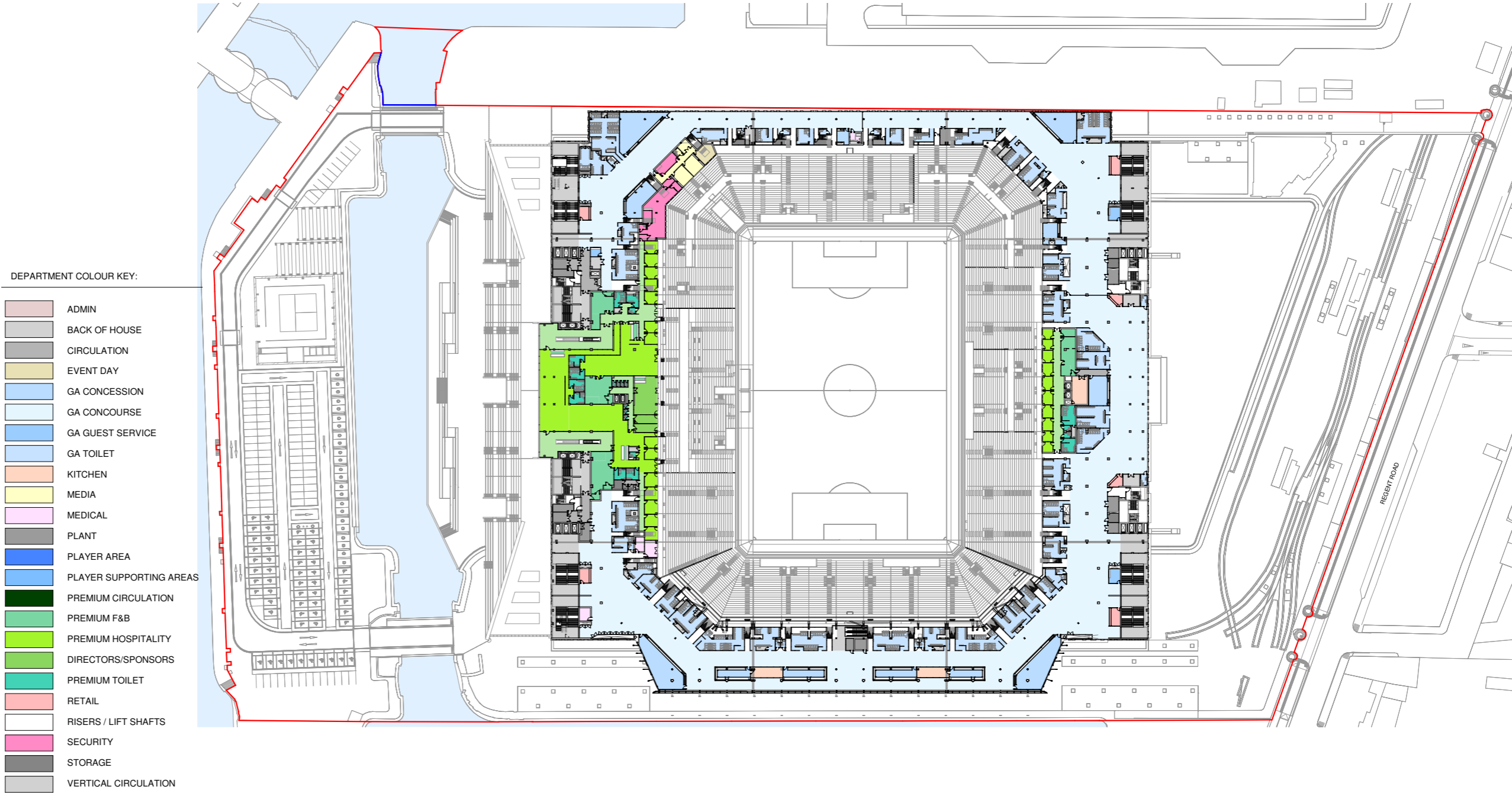


3.10.3 Level 02

- General admission concourse redesigned to maximise available facilities and rationalise concourse area
 - Corner stairs area reconfigured for improved circulation and efficient use of space
- Additional area at corner stairs has been utilised for merchandise, gaming pods, and an extra First Aid room
 - South stand home bar has been developed as 4 areas, for more efficient operation, and to open up a central view through the southern glazed wall to the city centre
 - New south escalator access to south stand and home bar
- West hospitality lounges redesigned as per the Club's revised brief.
 - River views maximised from hospitality circulation areas and lounge
 - East hospitality boxes redesigned to maximise facilities

Related sections in the submitted
Design & Access Statement:
7.8.10

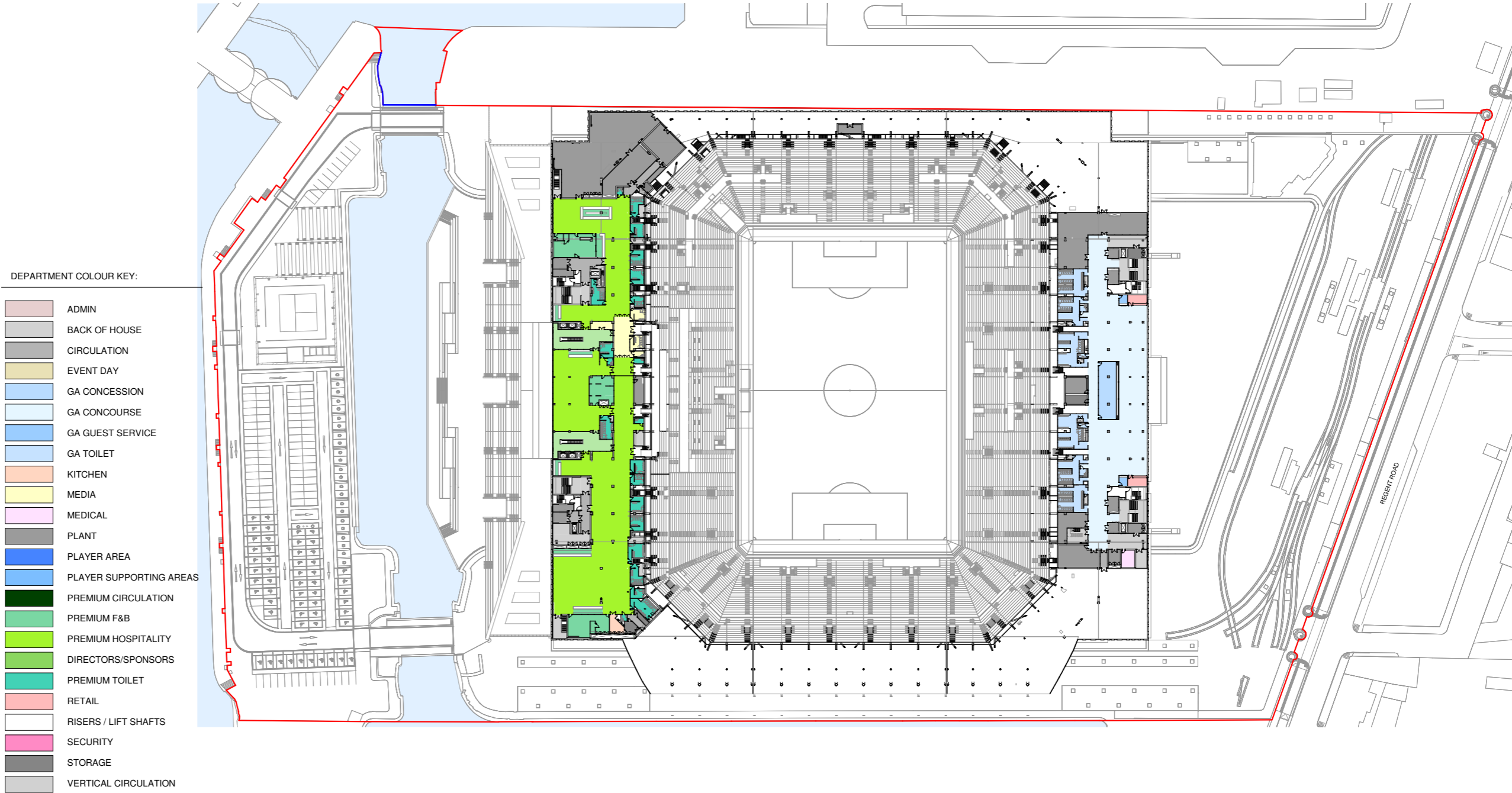


Level 02 layout plan



3.10.4 Level 03

- East general admission concourse redesigned to maximise available facilities and rationalise concourse area
- Corner stairs area reconfigured for improved circulation and efficient use of space
- West hospitality lounges redesigned as per the Club's revised brief
- River views maximised from hospitality circulation areas and lounge with glazed facade for central river-view dining
- East and west areas have been lengthened to house relocated plant rooms (previously in the MSCP)
- The north and south areas remain as flat roof areas

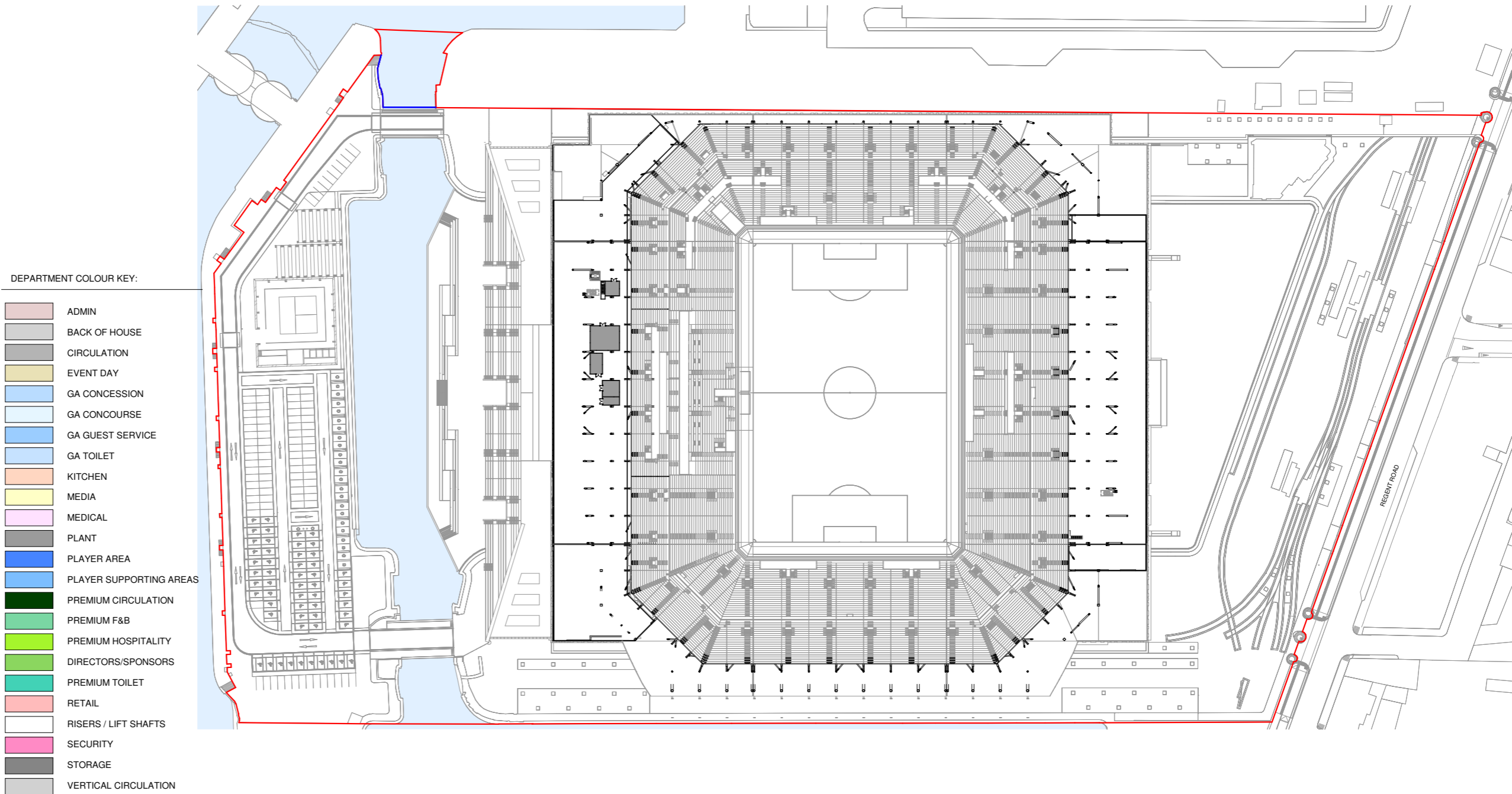


Related sections in the submitted Design & Access Statement:
7.8.11



3.10.5 Level 04

- A small number of plant rooms sit in the west stand hidden behind the barrel roof cladding
- The rest of the area is flat roofs for the levels below



Level 04 layout plan

4.0 SCALE & MASSING

- 4.1 Building Height
 - 4.1.1 Roof Angle
 - 4.1.2 Maximum Building Height
- 4.2 Stadium Massing: Warehouse Typology
- 4.3 Building Sections

4.1 BUILDING HEIGHT

4.1.1 Roof Angle

In the scheme submitted in December 2019, the barrel roof was inclined by 0.74 degrees from horizontal. This was a subtle architectural gesture that was minimally perceptible from a human perspective at ground level. The decision has therefore been made to develop the roof as a horizontal and bi-symmetrical form. This has several benefits since:

- The barrel roof is closer to the brick box, and so better conceals roof-top mechanical plant at Level 03
- Construction is less complex with more 90-degree connections meaning it is easier, safer and will produce less construction waste
- Two lines of symmetry mean that every structural truss will have 4 identical counterparts and will be faster and simpler to construct
- The joins between the metal and polycarbonate surface are consistent so there are fewer unique pieces and therefore less construction waste
- Stair access to the roof is consistent, with stairs at the same height and angle with consistent details
- The highest point in the building (at the southern tip of the roof) is lowered, bringing the overall building height within the mid-rise classification of the LCC World Heritage Site SPD



The roofline of the scheme submitted in December 2019



The updated roofline (with the roofline from the scheme submitted in December 2019 shown as a dash line for reference)



The roofline of the scheme submitted in December 2019



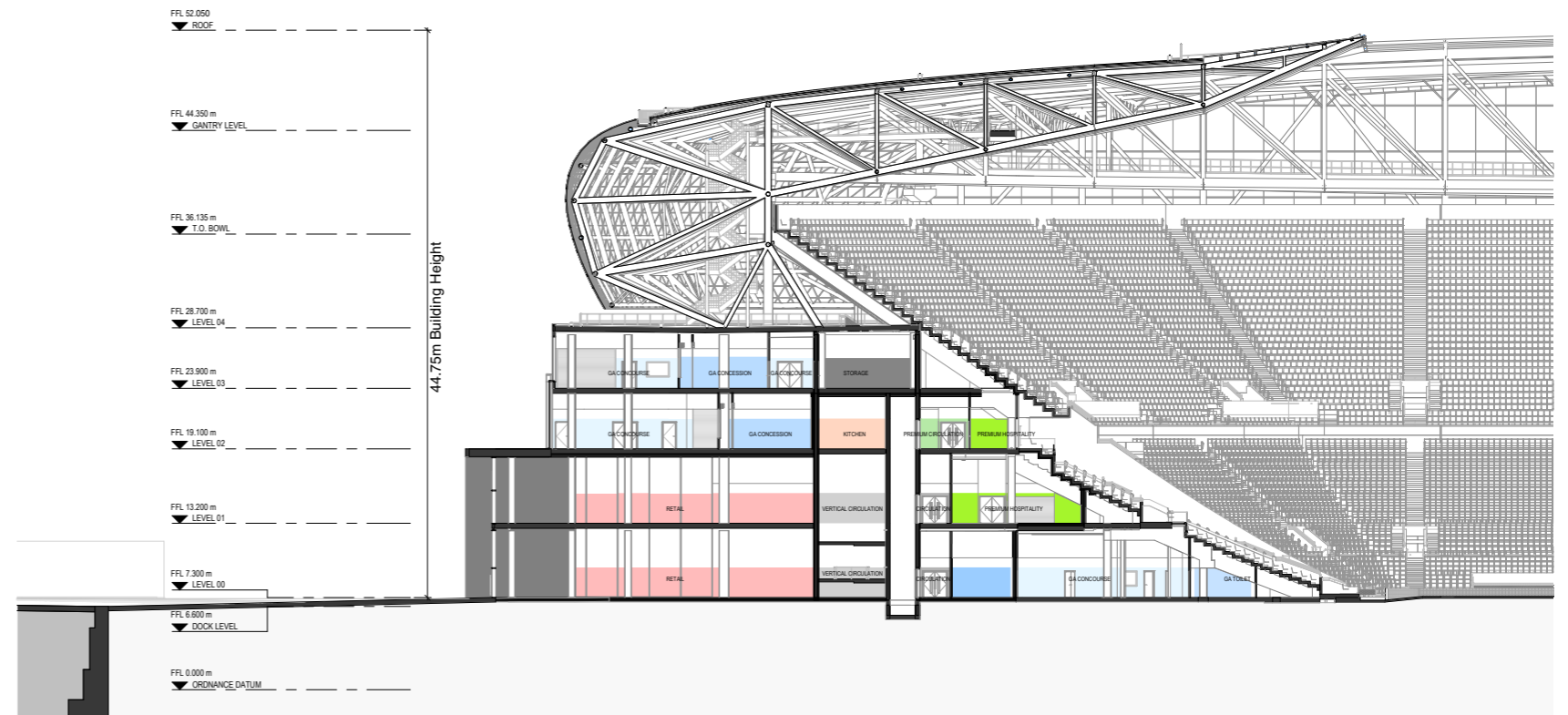
The updated roofline (with the roofline from the scheme submitted in December 2019 shown as a dash line for reference)

Please note these images only show the comparative change in the stadium roofline, other elements of the design seen in these images are not reflective of the updated proposals.

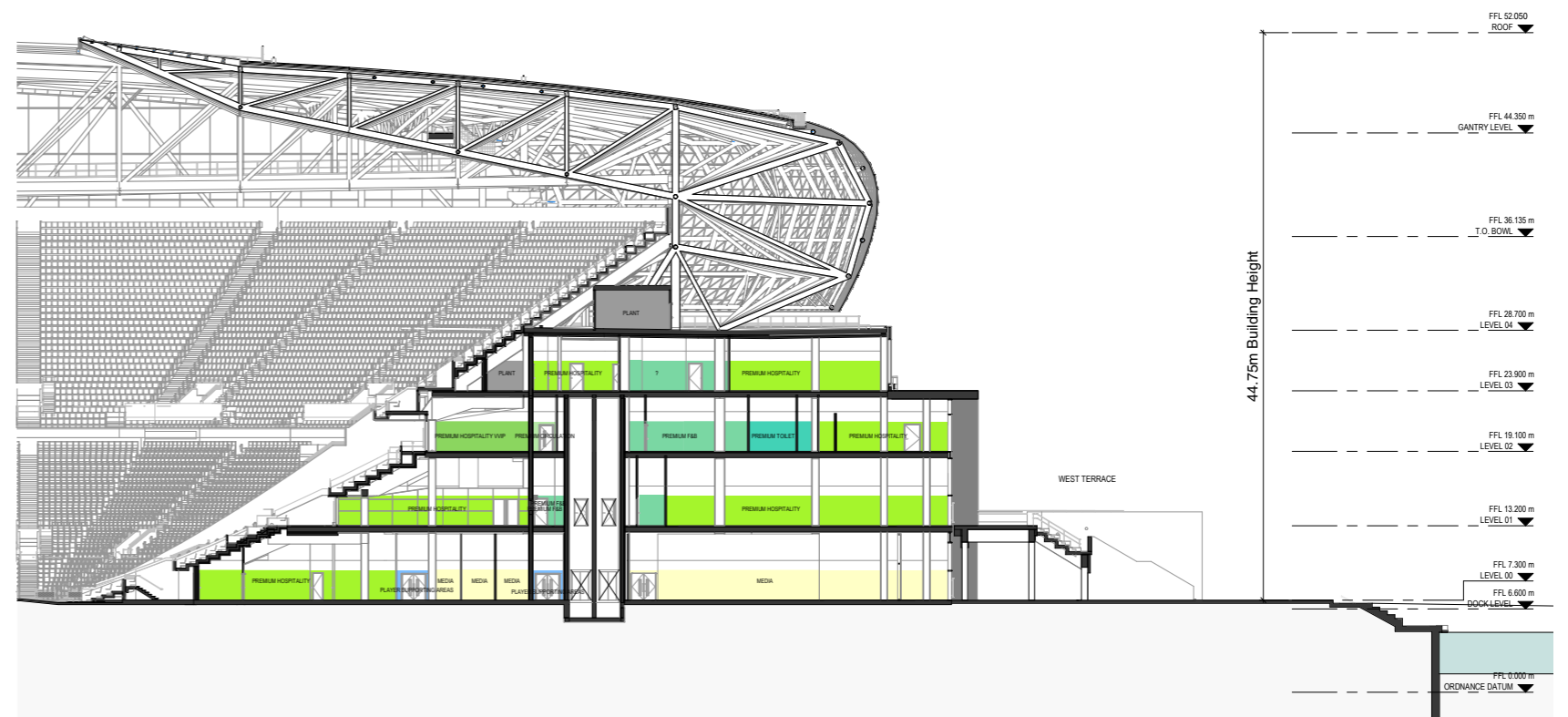
4.1.2 Maximum Building Height

Due to the rationalisation of the roof structure as described in 4.1.1, the overall building height has been reduced. In the scheme submitted in December 2019 the maximum building height was 46.86m from the Level 00 floor finish level (FFL). The updated scheme has a maximum height of 44.75m from Level 00 FFL. This means that the building is categorised as a mid-rise building according to the LCC World Heritage Site Supplementary Planning Document (SPD).

It should be noted that the Level 00 FFL is set out at 7.30m above ordnance datum (AOD). This level has been set in accordance with the Environment Agency's request, following assessment of the flood risk at the site. Therefore the overall building height is a maximum of 52.05m when measure from AOD.



Partial section through the east stand showing the overall building height



Partial section through the west stand showing the overall building height

Related sections in the submitted Design & Access Statement:

8.1

4.2 STADIUM MASSING: WAREHOUSE TYPOLOGY

The overall concept of a brick box base that is in keeping with the warehouse typology of the Stanley Dock Conservation Area is unchanged from the scheme submitted in December 2019. Since the MSCP has been omitted from the scheme the building massing has changed, and the brick base is now a symmetrical form, with the barrel roof centred above it. This is particularly visible when viewed from the adjacent Nelson Dock, to the south of the site, where the full south elevation can be seen. Please refer to the comparison images on the next page which illustrate how the massing has changed.

The changes to the brick base massing have been primarily driven by the removal of the MSCP and subsequent wind mitigation measures as determined by the CFD analysis. Please refer to chapter 3 of this document for further information.

The facade design of the brick base of the stadium is driven by the characteristics observed in the vernacular warehouse typology. As the design has developed, steps have been taken to strengthen the visual connection between the stadium facade and the reference buildings in the local area, bringing the design closer to the original intent. This includes enclosing the east portal for a more solid facade and using the larger brick pier sizes to form the facade for a more robust appearance. Please refer to chapter 5 of this document for more information regarding facade and materiality development.



Visualisation of the updated brick base massing



The facade of the nearby Titanic Hotel



The facade of the nearby Tobacco Warehouse

Related sections in the submitted
Design & Access Statement:

8.1.2



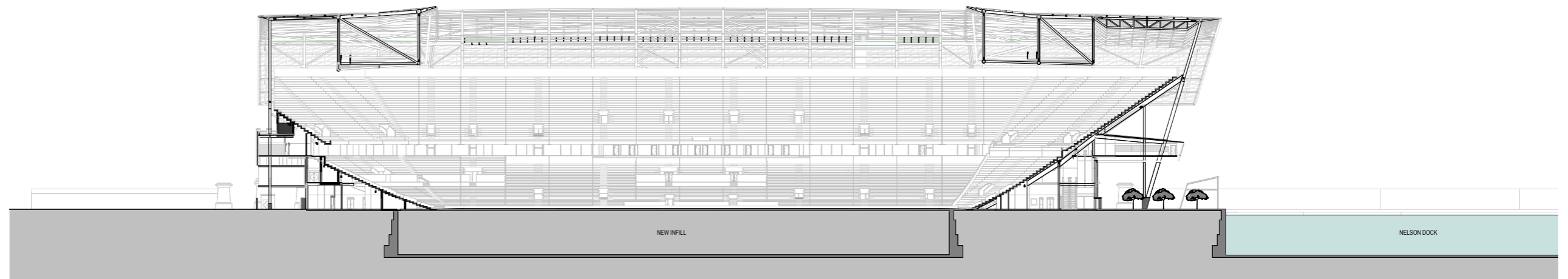
The south facade in the scheme submitted in December 2019



The south facade in the developed proposal

4.3 BUILDING SECTIONS

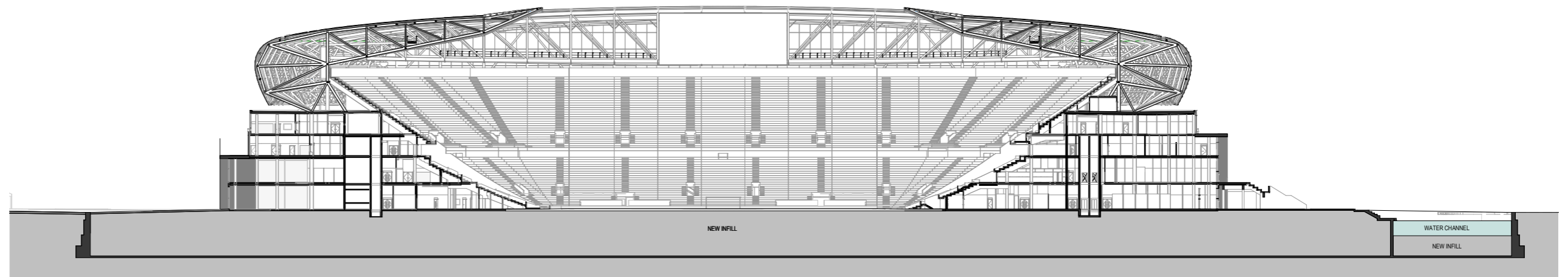
The updated building sections are shown below, with the revised massing of the brick base and the addition of the West Terrace:



Proposed North-South Section

Related sections in the submitted Design & Access Statement:

8.2



Proposed East-West Section

5.0 APPEARANCE / MATERIALITY

5.1 Stadium Brick Facade

- 5.1.1 Brick Specification
- 5.1.2 Brick Pier Dimensions

5.2 Leitch Truss Pattern

- 5.2.1 Brick Piers
- 5.2.2 Metal Panels
- 5.2.3 Glazing

5.3 Metal Panels

5.4 DfMA Fabrication

- 5.4.1 DfMA Construction Approach
- 5.4.2 Bricks DfMA

5.5 Other Brick Facades

- 5.5.1 West Terrace Walls
- 5.5.2 Substation Facade
- 5.5.3 Security Hut Facade

5.6 Metal Portals

- 5.6.1 East Facade Portal
- 5.6.2 West Facade Portal
- 5.6.3 Entrances and Turnstiles

5.7 Mansard Roofs

5.8 Stadium Roof

- 5.8.1 General Development
- 5.8.2 North and South Windows
- 5.8.3 South Balcony

5.9 Stadium Elevations

5.1 STADIUM BRICK FACADE

5.1.1 Brick Specification

In preparation for the planning submission in December 2019, a number of criteria were outlined that would inform the brick selection for the facade. The final selection had to satisfy these four statements to ensure alignment with the aims of HE and LCC:

- Be suitable for the heritage setting of the site
- Be of an appropriate colour and texture
- Be suitable for the construction method
- Be suitable for a wind-swept marine environment

Expanding on these requirements, it was agreed that the brick selection must have the following characteristics:

- Hue - red brick (base colour)
- Variation - high level of natural-appearing variation
- Texture - waterstruck considered most appropriate
- Size - British metric

With consideration for all the above points, the brick mix has been selected with input from the Case Officers at LCC and HE. The proposed bricks are manufactured at Charnwood Brick Works, a traditional factory established in 1887 that still makes bricks by hand using traditional techniques.

The selected brick mix is 70% Ashby Red, 30% Light Victorian Red, with Dark Red headers to depict the truss pattern which is formed across all facades. Since the bricks are handmade, a key can be formed in the brick and both stretcher faces are of equal quality, making the brick suitable for the DfMA construction methodology. Please refer to section 5.3 for further information about this.

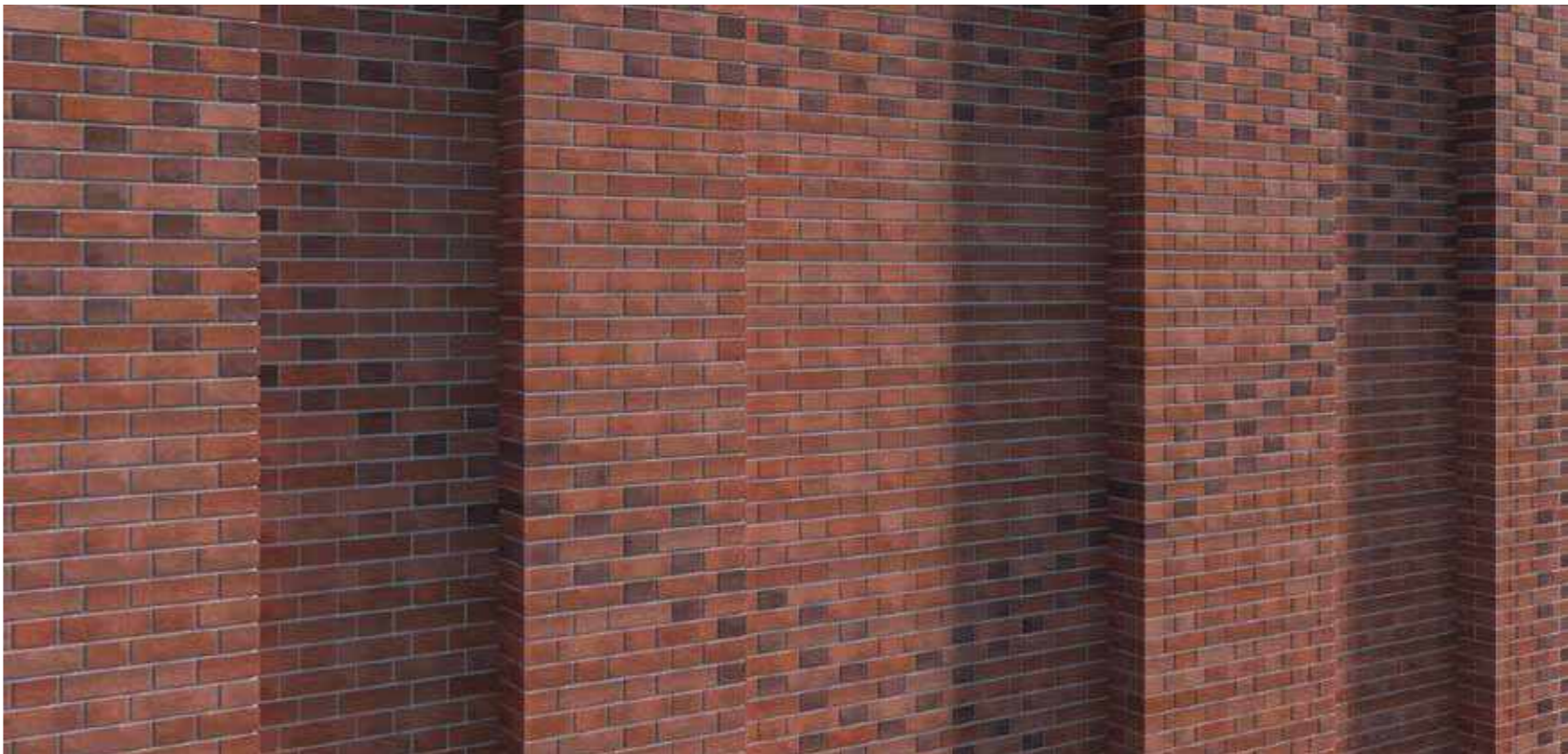
The proposed mortar is Parex Historic Mortar, in Natural colour. The choice of mortar is informed by consideration of the mortar at Albert Dock and has a visually similar finish, but the selected product is suitable for the construction methodology.



Sample board of the selected brick mix



Traditional brick making at Charnwood Brick Works



Close-up view of the proposed brick facade

Related sections in the submitted Design & Access Statement:

9.1.2

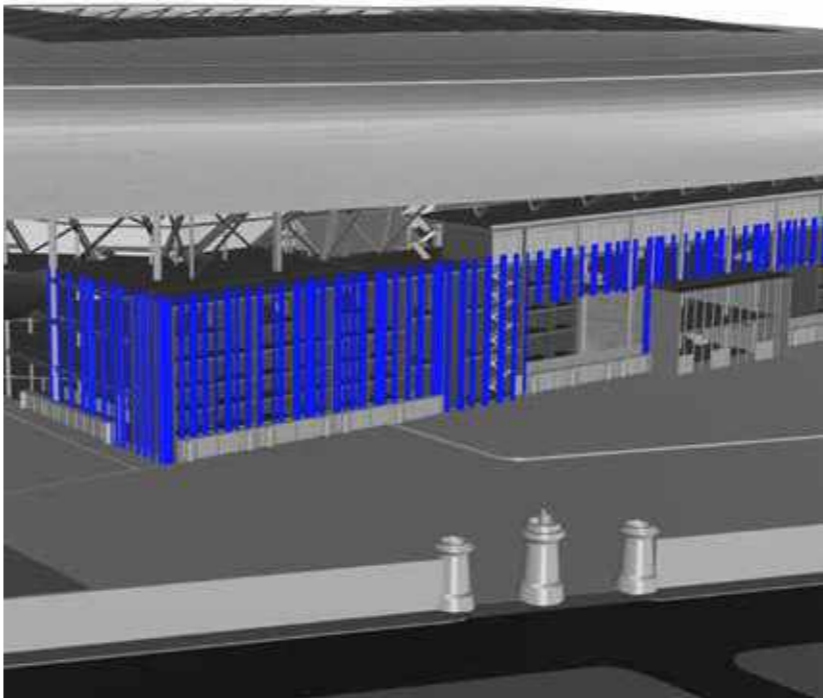
9.1.7

5.1.2 Brick Pier Dimensions

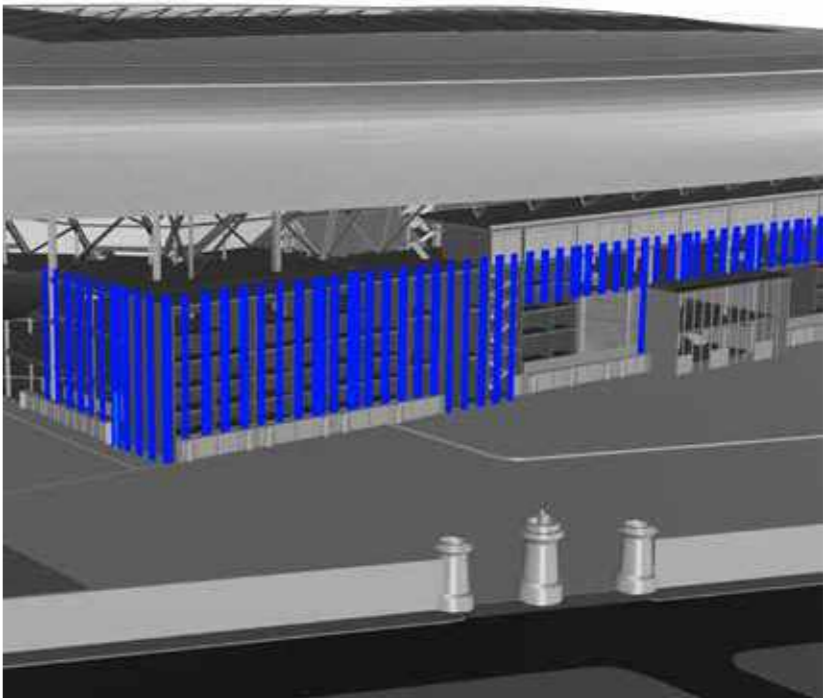
As per the scheme submitted in December 2019, the facade is divided into brick piers with dark grey perforated metal panels between them. A ratio of approximately 50% brick and 50% metal panel has been maintained in the developed scheme.

Previously the facade was formed with four different pier width dimensions. However, the smallest pier size was only 440mm, or two bricks wide. The initial Places Matter Review held in December 2019 prompted the rationalisation of the facade to bring it closer to the warehouse typology concept. On review, it was felt that the narrow pier was too “fragile” for the scale and context of the building. As such, the facade has been developed so that the smallest size of pier is omitted, but the overall percentage of the facade that is brick is maintained at circa 50%.

The result is a more robust and simplified facade. The updates to the brick facade have been viewed positively by the Case Officers from both LCC and HE and were praised by the Places Matter Panel at the review in May 2020. The diagrams opposite illustrate the difference between the previously submitted scheme and the updated proposal. The visualisation opposite shows the updated scheme.



The brick piers with four sizes, as per the scheme submitted in December 2019



The brick piers with three sizes, as per the updated scheme



Visualisation of the developed brick facade

Related sections in the submitted Design & Access Statement:

9.1.3

5.2 LEITCH TRUSS PATTERN

5.2.1 Brick Piers

The Leitch Truss pattern is an emblem of Goodison Park and an important feature of the facade which gives the building identity, adds interest to the facade and breaks down the large scale of the brick base.

To improve the clarity of the pattern it has been enlarged such that three stacked trusses wrap around all four brick facades. The pattern, which is depicted in darker bricks, also extends to the edge of each pier, giving a better resolution.

The bottom of the truss pattern is aligned to the top of the entrance portals, so a clear datum line continues around the facade. In the west, the pattern also continues below the canopy structure, to the level of the entrance portals for consistency.

5.2.2 Metal Panels

Feedback from consultations with LCC, HE and other stakeholders emphasised the need to simplify the overall facade and celebrate the Leitch Truss pattern that is traced in the bricks as a key element of the facade. To achieve this the truss pattern has been omitted from the metal infill sections of the facade.

5.2.3 Glazing

In the updated scheme there are areas of curtain wall glazing in the east and west portals, the Level 03 accommodation (which is above the brick base) and the protruding south balcony. There is no longer any glazing proposed between the brick piers. All of the glazed areas are elements which break out the brick base massing; there is therefore no Leitch Truss pattern expressed on the facade glazing. All glazing will have the appropriate manifestation applied as required in line with regulations and best practice inclusive design.

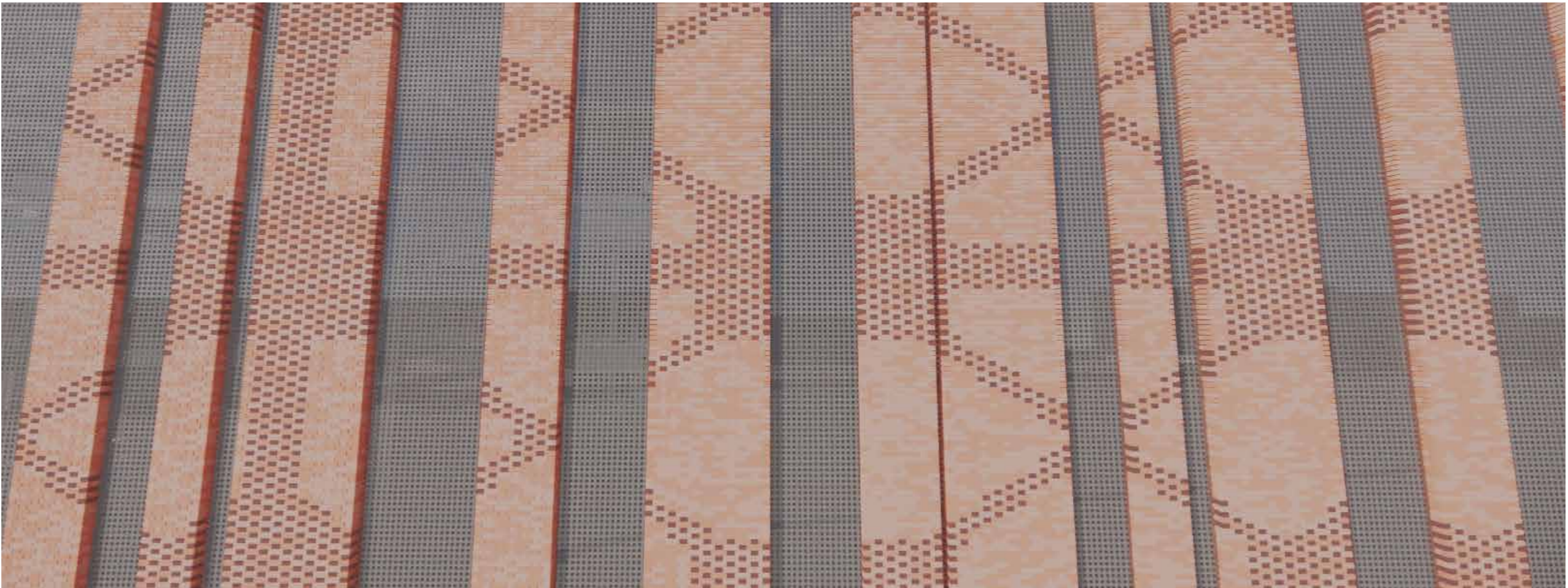


Illustration of the brick piers and metal panels in the facade, with the Leitch Truss pattern expressed with dark red bricks

Related sections in the submitted Design & Access Statement:

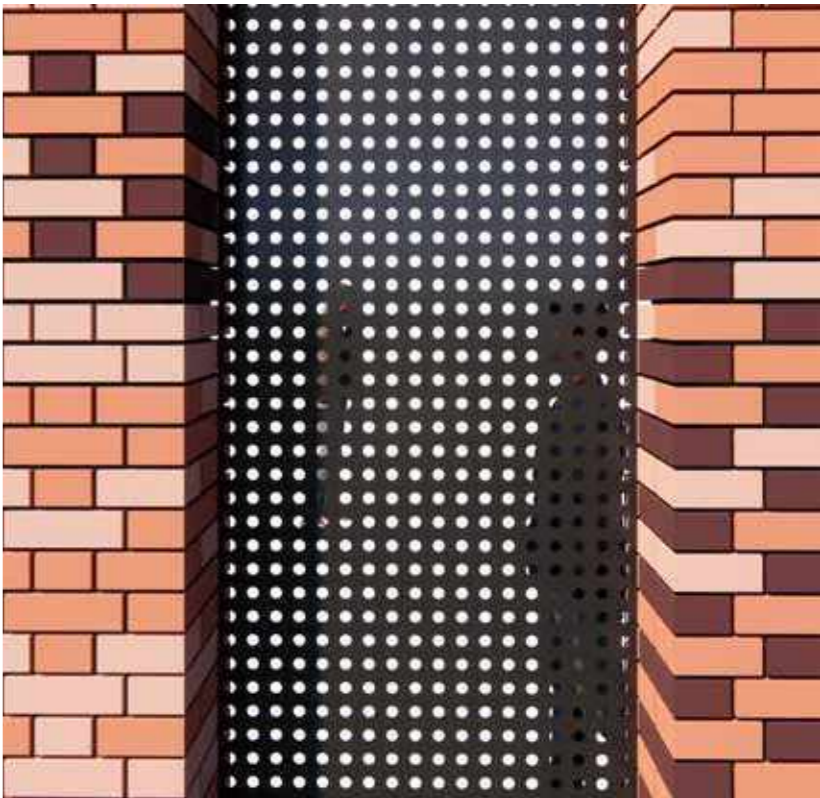
- 9.1.14
- 9.1.15
- 9.1.16
- 9.1.17
- 9.1.18

5.3 METAL PANELS

As per the scheme submitted in December 2019 the metal panels are a dark grey colour, and will be made of anodized aluminium. The metal panels are being developed along with the brick panels so that the system can be installed quickly and accurately on site. The full scale mock-up on site includes both brick and metal panel components so that the two elements can be viewed in-situ together.

Following the omission of the Leitch Truss pattern from the metal panels (refer to section 5.2), they have been developed with uniform perforations or as a solid panel, depending on ventilation requirements. The percentage of opening in each panel varies across the facade, between 0% and 20% porosity and is primarily determined by the ventilation requirements of the internal concourses.

The exact configuration and pattern of the perforations is subject to ongoing development and assessment of environmental conditions such as wind driven rain. The perforations will be small (likely approx. 8mm) with consideration for avoiding finger traps. The variable level of porosity across the facade will result in a subtle visual difference in the perforations in different panels, but this will not be visible from a distance and will not detract from the brick pattern.



Options study of metal panel perforations to test different patterns

Related sections in the submitted
Design & Access Statement:

- 9.1.11
- 9.1.12
- 9.1.13

5.4 DFMA FABRICATION

5.4.1 DfMA Construction Approach

The project is being designed with a commitment to the Design for Manufacture and Assembly (DfMA) philosophy, in line with the UK Government Construction 2025 strategy. DfMA is a methodology that aims to improve the safety, efficiency and sustainability of construction, primarily through consideration of how building elements are created and assembled.

This includes but is not limited to:

- Off-site production; for high quality, accuracy and safety
- Automated production line construction
- Using CNC digital fabrication tools to for mass-customised production
- Reducing the number of people required but requiring higher skill sets

While this methodology requires a more intensive design process, it allows the project to be built quickly and efficiently, with greater quality control. The primary benefit in this strategy is the improvement to Health and Safety, in order to manage and reduce risks. Building off-site in a controlled environment provides numerous benefits to the construction worker, better facilities, machinery and extraction, while also reducing the complexity of on-site work.

Off-site fabrication is particularly beneficial to this project since the site frequently experiences high winds due to its exposed location, further increasing the risks of working at height, and at minimum increasing the length of time to complete safely.

The site is also historically significant and transferring as much construction off-site and utilising 'just in time' production, allows the site to be better managed, cleaner and safer, with less risk of damaging any points of historic interest and heritage assets that remain in place.

5.4.2 Bricks DfMA

Fabrication of the brick facade is a key part of the DfMA strategy. It has been important to develop the brick piers as modules that can be fabricated off site since there was considerable risk associated with completing the facade within a reasonable time frame using traditional construction methods.

The proposed solution is to mount the bricks onto a pre-cast concrete panel that can be stacked in a relatively simple manner, allowing most work to be completed safely at ground level. The support structure will be unnoticeable externally, with bricks returning along the side of each pillar. This methodology has been developed with input from the LCC and HE case officers, who have visited the factory and a precedent project.

There are many benefits to this proposal, including:

- Skills are transferred from exposed site conditions to factory conditions
- Health & safety risks are reduced
- No reliance on weather conditions for the manufacture of quality finished works
- Enhanced quality control
- Reduced transport and waste from site

The Leitch Truss pattern is a particularly challenging detail as it differs around the stadium. To achieve this a custom reconfigurable jig has been created which can be adapted to each mould (refer to images opposite).

A large mock-up which includes the brick panels has been fabricated and installed on site using the proposed DfMA construction methodology to conclude the testing and review of this part of the design.

Whilst maintaining the use of traditional bricks and mortar, a superior quality product can be delivered which would be very difficult on an exposed site where conditions may not be conducive to the high quality of hand laid workmanship expected. By combining a modern DfMA philosophy with hand made brick production, the facade is able to capture the best of both worlds: combining the efficiency and safe installation of modern construction with the materiality and character of local craftsmanship.



Images of the formwork for the concrete panels which will receive the bricks

5.5 OTHER BRICK FACADES

5.5.1 West Terrace Walls

The angled walls in the north and south of the West Terrace will be brick to match the brick piers in the stadium facade. The same mix of 70% Ashby Red and 30% Light Victorian handmade bricks from the same supplier will be used so that there is continuity with the stadium. However, there is no Leitch Truss pattern in these elements. The walls have simple flat surfaces, with no piers or metal panel inserts.

5.5.2 Substation Facade

The substation on the west quay is proposed as a small rectilinear building that is akin to the typical utility buildings found in historic dock sites. The design intent for the substation is to be a high-quality but simple brick structure that relates to the stadium facade but is not a miniature version of it. The facade has the same brick mix as the stadium, with 70% Ashby Red and 30% Light Victorian handmade bricks from the same supplier. As with the West Terrace walls, there is no Leitch Truss pattern as this is a very different scale of building, and the introduction of the truss pattern would either be illegible at a large scale or too 'busy' at a small scale.

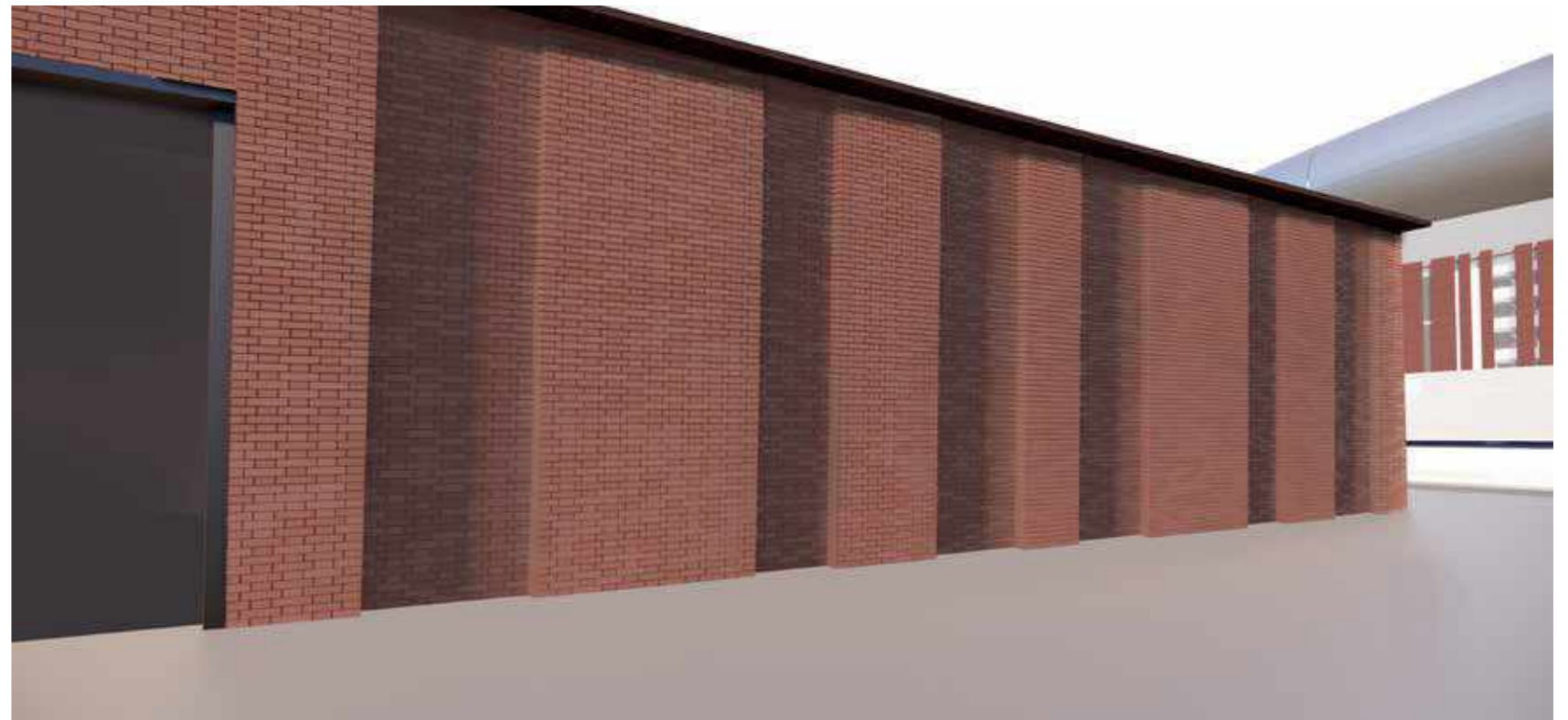
To break up the massing of the substation and add interest, there is a stepping in and out of the face of the wall. This banding follows the same rhythm as the brick piers and metal panels in the stadium facade, but in this structure only brick is used. This ties the two buildings together, but in such a way that the small, secondary structure is simpler, with a reduced palette of materials.

5.5.3 Security Hut Facade

The small security hut in the north east of the site will also have a brick facade, using the same brick mix and handmade bricks as the main stadium. This will ensure continuity between all of the new structures, across the site. This proposal is unchanged from the scheme submitted in December 2019.



Visualisation of the brick wall at the south of the West Terrace



Working visualisation of the substation south facade

5.6 METAL PORTALS

5.6.1 East Facade Portal

The large East Portal has been developed as part of the overall revisions to the facade and its simplification. In the updated proposal, the openings that were either side of the portal have been enclosed. This has several benefits:

- There is a greater extent of brick in the east facade, strengthening the brick base concept and the legibility of the truss pattern
- The portal stands out from the brick piers as there is greater contrast between the red brick and black metal, highlighting this central feature
- The General Admission concourses and circulation areas are more enclosed, providing better weather protection and a safer internal environment

The vertical transportation in this area has been simplified, since the general admission escalators have been relocated to the south concourse. This means there are now clear and distinct entrances for the Club Shop and both general admission and hospitality spectators.

The internal space planning has been developed such that the shop has an increased frontage in the glazed portal, creating an active view into the stadium from the Fan Plaza. The shop will be open year-round, so the glazed portal will be populated on both match and non-match days.

Related sections in the submitted Design & Access Statement:

9.1.19



The east facade and glazed portal in the scheme submitted in December 2019



The east facade and glazed portal in the updated scheme

5.6.2 West Facade Portal

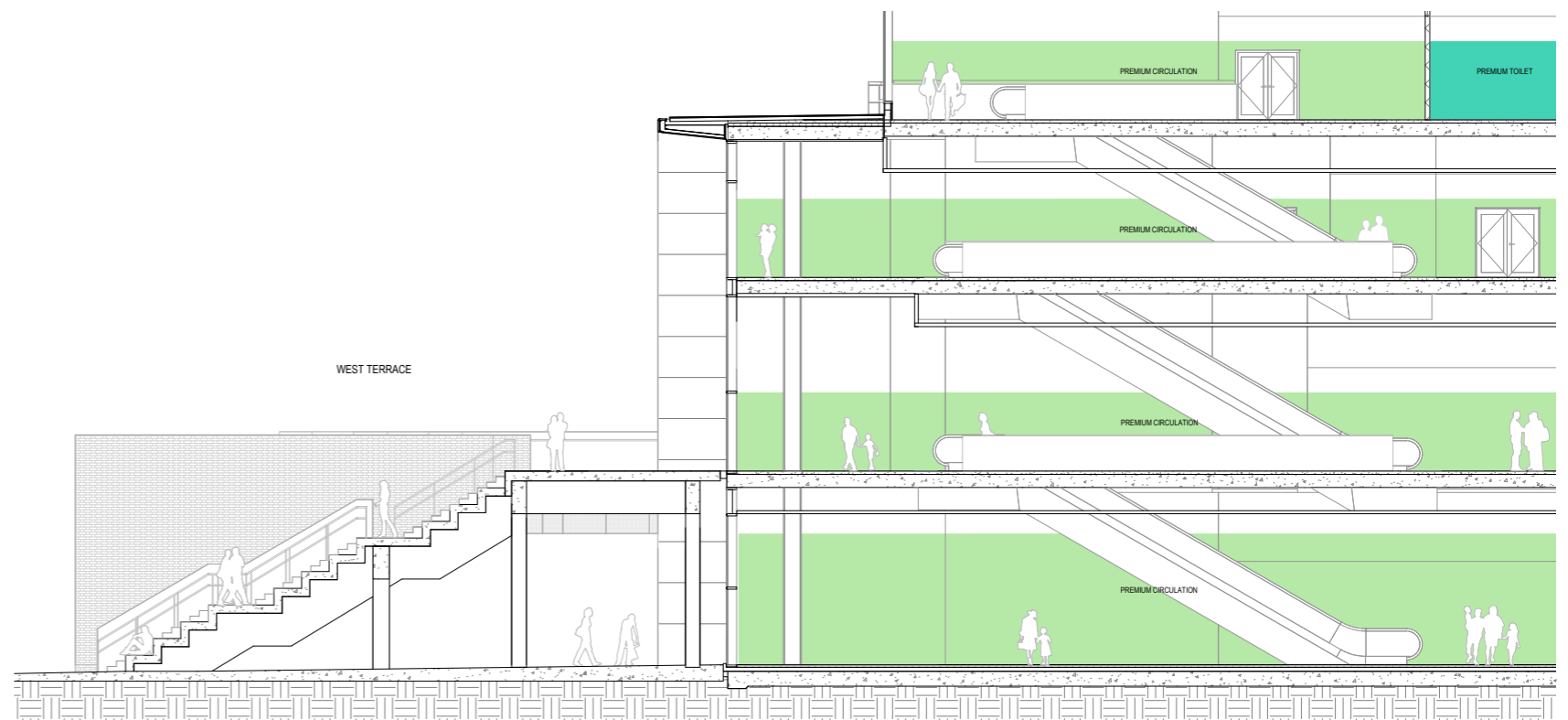
A new glazed portal with a solid aluminium cladding in a dark grey colour has been introduced in the west facade. The design intent is that this matches the portal in the east facade, with a central glazed area that provides views out and active views in. The details are consistent for both portals so that the elevations are visually similar.

The West Portal provides a large area of glazing for nearly all of the hospitality spaces in the west. The escalators are stacked so that spectators arrive at each level facing the glazed wall, and will be able to look out over the West Terrace, water channel and orienting them to the riverside setting. The hospitality lounges are intended for use as conferencing and banqueting facilities on non-match days, as well as a riverside dining restaurant which takes advantage of the water-front location of the building.

Overall, the West Portal is designed to be a high quality space and a feature of the west elevation, which celebrates the building's unique location. The glazing is in a framed stick-built system, which has been designed so that the mullions align with the floor slabs inside. The frame will be anodised aluminium, in a dark grey colour to match the metal panels in the main facade as well as the portal frame cladding.



Visualisation of the proposed West Portal, viewed from the west quay



Section through the proposed West Portal and West Terrace

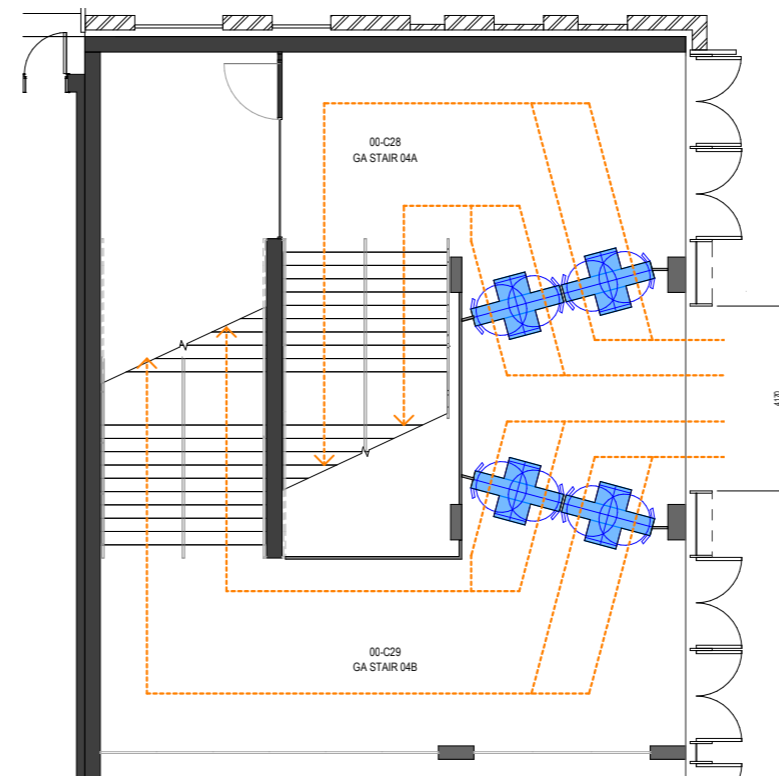
5.6.3 Entrances and Turnstiles

The entrance portals are designed to match the larger East and West Portals, with the same materials and protruding frame from the brick box. This is unchanged from design submitted in December 2019. As per the larger portals, the entrances will be clad with dark grey aluminium with the same detailing to tie the different elements together.

The turnstiles are recessed into the portals with railings to separate spectators and ensure safe and efficient entry to the building. Doors and gates are in line with the brick facade, in the same grey/black colour scheme as the portals so that the entrances contrast with the surrounding brick and can be easily located.



Entrance portals in the east Plaza



Typical arrangement of the entrance turnstiles



Working view of the entrance turnstiles

Related sections in the submitted
Design & Access Statement:

9.1.19

5.7 MANSARD ROOFS

The accommodation at level 03 is above the datum line of the brick base and is therefore a visually separate element that sits below the level of the barrel roof. This part of the scheme is designed as a mansard roof, such that the front elevation is set back from the face of the brick facade and the lower portion of the wall is concealed by the brick parapit. This condition exists both in the east and west, with the mansard roof extending along the whole length of the facade in the west and a slightly smaller area in the east. These elements were part of the scheme submitted in December 2019, although the massing has been revised in response to the removal of the MSCP and various internal layout changes to improve the functionality of the building and incorporate consultee comments.

The mansard roofs are clad with a combination of solid grey metal panels and full height glazing. The glazed sections align with the hospitality lounges to provide uninterrupted views over the city and river from a high vantage point. The type of glazing will be specified to mitigate bird-strike while maintaining a clean, unobstructed aesthetic, particularly in the west which faces the river. This differs from the bird mitigation strategy for the larger areas of glazing (the west portal and north and south windows) where large scale club branding will be applied. Please refer to section 8.3 as well as the ecology chapter of the Environmental Statement.

Solid cladding is proposed for the parts of the mansard roofs that do not benefit from views, such as plant and MEP spaces, services and facilities. The aluminium cladding is a lighter grey colour than the protruding portals below, such that it is more closely matched to the colour of the roof cladding.



View of the east mansard roof



View of the west mansard roof

5.8 STADIUM ROOF

5.8.1 General Development

The design intent for the roof is unchanged from the scheme submitted in December 2019. The shape of the roof has developed slightly following a review of the roof structure to ensure the overall massing and volume is as compact as possible, without compromising spectator views inside the bowl. The roof set-out is now straight, meaning it is parallel to the brick box below by omitting the slight angle that was present in the design previously. Please refer to section 4.1 for further details and comparison images of this development.

The roof is clad with perforated aluminium panels, with approximately 10% - 20% porosity. The perforate roof means that the structure is a screen and the structure will be partially visible through the roof cladding. The roof finish is natural anodized aluminium. A full scale mock-up will be prepared and installed on site to review and finalise reflectivity and colour before construction of the roof commences.

5.8.2 North and South Windows

The overlapping, shingled design of north and south windows has been retained from the scheme submitted in December 2019. The windows are a key feature of the design, which provide views from the bowl to the surrounding area and out to the World Heritage Site. The south window is paired with the south balcony below, which gives spectators impressive city views from the general admission concourse.

The north and south glazing retains the design intent with expressed horizontal bands of glazing. The framing system has both horizontal and vertical elements but the vertical frame is discrete so as to not distract from the banded effect. The glazing framing aligns with the secondary structure spanning between primary columns to unify them with the glazing and further express the horizontal lines of the windows. Please refer to section 5.9 for the stadium elevations which show the full extent of the north and south windows, as well as the elevation drawings submitted with this addendum. An aerial view of the south window is also shown on p64 of this document.

Related sections in the submitted Design & Access Statement:

9.2.5



Visualisation of the roof and south window from the south east of the site



Visualisation of the roof and south window

5.8.3 South Balcony

The south balcony is visually part of the roof form which wraps around and extends into the brick box below. Functionally this space is part of the general admission concourse at level 02. This area will contain a series of bars along the length of the balcony, providing city views from the fully glazed curtain wall.

Externally, the curved form is treated as part of the roof, it is clad with the same anodised aluminium panels and will be matched in colour and reflectivity to create the look of a unified element with the main roof structure above.

The glazed curtain wall is pitched at the same angle as the south window, again to provide continuity between the elements. Internally this makes the space feel larger and like it is reaching out towards the city. The panoramic view will be seen throughout the concourse, with breaks in the long bar to allow views through. The double height escalators that serve this space land centrally in the concourse with fans immediately turned to face the window. The south balcony is one of the key features of the building that ground the stadium within its context, celebrating its prominent location and enabling spectators to enjoy their surroundings in the World Heritage Site.



Related sections in the submitted Design & Access Statement:

9.2.5



Aerial view of the roof and south window