirements such as a '**permit to load**' and provides a **Temporary Works Inspection Register** prompting inspections at the appropriate frequency.

Records are kept in the Site Office and uploaded to the project's secure SharePoint.

Our Contracts Manager will maintain control of temporary works on-site; all of our project managers are competent in this having completed Temporary Works Coordinator Training.

In line with our procedure, when designing due cognisance is given to:

- The proximity of third-party assets, public footways and roads
- Obtaining agreements for oversailing scaffold
- Management of traffic on adjacent haul roads

- The protection of adjacent third-party assets and structures

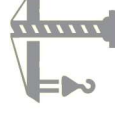
- Services and utilities that are to remain in place

All designers risks will be recorded on a risk matrix proforma using a scale of impact and severity between 1-5. Residual risks that cannot be eliminated through design will be clearly marked on drawings.

Method Statements with Risk Assessments and designs for installing temporary works will be produced prior to their installation for comment by your design team or other third-parties. To ensure only up-to-date design information is used updates will be recorded on the site drawing register and correctly versioned.

Craneage

Given the methodology adapted and ability to facilitate demolition with mobile cranes; zoning, out of service restraint and free movement is not of concern.



The mobile crane will be mobilised and demobilised to site using agreed traffic routes and conducted out of normal hours in agreement with Reading Council, to avoid impacting normal traffic. Once onsite, erection and dismantling of the crane would be done within the site footprint.

Crane type and sizing will be confirmed, after structural investigations and assessment is completed. This assessment ultimately determines which excavators are chosen, which will be lifted to the roof to

commence top down demolition. Ideally mobile cranes in the range of 110T-220T would be used, which are more than capable to also facilitate adjoining land scaffold/gantry install and dismantle.

Mobile cranes may also be used against adjacent boundaries where saw-cutting and lifting techniques are employed, for example to remove a beam or column, if conventional demolition methods are not suitable.

A programme will be issued prior to commencement and be used to ascertain key dates for crane use on site including any over sail.

Scaffolding

Company Health and Safety Standard

No.7 'Scaffold Requirements on Site'

will be followed and this will provide guidance to ensure safety and compliance as well as an inspection and testing scheme.

All proposed scaffold structures will be designed in accordance with the TG20:13 regulations by an independent scaffold designer and the proposals will be subsequently checked by our in-house engineering dept, logged on a scaff-tag and in site files.

Flame retardant Monarflex type sheeting will be installed to the external face of the scaffolding to encapsulate the car park and assist in containing dust and debris.

The scaffold will be secured from authorised external entry using 2.4m hoarding at the base on public frontages.

On the eastern elevation, the link bridge connecting the NCP carpark to Thames Tower will be separated (as addressed under the demolition method). This allows the carpark scaffold to be installed completely independent. To eliminate the live edge created from the link bridge separation works, a hoarding will be installed inside the Thames

Tower boundary, which will require access arrangements to be agreed.

Scaffold and hoarding on Garrard St elevation may be subject to obtaining a relevant licence through Reading Council, however all other external protection will be contained with the demolition boundary, with no requirement for oversailing or access required.

Logistics of installation and striking is addressed below under *General Access*. An agreed level of liability and professional indemnity insurance will be maintained covering all scaffold or gantry works.

Scaffold, gantry and hoardings will be used to protect and segregate the public from the demolition works, while assisting to contain demolition dust and debris. External scaffold will be for site worker access and to conduct works from where it is unsuitable or inefficient to work from the structure.

The scaffold shall be used for emergency access no materials or debris will be stored on scaffold, only kept there while being used for any current task.

Fans will be used in line with best practice and as a secondary measure to

mitigate potential injury from a falling object which has escaped the immediate scaffold face.

General access for scaffold

Scaffold will stand completely independent and separate of surrounding adjacent neighbouring structures.

To avoid unauthorised access we will secure this using monarflex, hoardings and locked gates.

With suitable space around the perimeter for deliveries and laydown, a combination of existing lifts, forklifts using existing ramps and manual methods will be used to mobilise and install scaffold, fans and gantry.

Striking of scaffold, fans and gantry will be aided by lifting out using mobile cranes located to the west within the site boundary. Some equipment may need to be manually mobilised however we anticipate this to be minimal.

Working hours will comply with the project working hours for any install/dismantling unless alternative arrangements are agreed prior.

Community liaison is vital to minimise the disruption associated with

scaffolding. We will conduct an initial newsletter drop with information about the works, the programme and site team contact details. This will be followed by an evening information meeting for residents/local businesses if necessary and a continuation of subsequent newsletters in hard copy or via email. Where specific stakeholders have bespoke requirements e.g. neighbouring access, we will issue individual updates also via our Project Manager.



All required Personal Protective Equipment and tools used to install scaffold/gantry at height will be tethered to avoid falls or drops from height in line with our **Working at Height procedure**.

9. Sustainability





Environmental Management Plan

ISO:14001 Certified System



Noise

- In line with Good Neighbor Policy, no shouting, stereos or radios
- All plant switched off, never idling, when not in use
- Silencers, vibration dampers, barriers, screening and static plant & waste chutes positioned away from party walls and site boundary to minimise noise levels
- Methodology to maximise use of mini-pulverisers, with percussive plant avoided
- Plant used in line with BS 5228
- Cutting operations and noisy tasks minimised through off-site fabrication where practicable
- Monaflex sheeting provides sound barrier
- Compliance with Section 61 agreements
- Unattended real-time sound level meters deployed on site boundary to monitor LAeq with trigger levels pre-agreed
- Demolition arisings loaded via internal well-holes down to the ground floor where it will be loaded into waste lorries



Dust

- Employ Best Practicable Means (as per Part III of the Environmental Protection Act 1990)
- Vehicles securely sheeted when transporting materials to/from site
- Site speed limit adhered to
- Haulage roads cleaned regularly
- Wheel washing facilities and access points to public roads
- Mobile water bowzers to dampen haul roads
- Increased spraying in dry weather
- Drop heights for loading/unloading minimised
- Water supply installed for dust suppression to Dampen down cutting, grinding and breaking out using atomisers forcing tiny particles of moisture into air without creating excess water
- Monarflex screens used as well as primary containment areas
- Dust monitoring



Waste

- Monitor waste streams using data collected from **Waste Log Forms** provided by Site Managers.
- Exceeding best-practice a detailed Site Waste Management Plan will be developed for the project prior to the commencement of any works, for your approval
- All waste and demolition/excavation arisings separated into waste streams as much as practicable on site and send to the appropriate recycling facility or reused
- Implement initiatives on-site to reduce, reuse and recycle diverting waste from landfill with a target of 98%:
 - Compost bins for food waste
 - All timber for hoardings and ply FSC/PEFC accredited
 - **Reuse crush** on site to reduce waste and traffic movements



Carbon

- On site water and energy analysis is carried out monthly using **Emissions Target Sheet** to record target and actual emissions from site and the project progresses. This form logs the number of loads delivered/removed, the mileage of each trip and total monthly mileage, litres of fuel used and electricity consumption on site. Carbon dioxide emission levels can be assessed to address areas where this can be minimised
- To reduce carbon emissions:
 - All vehicles from FORS Bronze
 - Promote the use of public transport, providing map to the nearest links on site
 - We use suppliers that are as local as possible, or ensure deliveries come from / waste is taken to the closest suitable depot

Water, Drainage & Hydrology



- Works in accordance with the Environment Agency Pollution Prevention Guidelines 1, 2, 3, 5, 6, 8, 13, 18, 21, 26
- Areas of bare soil kept to minimum
- Water run-off from dust suppression absorbed by hardcore
- No pumping to controlled waters, surface water drains or foul sewer without Discharge Consent from the Environment Agency or local water authority

Vibration



- Vibration surveys completed prior to demolition and ground works in consultation with Reading Borough Council
- Vibration will be minimised as far as practicable through the selection of plant, equipment and methodology
- Pre and post-works condition survey