

7.3. Mobility Hub

Mobility Hub Overview

PROJECT OVERVIEW

OVERVIEW

SITE CONTEXT

Located on the Southern end of the Masterplan, the Mobility Hub (S5) is located next to the existing Cambridge North train station and hotel. Situated at the intersection of Milton Avenue and the proposed Station Row, it serves as a gateway to the scheme guiding pedestrians who arrive at Cambridge North Station towards the lab and office buildings towards the North and linking Station Square to Chesterton square

The Mobility Hub will consolidate the existing above ground parking on site, primarily serving commuter parking needs, whilst also providing a number of private development parking for the surrounding scheme.

Sitting on the eastern edge of the scheme, the building also acts a buffer between the proposed scheme and the existing train tracks, forming a linear screening of buildings that gives privacy and reduces noise to the rest of the scheme.



Illustrative aerial view



Site context plan

PROJECT OVERVIEW VISION

The Cambridge North Masterplan envisions the Mobility Hub as:

- A necessary piece of transport infrastructure, designed to stand as a landmark building within the scheme and sensitively integrates itself within the local Cambridge context.
- Catering to the transport needs of today, whilst ambitiously working towards a sustainable and car free future by programming future adaptability of the building from day one.
- A high quality building that adopts the design principles of the Masterplan that sits well within the overall site.
- Provide a range of programs beyond parking to activate the building and create a true infrastructure core for the scheme and its surroundings.



PROJECT OVERVIEW

BUILDING SCALE RATIONALE

GATEWAY TO CAMBRIDGE NORTH

The Mobility Hub will consist of a total of 6 storeys and will include a full basement level.

It adopts a split level configuration, with decks starting at street level on the eastern side and raised on the western side, allowing the massing to step up and away from the train tracks.

The eastern edge of the Masterplan steps up towards the north, the Mobility Hub being lower in height than the two neighbouring commercial buildings to the north (S6+S7). This stepping is done in consideration to the future development of the aggregate works site and waste treatment plant.

The massing of the Mobility Hub allows for variation of height along the eastern face of the Masterplan, creating a recess in the silhouette and articulating the skyline along this edge.

As a multi-storey carpark, the massing of the building is less able to be articulated as dynamically interesting as the two commercial buildings along the eastern edge. Hence other mitigation strategies have been employed to reduce the visual impact of the long facades.

The building has been sensitively located to allow for the inclusion of a robust tree planting strategy along the edge facing the Fen line, providing green breaks across the facade in views from the east.



3D view illustrating the building scale rationale

PROJECT OVERVIEW

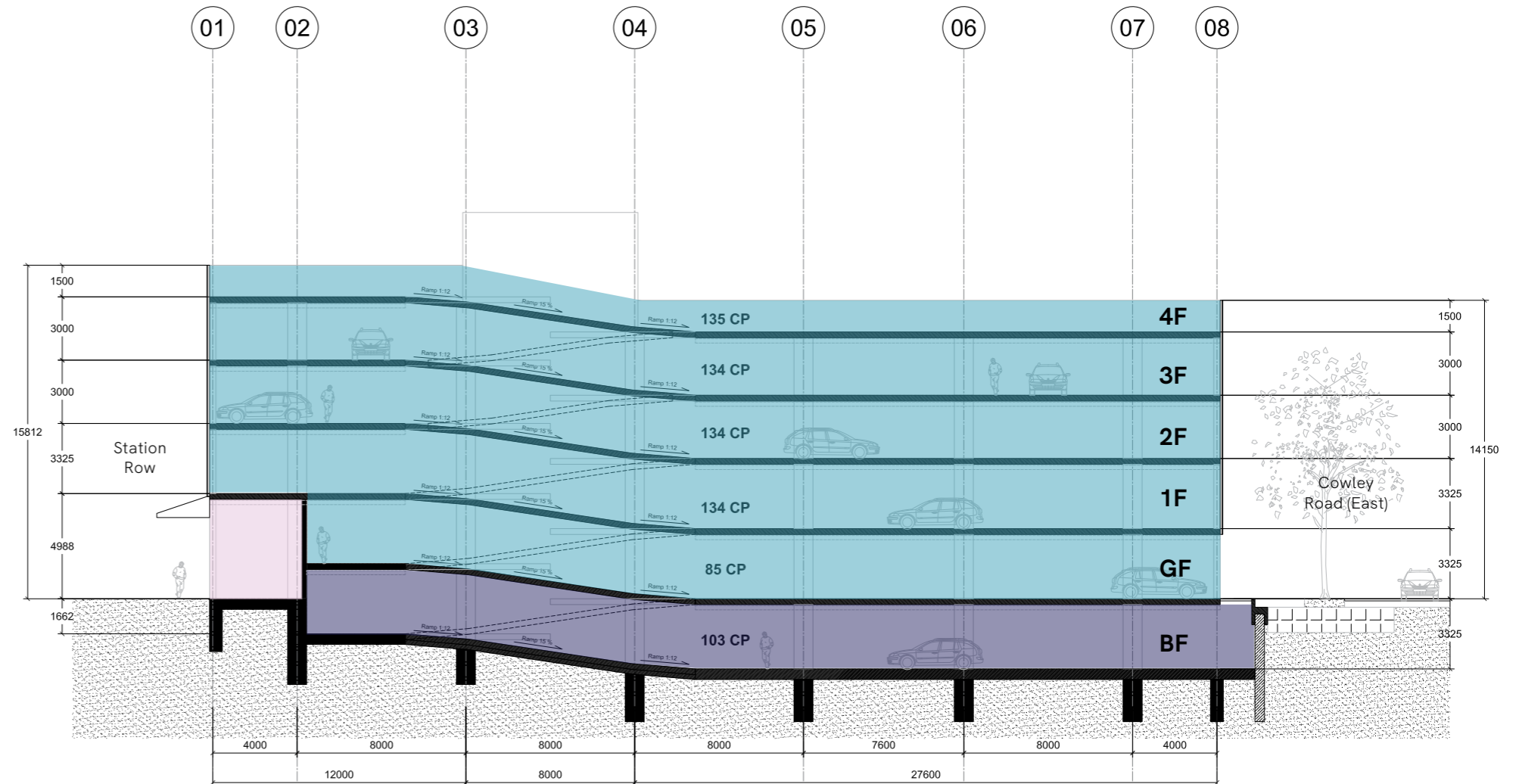
DISTRIBUTION OF USES

The western edge of the building has been activated by providing a number of retail units at ground level along Station Row. These units will enhance the pedestrian experience with active frontages and minimise the impact generally associated with a multi-storey car park.

The parking area of the building is split principally between those bays allocated for network rail commuters and those for the private development.

The private development parking will be located in the basement, providing a total of 103 parking spaces across the two split levels.

Commuter parking will be provided over 5 levels from Ground level to level 4, allowing for a total of 622 parking spaces for the public.



Diagrammatic Section

Legend:

- Retail
- NR Rail Parking
- Private Development Parking

PROJECT OVERVIEW

ADAPTABILITY - CYCLE STORAGE CONVERSION

CYCLE PARKING CONVERSION

In line with the ambitious sustainability goals of the Masterplan, the mobility hub has been envisioned to enable future adaptability for other uses in anticipation of a car light future.

Floor heights have been considered carefully to accommodate alternative functions and provide suitable structural parameters for various purposes.

Ground and First floors have been given higher floor to floor heights to be able to house accommodation of bicycle racks in the future. Typical floor to floor heights have been set at 3m to allow for future adaptability for residential or office space.

These considerations will future proof the building and create the flexibility for the structure to adapt to the needs and wants of the community over time.



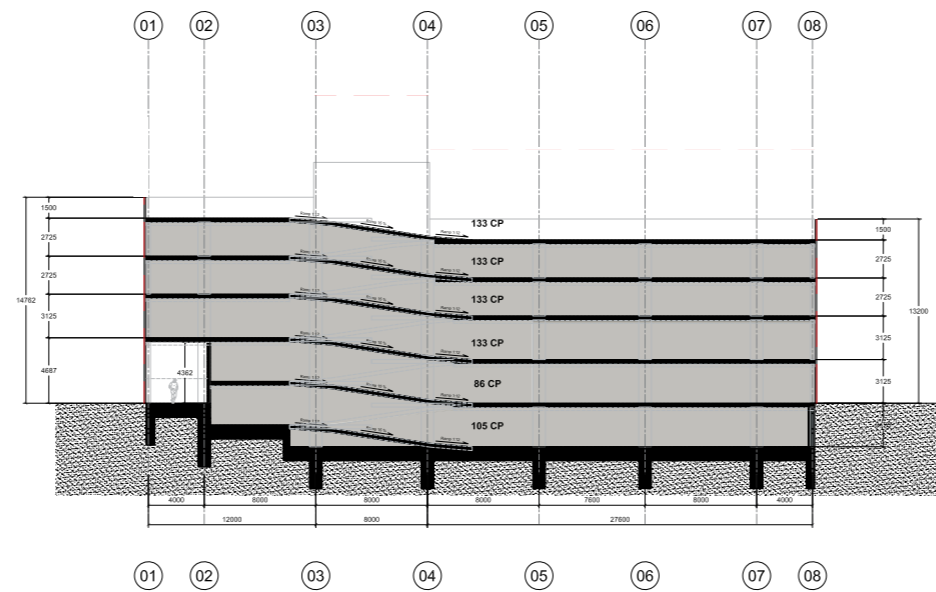
Legend:

■ Car parking

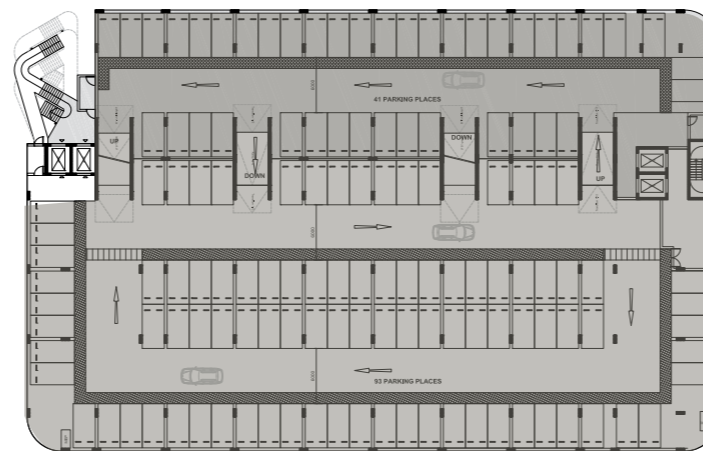
■ Cycle Parking

* Assumes cycle rack distribution of 70% Sheffield, 5% Alternative, 25% Double Stack

Existing Parking Layouts

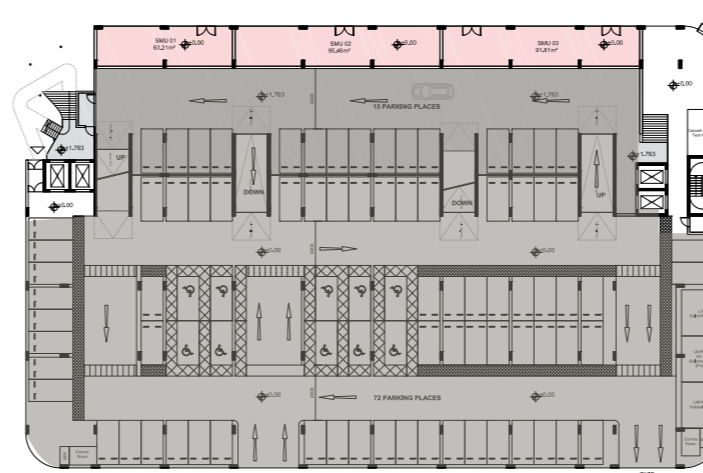


Section uses



First floor

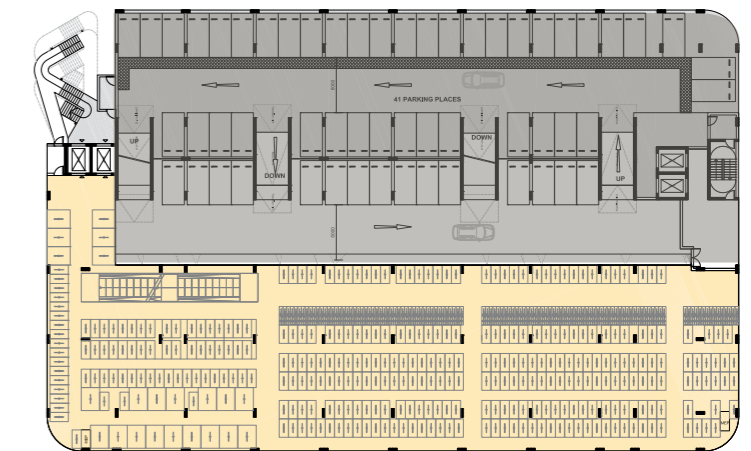
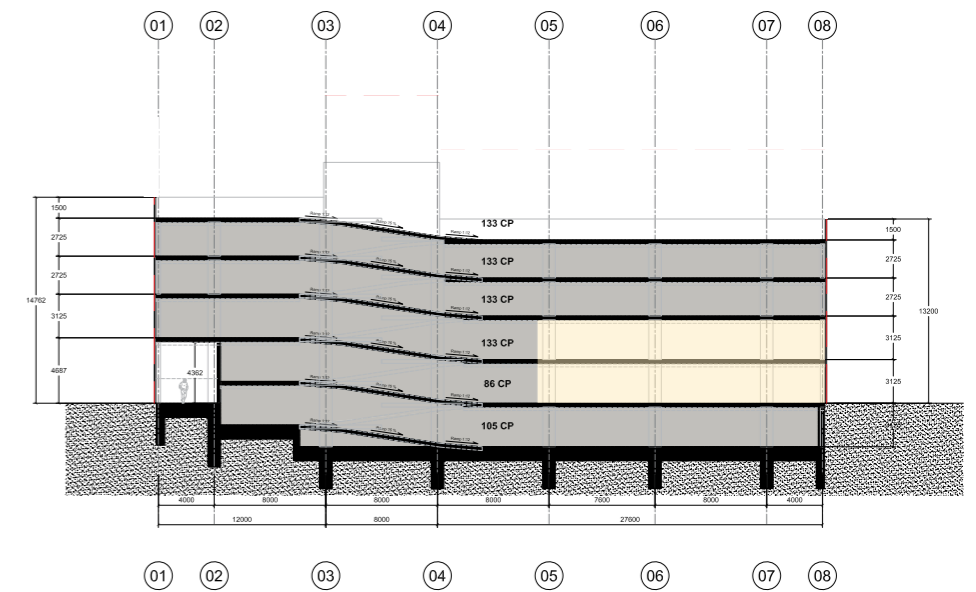
134 Parking Spaces



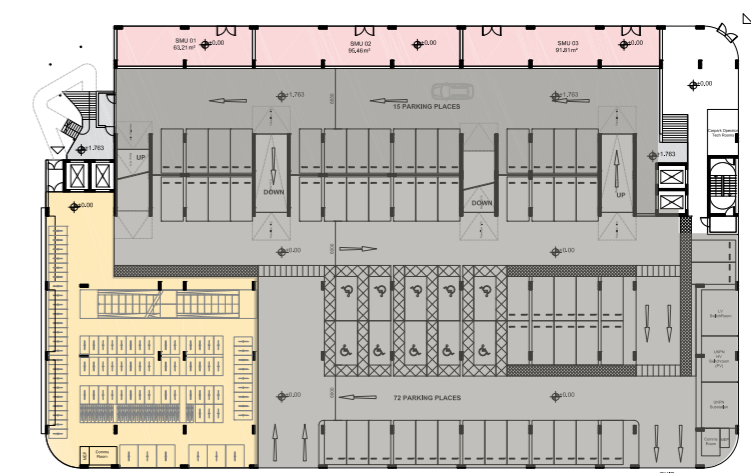
Ground floor

85 Parking Spaces

Potential Cycle Parking Conversion



462 Cycle Racks

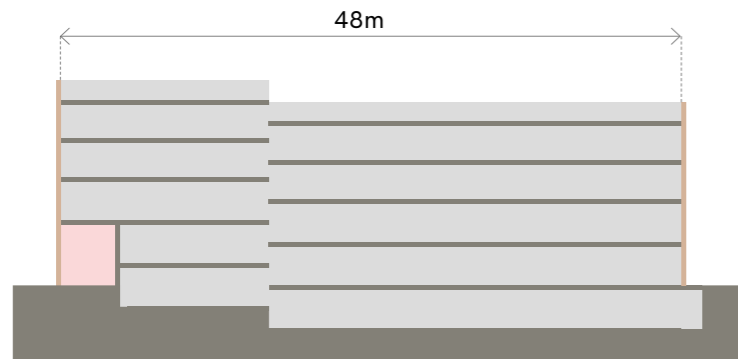


111 Cycle Racks

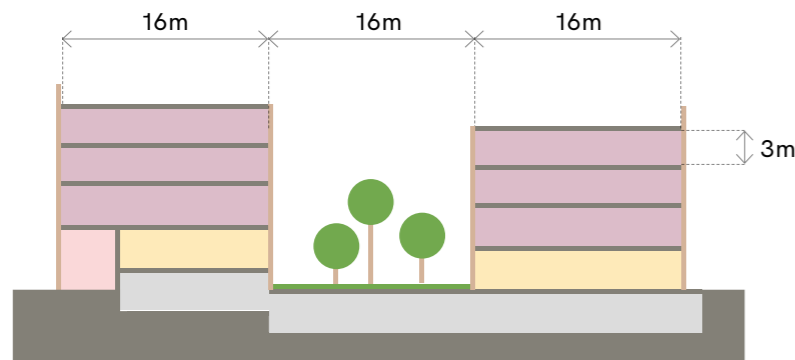
PROJECT OVERVIEW

ADAPTABILITY - RESIDENTIAL CONVERSION

Proposed Illustrative Mobility Hub Section



Potential Illustrative Residential Conversion Section



- Carpark
 - Retail
 - Residential
 - Cycle Parking

RESIDENTIAL CONVERSION

In anticipation of a car-light future, further planning has been made with regards to the design of the mobility hub to future proof the structure and allow for conversion to residential building.

A minimum floor to floor height of 3m has been put in place for suitability of residential use. Additionally, the width of the building has been carefully designed in 3 increments of 16m. This allows for the potential creation of a central courtyard to increase quality and viability of future flats, as illustrated in the diagrams above.

The viability of such conversion has also been explored through researching precedents of parking barn conversions as shown in the 2 case studies on right.

Exo Apartments - Docklands, Victoria



Exterior View

Gleis Park - Berlin, Germany



Exterior View



Existing Car Parking



Existing Car Parking



Residential Conversion



Residential Conversion

PROJECT OVERVIEW

ADAPTABILITY - LOGISTICS HUB CONVERSION

LAST MILE LOGISTICS HUB CONVERSION

As part of the adaptability strategy being adopted, the Mobility Hub has also been designed to consider the potential for future reuse as an urban logistics hub.

Last mile logistics hubs are envisioned to contribute to overall sustainability efforts by consolidating the last mile delivery issues into one location and allow for alternative more environmentally friendly modes of transport such as electric cargo bikes to take on the role of delivery for the last mile. This also reduces the overall traffic within the site, in line with the ambitious low trip budget the scheme is looking to adopt.

Where possible, guidelines have been consulted to ensure the suitability of elements such as headroom, lifts and structure to allow as much flexibility as possible for future reuse.



The Potential for Urban Logistics Hubs in Central London

CROSS RIVER PARTNERSHIP
Delivering London's Future Together

steer

Research Document on Logistic Hubs

		
Location	Space	Access
<ul style="list-style-type: none"> Needs to be proximate to TLRN to enable efficient vehicle access. Avoid local one-way systems if possible. Good access to local cycle infrastructure would be beneficial. Needs to be within a feasible distance of client base to enable maximum efficiency where possible, especially with more bicycles being utilised. Focussed within central London. Close to public transport hubs for staff access. 	<ul style="list-style-type: none"> Floor space between 90-185m² (1,000-2,000ft²) is ideal. However, micro-operations are possible with as little as 50m². Headroom to be as high as possible to increase volume of storage, especially where floor area is smaller. Rail arches and unused car parks most suitable, but other spaces can be considered also. If unloading can take place in the open air it might not mean that all the space has to be inside. 	<ul style="list-style-type: none"> Height access requirement typically >3 metres but >2 can be workable, depending on the site. Access likely to be needed over a 14-hour period starting from 06:00. Peak access times will depend on client needs. Vehicles up to 7.5T in weight may need to access the site depending on the operation in place.
		
Lease/contractual	Security	Other
<ul style="list-style-type: none"> Shorter leases with high levels of flexibility are preferred. Break clause preferred if possible. 	<ul style="list-style-type: none"> CCTV system needs to be in place to protect assets, goods and staff. Individual secure spaces are needed if co-locating is to be in place. 	<ul style="list-style-type: none"> Electric vehicle charging points may be needed, depending on the vehicles in use and nature of operation.

Model specifications for a micro-logistic hub

General Arrangement

GENERAL ARRANGEMENT DESIGN EVOLUTION

MASSING EVOLUTION

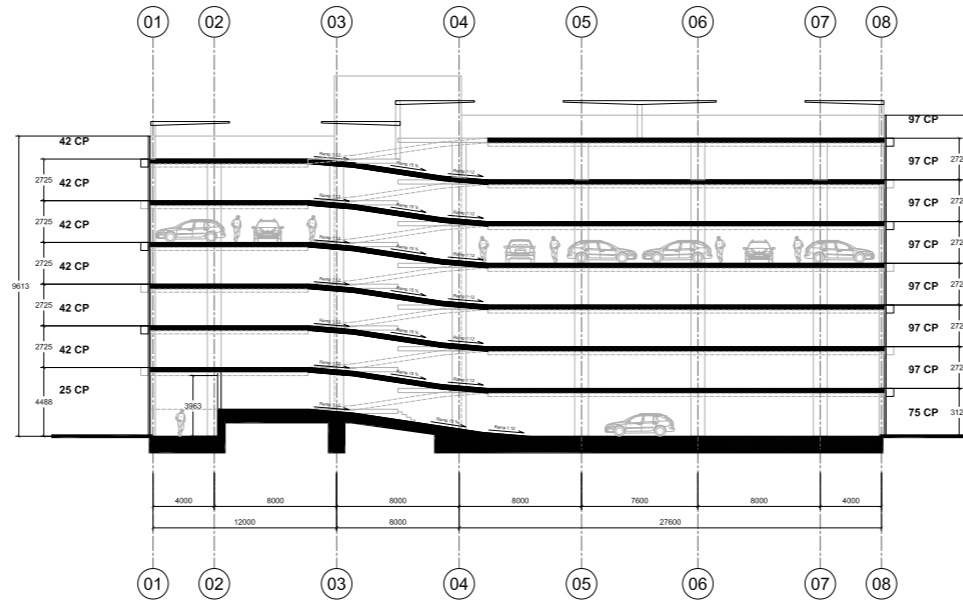
The Mobility Hub (S5) was originally designed to hold all parking requirements for both Network Rail Commuters as well as all the commercial buildings in the scheme. As such, the capacity of the building was significantly greater and required 8 storeys.

Early studies explored PV Panel shelters as roof level, but this idea was abandoned to avoid the increased impact of structure on views from the eastern edge.

Initially, basement options were not explored, but in consideration of the height concerns, further opportunities were explored to lower the building into the ground and full and half basement designs were fully investigated.

In its final iteration, the total number of storeys has been reduced to 6, with most of the required parking allocated to the offices to be housed in basements within each of the office buildings.

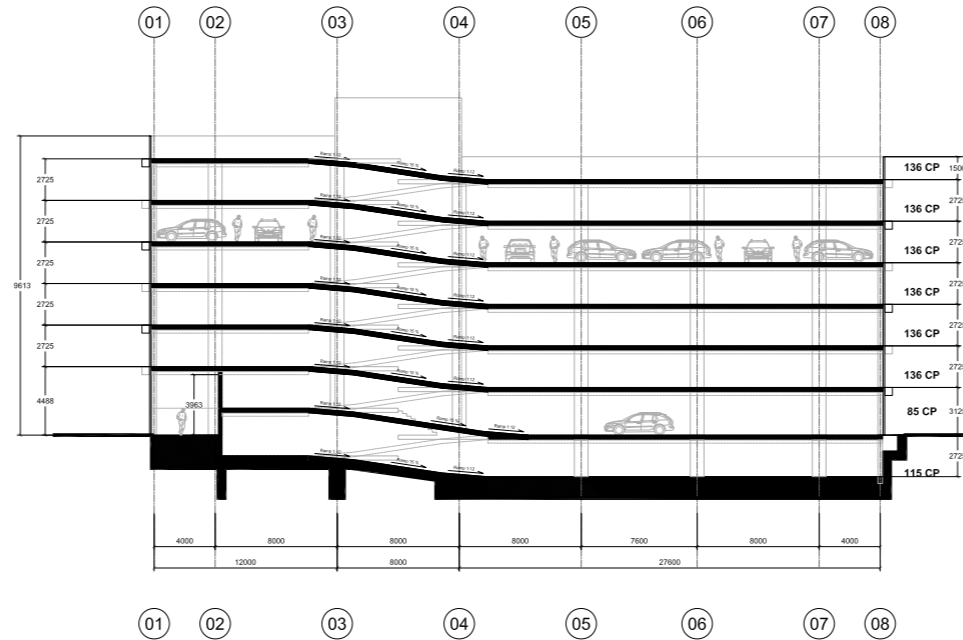
Floor heights also evolved, from 2.8m in early iterations to the variable strategy of having 3.3m for ground and first floor and 3m on all floors above. This was adopted in line with evolved thinking of future adaptive reuse of the building, allowing ground and first floors to hold double stacked bicycle racks for potential future conversion of the lower levels of the structure as a cycle hub.



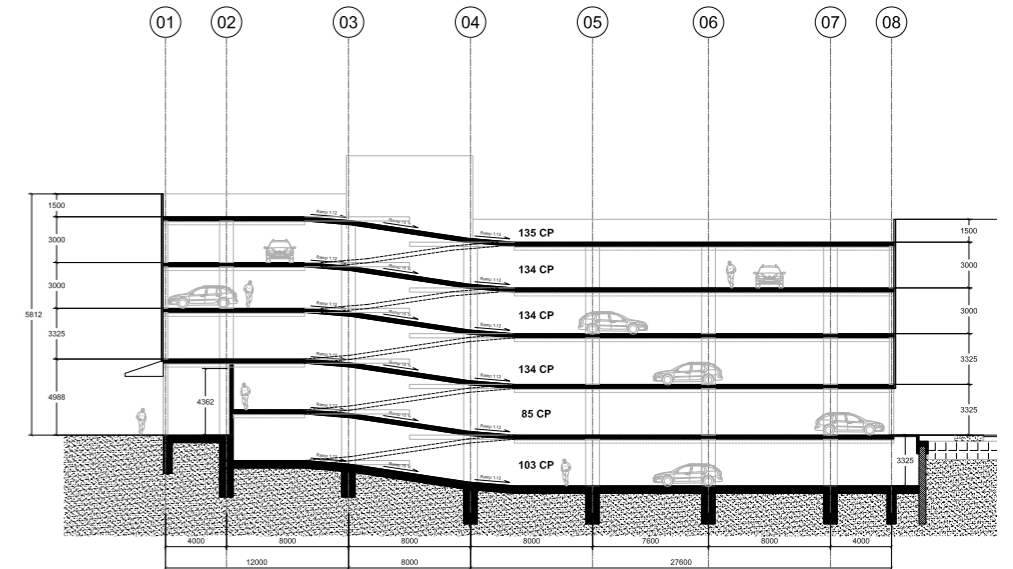
02.11.2021 - 8 Storeys With PV Panels



01.12.2021 - 6 Storeys increased floor to floor height

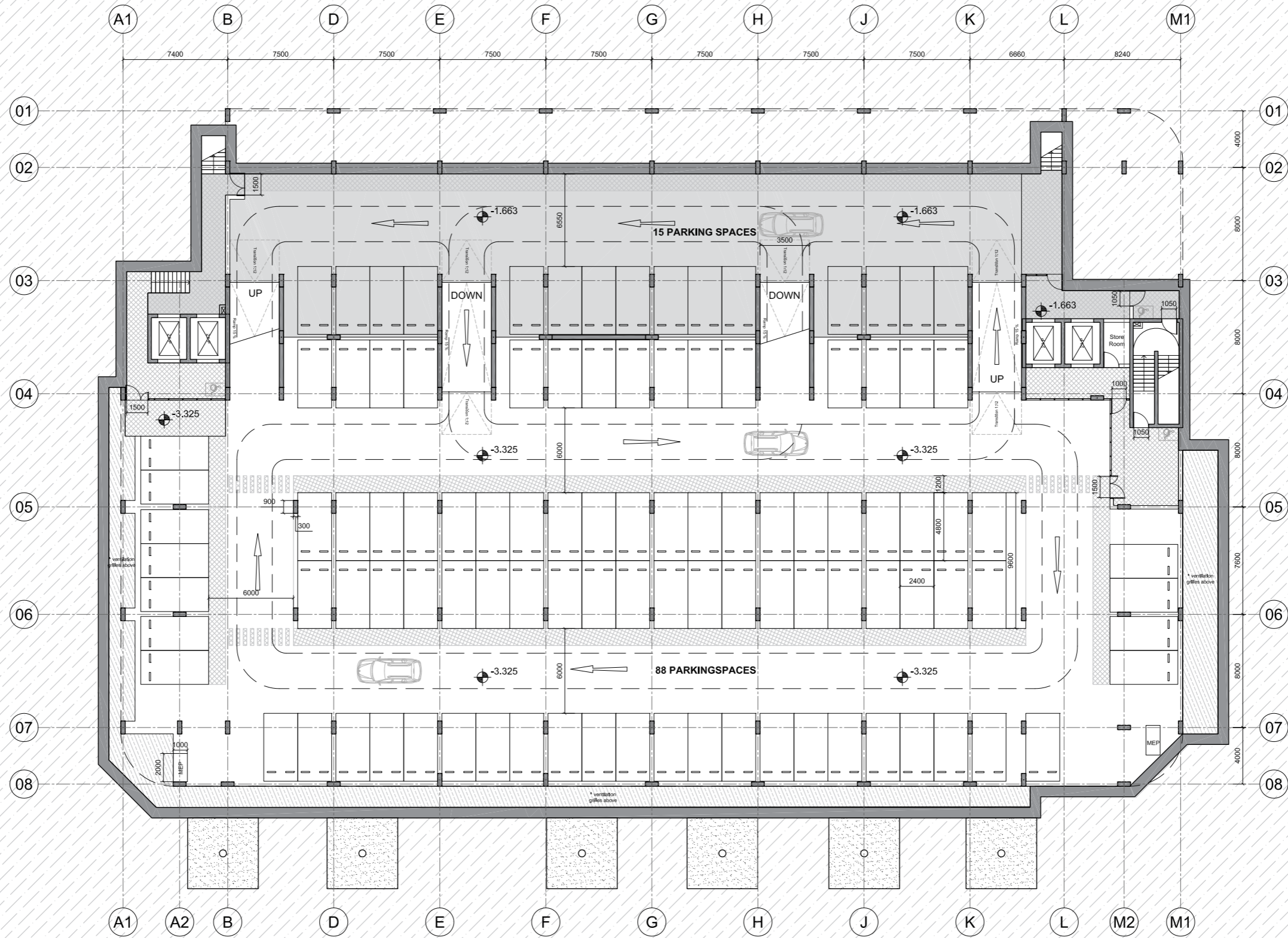


14.02.2022 - 8 Storeys with Full Basement



28.04.2022 - 6 Storeys increased floor to floor height

GENERAL ARRANGEMENT BASEMENT PLAN



GENERAL ARRANGEMENT GROUND FLOOR PLAN

