4.0 Design Evolution

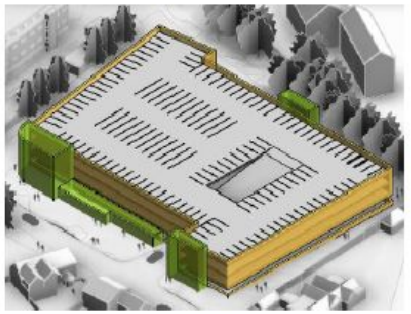
4.3 Massing & Layout Options

The design brief set by the Cotswold District Council gave the site location and the capacity required, but the massing and layout of the MSCP were not defined.

Therefore, the early stages of the project included the testing of multiple options with different circulation methods, heights and footprints. The tested options included a wide range of building masses and volumes, including staggered heights, 'notched' bodies and angled plans. All options were reviewed in terms of total capacity, spatial efficiency, impact on neighbours and ease of use.

The options were also discussed by the project lead with the Local Planning Authroty's Planning, Conservation and Landscape Officers to identify any potential concerns from a policy perspective so that these could be taken into account as the scheme developed.

Option 1, March 2019



Option 1

- *Ground floor + 03 storey MSCP*
- *Two-way ramps*
- *One-way circulation with 6m width*
- *Capacity 574*
- *Efficiency 27.05 sqm/space*

Option 2, March 2019

Option 2

- *Ground floor + 05 storey MSCP*
- *One-way ramps*
- *One-way circulation with 6m width*
- *Capacity 487*
- *Efficiency 32.89 sqm/space*

Option 3, March 2019

Option 3

- *Ground floor + 03 storey MSCP*
- *Two no. one-way ramps*
- *One-way circulation with 6m width*
- *Capacity 462*
- *Efficiency 31.11 sqm/space*

4.0 Design Evolution

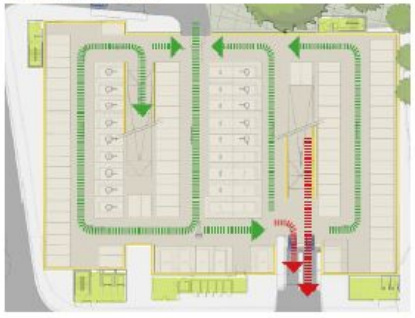
Option 1.1 (Variant on Option 1)

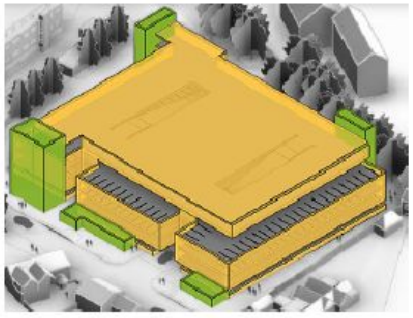
- *Ground floor + 03 storey MSCP*
- *Two-way ramps*
- *One-way circulation with 6m width*
- *Capacity 502*
- *Efficiency 28.51 sqm/space*

Option 1.1, April 2019

Option 3.1 (Variant on Option 3)

- *Ground floor + 05 storey MSCP*
- *One-way ramps*
- *One-way circulation with 6m width*
- *Capacity 563*
- *Efficiency 31.81 sqm/space*

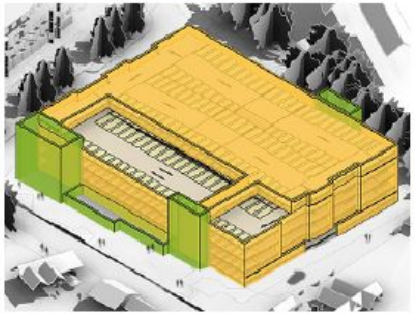




Option 3.1, April 2019

Option 4

- *Ground floor + 04 storey MSCP*
- *Two one-way central ramps (VCM)*
- *One-way circulation with 6m width*
- *Capacity 562*
- *Efficiency 26.14 sqm/space*



Option 4, April 2019

The second round of optioneering investigated the three options presented in the first round in greater detail, with additional variants created to test alternative massing and staggered volumes, and a further option added to the mix, introducing a Vertical Circulation Module (VCM) circulation method.

The impact of adding a roof to the top deck was also explored at this stage.The roof offers advantages for the usability of the car park and ongoing maintenance requirements, but increases the overall height of the building.

4.0 Design Evolution

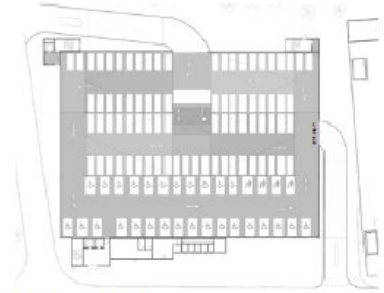
The second round of optioneering indicated that a Vertical Circulation Module layout would offer optimum spatial efficiency, meaning capacity targets could be met within a proportionally reduced volume. A further five scenarios were therefore developed, each based on a VCM system internally but with varying heights and steps in volume with varying location of cores. Three of the five options are shown opposite.

All VCM options achieve an efficiency of around 26 square metres per parking space. Compared to some of the earlier options which were achieving in excess of 32 sqm per space, this represents a saving in footprint (and therefore volume) of over 20%.

The VCM layout also allowed the design to take advantage of the natural gradient across the site, with pedestrians able to exit the building via a level route on the southern principal elevation on The Waterloo.

The VCM layout relies on a highly efficient, orthogonal layout within the car park. It was therefore agreed that any variation in the perceived volume and mass of the building would be created through the envelope and facade treatment, which could be used to 'wrap' around the box within.

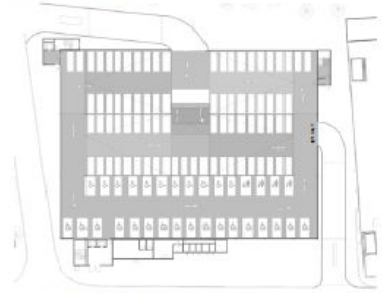
The selected scheme is similar to VCM Option 4 shown on this page, but with the rear escape core positioned on the northern elevation as on VCM Option 1.



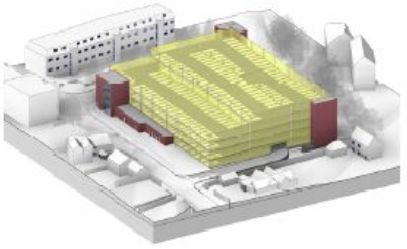
Option 1, May 2019

VCM Option 1

- *Ground floor + 3.5 storey MSCP*
- *Capacity 596*
- *Efficiency 26.12 sqm/space*

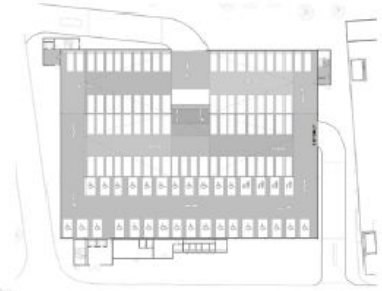


Option 2, May 2019



VCM Option 2

- *Ground floor + 3.5 storey MSCP*
- *Capacity 596*
- *Efficiency 26.12 sqm/space*



Option 4, May 2019

VCM Option 4

- *Ground floor + 04 storey MSCP*
- *Capacity 636*
- *Efficiency 26.22 sqm/space*

5.0 Design Principles

5.3 Layout and Geometry

Circulation System

In order to provide maximum spatial efficiency and a high quality user experience, the proposed layout is based on the Vertical Circulation Module (VCM). This system offers additional advantages such as good visibility and clarity of navigation for pedestrians and vehicles.

The VCM creates two one-way circulating routes through the car park, one circulating up and one down. The aisles are one-way with a shared central ramp. The ramp is split using a painted line rather than a raised kerb in order to improve ease of use for drivers and to maintain the free flow of vehicles.

The central ramp has a maximum gradient of 1:6 with transitions at either end of 1:12 to prevent vehicles bottoming out. The drive aisles are 6m wide and include a 1.2m wide painted walkway.

Location of Parking Spaces

Disabled and Parent & Child spaces are located within the third, flat aisle of the car park on the ground level and first level adjacent to the Core 1 Lobby with elevators to provide easy access to those with limited mobility and those who may have prams. This keeps them away from the busier up and down routes of the central and rear aisles. Signage on the ground and first floors will assist drivers with finding this area of the car park.The distribution of parking spcaes is detailed in the table below:

Floor	Standard	Disabled	Parent and Child	Electric Vehicle	Total
L00	80	28	04	-	112
L01	106	07	04	10	127
L02	132	-	-	-	132
L03	132	-	-	-	132
L04	136	-	-	-	136
TOTAL	586	35	8	10	639

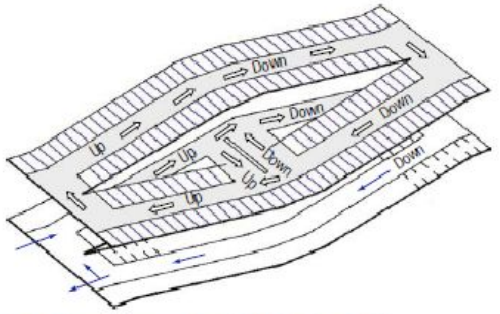
Parking Space Sizes

Parking spaces are sized at 2.5m wide by 5.0m long, as required by the Council in order to ensure that the car park is suitable for modern larger vehicles and easy to use. This is also in accordance with IStructE for short-stay parking e.g. for shoppers and visitors.

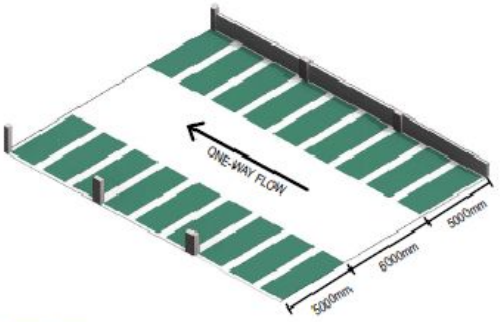
Clear heights are a minimum of 2.1m below any obstruction (e.g. steel beams or signage), including on ramps.

Disabled parking bays have an additional margin of at least 1.2m to each side and the rear of the space, in accordance with Approved Document M and BS8300. Disabled parking spaces are located on flat areas only and as close to the primary lift core as possible. The majority of the disabled parking bays are located on Level 00 with direct access to pavement level, with some further spaces located on Level 01 adjacent to the primary lift core.

Parent & Child spaces are also larger-sized at 3.75m x 6.2m including margins.

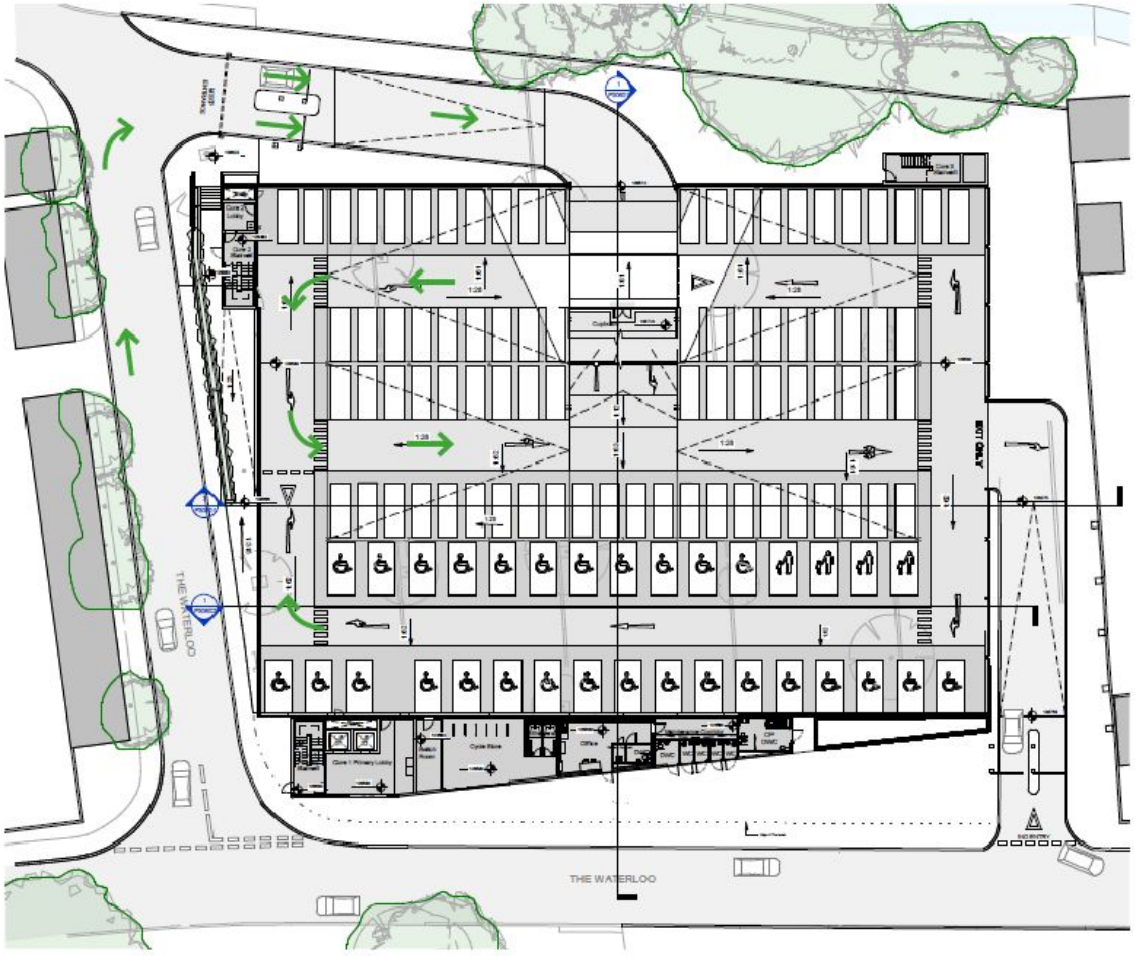


Circulation Diagram (Source: IStructE MSCP Design Guide)



Key Dimensions

5.0 Design Principles



Ground Floor Vehicular Movement

5.4 Vehicular Access and Movement

Cars enter the Site at the north western corner, a continuation of the current arrangement which will aid public navigation in the short term. Two lanes provide additional capacity for busy times and also in case of breakdown or maintenance which requires one lane to be closed.

Vehicles enter the MSCP and turn right. They enter the ascending route and turn left to go up to the next level, or straight on to proceed to the exit or to the disabled and parent & child parking area at the front of the MSCP. A recirculation route is provided for those who may wish to find spaces to the left of the main entrance or who missed the opportunity to go up to the next level.

Vehicles descending from the upper floor arrive at the bottom of the central ramp, turn left and then have a direct route out of the car park, rejoining The Waterloo on the south-eastern corner of the site. As with the entrance, two lanes are provided for additional capacity and breakdown/maintenance. The vast majority of vehicles will then turn left to rejoin the wider road network.

For further information on the access and vehicle movement strategy, please refer to the accompanying Transport Assessment in Appendix H of the Environmental Statement.

4.0 Design Evolution

4.6 Shortlisted Competition Design

Aluminium on Stone

South Elevation

West Elevation

View of primary vehicular approach

View of primary pedestrian approach

View of vehicular entrance

4.0 Design Evolution

4.7 Iterative Design Proposals

Following the successful selection of the design "Aluminium on Stone" through competition, we engaged with the planning and conservation officers in an iterative design process to develop an appropriate response to the heritage setting. The design options presented were as follows:

Option 1

View from south east corner of the Site

View from south west corner of the Site

Key considerations in design option are:

- *Weave pattern is tighter*
- *Cladding panel woven aluminim patina is bronze*
- *Cladding panel frame colour is green / grey*
- *Planting along parapet of roof*
- *Setting out of panels is arranged across the facade (cable knit jumper analogy) which softens the overall effect*
- *South west core has windows looking out towards Abbey Grounds and Deer Park*
- *Mesh for climbing plants next to south western core*

4.0 Design Evolution

Option 2

View from south east corner of the Site

View from south west corner of the Site

Key considerations in design option are:

- *Weave pattern is tighter*
- *Cladding panel woven material is corten steel instead of aluminium*
- *Cladding panel frame colour is buff (to match Cotswold stone base)*
- *Planting along parapet of roof*
- *Revised setting out of panels across the facade with tighter opening*
- *Light feature on the south eastern approach corner*
- *South west core has windows looking out towards Abbey Grounds and Deer Park*
- *Mesh for climbing plants next to south western core*

4.0 Design Evolution

Option 3

View from south east corner of the Site

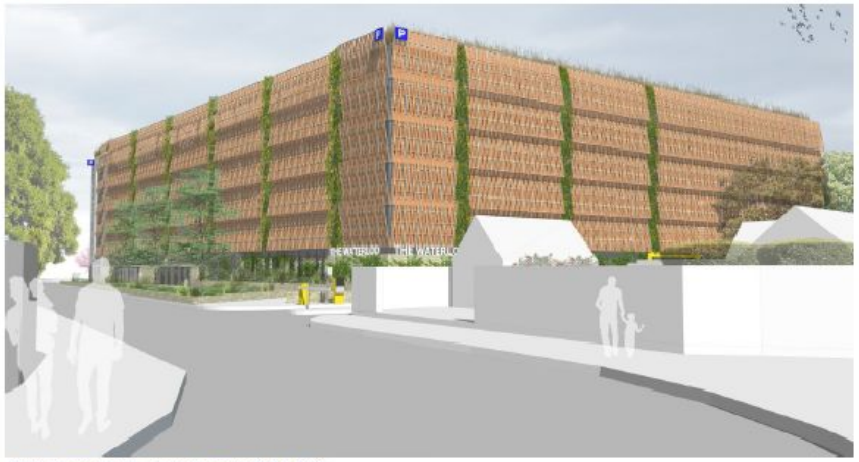
View from south west corner of the Site

Key considerations in design option are:

- *Weave pattern is tighter*
- *Cladding panel woven material is corten steel instead of aluminium*
- *Cladding panel frame colour is black*
- *Planting along parapet of roof*
- *Flat woven panels are substituted at regular intervals with mesh across the southern and northern facades to enable creepers to grow up*
- *Light feature on the south eastern approach corner*
- *South west core has windows looking out towards Abbey Grounds and Deer Park*
- *Mesh for climbing plants next to south western core*

4.0 Design Evolution

Option 4



View from south east corner of the Site

View from south west corner of the Site

Key considerations in design option are:

- *Weave panel is set out horizontally, but fixed vertically (this makes the façade look more like hung tiles with gaps for plants to grow up on mesh)*
- *The Cotswold gabions are removed completely from the south western core from first floor upwards with the precast concrete revealed without a finish (the concrete could be embossed with signage or a pattern if required as illustrated)*
- *Cladding panel woven material is corten steel instead of aluminium*
- *Cladding panel frame colour is buff (to match the Cotswold stone)*
- *Planting along parapet of roof*
- *South eastern corner is features by reversing the panel pattern*
- *South west core has windows looking out towards Abbey Grounds and Deer Park*
- *Mesh for climbing plants next to south western core*

4.0 Design Evolution

Option 5

View from south east corner of the Site

View from south west corner of the Site

Key considerations in design option are:

- Looser weave pattern
- Cladding panel woven aluminim patina is bronze
- Cladding panel frame colour is grey
- Planting along parapet of roof
- Sections of the south, east and north elevation clad in aluminium panels are broken up by areas of green walling
- South east approach corner clad in Costwold stone
- South west core has windows looking out towards Abbey Grounds and Deer Park
- Mesh for climbing plants next to south western core and on the north western core

4.0 Design Evolution

Through this process, the design has been refined and we now propose a contemporary but sympathetic façade design which will age well in the heritage setting of Cirencester. Option 6 is the design taken forward *(see option 6 and proposed façade design)*.

Option 6

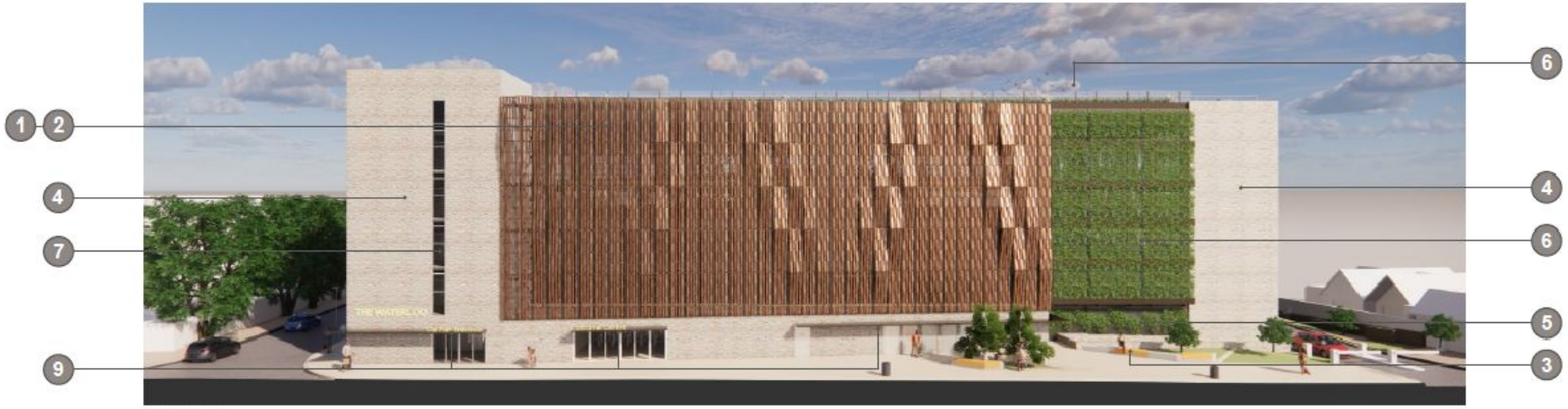
View from south east corner of the Site

View from south west corner of the Site

Key considerations in design option are:

- *Looser weave pattern*
- *Cladding panel woven aluminim patina is bronze*
- *Cladding panel frame colour is grey*
- *Planting along parapet of roof*
- *Sections of the south, east and north elevation clad in aluminium panels are broken up by areas of green walling*
- *Full greening of the green walls*
- *South east approach corner and south western core clad in Costwold stone, Cotswold stone gabions at low level only*
- *South west core has windows looking out towards Abbey Grounds and Deer Park*
- *Mesh for climbing plants next to south western core and on the north western core*
- *No grass at the top of the south western core*

5.0 Design Principles



South Elevation

North Elevation

5.0 Design Principles

West Elevation

East Elevation

5.0 Design Principles

View of Primary Vehicular Approach (South East)

5.0 Design Principles

View of Primary Pedestrian Approach (South West)

5.0 Design Principles

5.1 Use and Amount

The Proposed Development comprises a MSCP with a ground floor plus four decked levels and a fully enclosed roof. A total of 639 spaces will be provided comprising:

- *586 car parking spaces;*
- *35 disabled bays;*
- *8 parent and child bays;*
- *10 electric vehicle charging points; and*
- *Cycle storage with shower facilities.*

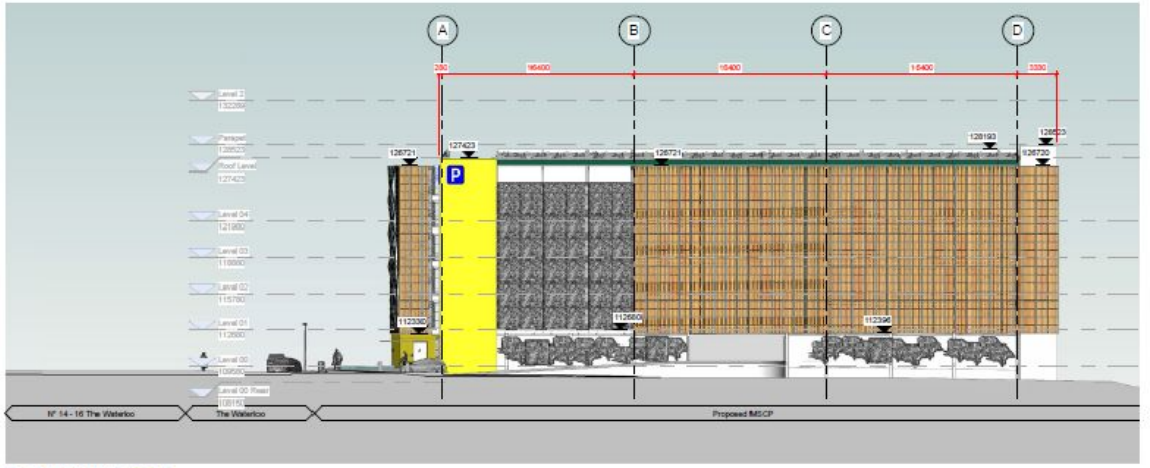
5.2 Scale

The scale and massing of the Proposed Development has been developed with sensitivity to the surrounding townscape including adjacent residential properties and the Town Centre Conservation Area.

Sections of the south, east and north elevation clad in aluminium panels are broken up by areas of green walling to reduce the overall massing of the Proposed Development.

The overall scale of the car park is as follows:

- *Width - 72.8m*
- *Depth - 61m*
- *Height - 18.9m*
- *Height of Core 2 - 21.7m*



East Elevation Scale

South Elevation Scale

Annex B – Extracts from Waterloo MSCP Design and Access Statement (prepared by TEP Planning Consultants)