

Apex Tower Manchester Construction Method

Programme Overview

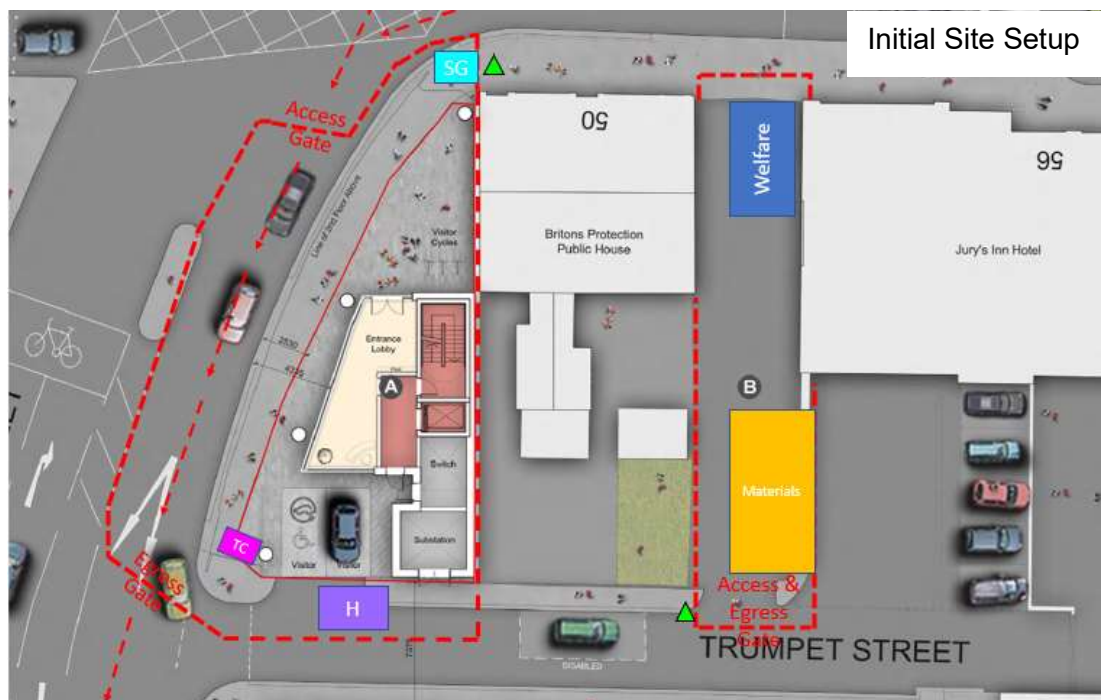
	Building A			Building B		
Activity	Start Week	Finish Week	Duration	Start Week	Finish Week	Duration
Site Prep inclu Piling Mat	1	6	5	43	45	2
Piling	6	9	3	45	48	3
Substructure	9	15	6	48	52	4
Superstructure	15	52	47	52	62	10
Bathroom Pods	27	56	28			
Façade	32	63	30	61	68	7
Lift	39	66	27	66	78	10
Fitout (inclu. impacted apartment)	40	102	59	65	98	30
Tower Crane and Hoist Infills	65	86	19			
Landscaping	93	99	6			
Overall Duration	1	104	98			

Construction Methodology

All resource and duration estimates are to be confirmed upon receiving detailed design information.

Site Prep including Piling Mats

Upon receiving site possession we intend to setup all secure site boundaries, including the required two-lane road closure to A5103, and temporary welfare facilities which are to be initially positioned within Building B plot (please see initial site setup below). Site preparation to Building A plot will follow with ground clearance and piling mat formation as required by the enabling works contractor.



One Way City Centre Site Traffic Route



Piling

Working from North to South, piling will progress to Building A. It is expected 1nr team and piling rig will complete the piling, achieving 30 - 40nr piles a week. Tower Crane piles will also be completed in this visit. Muck away site haul roads will be introduced and maintained as required during the piling phase.

Substructure

Upon completion of Building A piling, substructure works will commence. Tower Crane pile caps and base will be firstly constructed to allow sufficient curing time before Tower Crane erection. In addition, excavation will commence to form the lift core base and pile caps, working from North to South. All excavation works adjacent to the 'Britons Protection Pub' will be subject to preconstruction survey information to ensure its existing structural integrity is not compromised. It is expected 2nr teams working with a 360 tracked excavator will progressively complete the pile caps by excavating the piles, breaking the piles down and constructing reinforced pile caps. Muck away site haul roads will be introduced and maintained as required during the substructure phase.

Utilising the newly erected Tower Crane, the traditional construction of the ground floor slab can now progress, working from North to South. It is expected 1nr team will complete the slab in 2nr concrete pours.

Superstructure

Once the ground floor slab is cast the slipform can be setup and the core can progress with 1nr team. The construction of the columns and succeeding floor slab now becomes the critical path. To ensure greater efficiency we would consider the use pre-cast columns which will be delivered to site on a just in time system. Following the erection of the single or double height pre-cast columns we will traditionally cast the floor slab. The slab is to be split into 2nr pours, with all required cast-ins for the succeeding activities, unitised façade panels and lift installation. The concrete is expected to be delivered to the upper levels of the building via a concrete placing pump which is likely to be positioned within the refuse store room. The precast columns and traditional floor slab is expected to be completed by 2nr teams. Precast stairs will be installed during the superstructure construction.

Building B

Following Building A backprop removals from L00 – L01, we will now relocate our temporary welfare from Building B to Building A ground floor, utilising the visitors cycle and car park areas. Enabling works can now progress to Building B beginning with site clearance and piling mat formation as required.

Once ready, a 2nd piling visit will commence to Building B. The piling will consist of 1nr team and rig, working from North to South. Muck away site haul roads will be introduced and maintained as required during the piling phase.

Upon completion of Building A slip form core, the team will move to Building B to construct lift core base, pile caps and ground floor slab.

To mitigate delays to Building A which is our programme critical path we have programmed the construction of Building B superstructure to commence once until Building A superstructure is sufficiently complete. The teams working on Building A will move to Building B and construct the superstructure using the same principles as building A, with potentially precast columns and traditional floor slab. As the structure is only 7 storeys traditional formwork will be used to construct the core.

Bathroom Pods

As the superstructure progresses and the concrete cures the back props can be removed. Bathroom pods can then be lifted on the floors via a crane loading platform and temporarily positioned. We expect our first delivery of bathroom pods to L02 to arrive after L06 slab has been cast.

Façade (unitised)

The unitised façade panel installation is expected to commence once the superstructure reaches L10 slab. Façade units will be loaded onto the floor via the hoist. Once on the floor they will be lifted via a spider crane, positioned on an upper floor, and fixed to the cast-in channels. Suitable crash decks will be erected, and diversions put in place to ensure safety during the installation process. The panels are expected to be installed in an anticlockwise sequence. Infill panels for the hoist and tower crane will be loaded onto the floor plate in preparation for their installation later in the programme.

Building B façade unit installation is expected to follow from the completion of Building A.

Lift

A crash deck will be introduced once the structure reaches L15 slab to allow the lift installation to commence. The lift is critical to our hoist removal strategy.

Internals

Internal apartment fit-out commences once façade panels are installed to L06 and required floor firestopping is complete. Apart from the prefabricated bathroom pods, the internal fit-out consists of traditionally constructed drylining, M&E, joinery, kitchens, decorations, and general finishes. The hoist will be the primary feed for the internal finishes until the internal lift is available for use.

Common corridor areas will be completed in-line with the apartments, except for final finishes which will follow completion of the hoist tower crane impacted apartment.

The ground floor entrance lobby will be left as late as possible, to reduce the risk of damage to reception areas while these areas are still being used by site personnel.

Building B internals will be completed within the same overall period as Building A.

Hoist and Tower Crane Infill

The South apartment 03 is impacted by the Tower Crane and Hoist. The completion of this apartment has been programmed to commence following the Tower Crane and Hoist access removal. Slab infill works will progress first reaching L07, before façade infill panel installation at L02 commences using a spider crane or roof BMU. Internal fit-out will follow thereafter.

Temporary and Permanent power

As there is no suitable location for a temporary substation we will initially use on-site generators for power to the Tower Crane and other on-site requirements. The permanent substation within Building A will be advanced at an early stage to enable energisation for site power use, and to serve project welfare, tower crane, hoist and general power and lighting. Following permanent power availability generators will be removed from site.

External Works Landscaping

The external works, paving, car parks and reinstating of pavements etc will commence once the project has reached it's finishing stage and resource levels from internals have reduced.