5 ALTERNATIVES & DESIGN EVOLUTION

5.1 INTRODUCTION

The EIA Regulations 2011 [1] (as amended in 2015 [2]) (Schedule 4, Paragraph 2), state that an ES is required to provide:

"*An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for the choice made, taking into account the environmental effects*".

This chapter of the ES details the main alternatives considered by the Applicant prior to the finalisation of the proposed scheme and shows the process of avoiding impacts through the iterative and collaborative design of the development ('mitigation by design').

In this chapter, potential alternatives have been broadly grouped into the following categories:

- Alternative sites; and
- Design Evolution.

An Alternative Sites Assessment (ASA) has been undertaken, which has been submitted as part of the application. This details the site assessment criteria that Everton Stadium Development Limited (hereafter referred to as Everton / The Club) has adopted, including the catchment that has been used to identify alternative sites. Each site has been assessed in terms of its planning policy, statutory designations, strategic and regeneration context, planning history and development context, accessibility, socio-demographics and fit with Everton requirements. For each site, a qualitative conclusion has been drawn as to whether the site is considered a feasible, practical and realistic proposition for a new stadium and whether it has reasonable prospects of obtaining planning permission. Each alternative site considered in the ASA was also assessed against its potential for environmental impacts.

5.2 ALTERNATIVE SITE ASSESSMENT (ASA)

The ASA provides a comprehensive assessment of alternative site options; assessing the suitability of each site for a new stadium development based on a comprehensive set of assessment criteria. The ASA is provided in Appendix 5.1, ES Volume III.

It is agreed between the Club, Liverpool City Council (LCC) and Historic England that due to the scale of the development proposed and the heritage status of BMD, it is critical to undertake an assessment of the availability of alternative sites which might reasonably accommodate a stadium development that meets the needs of the Club, without prejudice to all other planning considerations.

5.2.1 Background

In its long-standing search for a new stadium site, Everton has continued to regularly review the availability and suitability of alternative sites. Historically, it has actively pursued three opportunities for stadium redevelopment, which are described below.

5.2.1.1 Kings Dock (1999-2003)

At the turn of the century, Everton pursued a scheme on the Kings Dock on Liverpool's Waterfront. The Kings Dock location would have provided an iconic waterfront location and received strong support from the Club's fans. However, the proposal was not progressed due to issues with funding at the time and the site is now home, in part, to Liverpool's M&S Arena, which is one of the City's premier entertainment venues.

5.2.1.2 Kirkby, Knowsley (2006-2009)

The Club (in partnership with Tesco Stores Ltd) submitted a hybrid planning application for a 50,000 capacity football stadium, alongside enabling retail development, in early 2008. Despite a resolution to approve the application from Knowsley Metropolitan Borough Council, the scheme was subsequently called-in by the Secretary of State and ultimately dismissed in late 2009 on primarily retail planning grounds. The scheme received substantial opposition from the Club's fan base and was subject to organised objections from fan groups, including Keep Everton in Our City ("KEIOC"), and also from LCC. The lessons learned, a change in leadership at the Club, the emergence of Everton in the Community ("EiTC") close to Goodison Park and the opposition generated by the scheme has led Everton to now focus its search for a new stadium on sites which have a tangible and realistic connection to its spiritual home in North Liverpool and which have the backing of fans and the local community.

5.2.1.3 Walton Hall Park (2014-2016)

A site at Walton Hall Park was explored as a possible location for the Club's stadium approximately 5 years ago. However, owing to the site's status as an important City Park (designated as protected green space) and key area of high quality open space for the North Liverpool community, as well as the quantum of retail development required to cross-subsidise the development, the site was ultimately not progressed beyond the feasibility stage.

Previous stadium proposals have provided the Club with significant lessons in its search for a new stadium site and its supporter expectations in terms of the location and quality of a new stadium. It has given the Club a clear mandate to seek to identify a stadium that retains Everton within the City of Liverpool, and in a location that has strong physical and cultural connections to its existing spiritual home at Goodison Park, within North Liverpool. The Club's new leadership is now committed to delivering a stadium that that is embedded within this traditional catchment area.

5.2.2 The Need to Relocate from Goodison Park

Goodison Park accommodates 39,572 supporters and away team fans. Based on the Club's analysis of demand, Everton requires more than 50,000 seats. There is currently a waiting list for season tickets of 8,677 individuals who have requested a total of more than 11,000 tickets. Everton's peer clubs have substantially increased capacity over the last 10 years, which has enabled them to increase attendances, improve facilities, provide better accessibility, improve the matchday experience and enhance revenues to better compete at the top of the English Premier League (EPL).

The issue of whether Goodison Park is fit for purpose was explored extensively during the Inquiry into Everton's proposed move to Kirkby, with the Inspector stating that[1]:

"Goodison Park is agreed by all to be in need of very significant work to improve to a suitable level, and that would require, as Mr Keirle shows in his evidence, a much larger site than Everton possess at Goodison Park. Mr Keirle's evidence deals with the question of potential changes to Goodison Park and the surrounding land. The matter has been exhaustively explored by the club over the past ten years, including a review by Mr Keirle's firm in July 2008 on the basis of the funding available for this project. There is no credible evidence that a stadium of the kind that Everton needs can be provided at or near Goodison Park. It is clear from Mr Elstone's evidence that had it been feasible to stay at or near the current site, Everton would have done so".

The expansion or redevelopment of Goodson Park is not considered to be realistic, practical or deliverable to meet the needs of Everton. Whilst some modest expansion of the stadium may be feasible, it would not deliver the capacity, benefits or amenities that the Club requires to remain competitive; including delivering a 50,000+ capacity stadium, significantly enhancing the amenity, facilities and accessibility at the stadium, including providing high quality modern facilities for players and staff, providing the amenities to meet supporter expectations and raising the profile of Everton in the EPL and internationally.

The scale of the new stadium that Everton requires would not be appropriate at Goodison Park, due to the small stadium footprint, the lack of adequate onsite facilities and the dense residential nature of its surroundings. It is clear that the current site assessment process would not identify Goodison Park (even as an enlarged footprint) due to its location and size, being surrounded by housing on three sides, and by public roads.

[1] Report to the Secretary of State for Communities and Local Government, 2nd July 2009, APP/V4305/V/08/1203375, page 47, pp 5.6.37

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Further detail on why stadium expansion or redevelopment at Goodison Park is not feasible is provided in the ASA in Appendix 5.1, ES Volume III.

5.2.3 ASA Methodology

Current planning policy provides no material guidance on the scope or approach to undertaking an ASA. However, whilst there is no policy basis to underpin the requirement or scope of an ASA for a new stadium development, an ASA is critical to understand whether there are any alternative sites for stadium development and therefore case law and precedent has been considered.

The Brighton and Hove Albion (BHA) stadium case is considered the most relevant precedent by way of guidance, and relates to proposals for BHA to relocate to an alternative site stadium in an Area of Outstanding Natural Beauty. The Brighton decision notes that feasible alternatives are those which are *"sufficiently advantageous to represent a feasible, practical and realistic alternatives"* whilst also considering whether each site has a *"reasonable prospect"* of being granted planning permission. The Brighton case suggests the application of a balanced planning judgment for each potential alternative should be based on the following relevant questions:

1. Is the site large enough for the proposed stadium and parking?
2. Are there any overriding site-specific planning issues?
3. Is site acquisition a realistic proposition?
4. Can a stadium be built without incurring unaffordable development costs on the site?
5. Is the site accessible by sustainable modes of transport?
6. Will there be any unacceptable environmental or visual impacts?

5.2.3.1 a) Area of Search

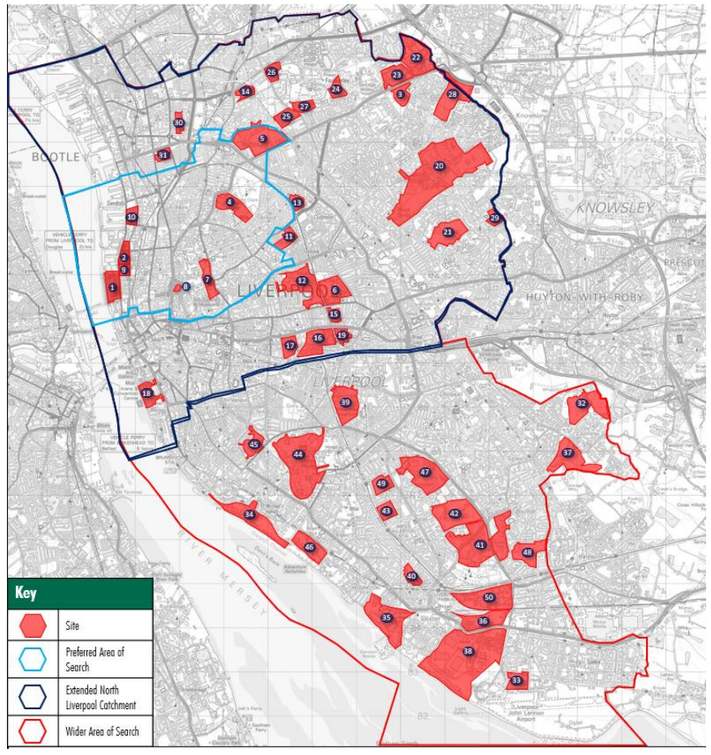
The ASA sets out the rationale for considering what is an appropriate, realistic and robust area of search for the proposed development, underpinned by planning policy and legal precedent. This sets out the case for Everton to remain closely connected to North Liverpool, where it has been an integral part of the community and has remained within a mile or so of its original home, St Domingos Church, in Everton Valley since 1878.

The Club has fostered strong connections with the area over the past 150 years and a move away from its spiritual home would create long term damage both to the Club and the communities of North Liverpool within which Everton forms an integral part.

In defining a proposed catchment, The ASA has assessed the following three areas of search:

- Area 1a: "North Liverpool" – Everton's preferred area of search that meets the requirements of the Club and its local community in North Liverpool and retains a close connection to Goodison Park;
- Area 1b: "Extended North Liverpool"– an extended area of search that includes the northern part of LCC, the City Centre and part of South Sefton. Whilst outside of the Club's preferred catchment, this defines an area where the Club would be willing to consider relocation if absolutely necessary, if a site met the requirements of the Club and retained a connection to the Club's traditional heartland; and
- Area 2: "Wider Area of Search" – including all sites within LCC (including South Liverpool) and South Sefton. This includes locations which are fundamentally outside of the catchment of the Club and where the Club would not consider relocation. However, this area of search has been considered, without prejudice, following discussions with Historic England.

Figure 5.1
ASA – Areas of Search



It is not considered to be a realistic proposition for the Club to consider a move outside of the Extended North Liverpool area (Area 1a and 1b) to a site that would not retain any tangible links between the Club and the North Liverpool community. Moreover, it is seen as imperative by the local community, supporters and people of the City to retain the Club close to its historic home. Based on past experiences and the aspirations of the Club leadership, the Club would categorically not consider such a move outside of the Extended North Liverpool area and is fully committed to developing a feasible, practical, realistic and deliverable stadium which enables the Club to remain embedded in the north of the city.

Whilst the Club consider that the 'Extended North Liverpool' area of search is the most robust and reasonable area of search based on all guidance, precedent and evidence, it has been agreed following discussions with Historic England that, without prejudice, the area of search is extended to include South Liverpool and the entire LCC administrative area to ensure that all sites across LCC have been considered as part of a wider search. Therefore, the "Wider Area of Search" illustrated in Figure 5.1 forms the basis of the ASA area of search.

5.2.3.2 b) Site Identification

A comprehensive site search has been undertaken to generate a long list of sites for assessment based on a "policy off" approach. This search has been undertaken within the "Wider Area of Search". The comprehensive site identification exercise is based on:

- Sites that are a minimum of 7.2 hectare (the minimum size that could deliver a minimum 52,888 capacity stadium and ancillary facilities);
- Existing and emerging policy allocations;
- A review of all sites assessed as apart of previous LFC and Evertion site searches; and
- Sites that have been identified by a primary site search including using Land Insight, reviewing sites identified in previous site search and through discussions with LCC and Sefton Borough Council).

5.2.3.3 c) Site Assessment Criteria

The identified sites have been assessed against a specific set of criteria to determine their suitability for the proposed development – which are set out in full at Figure 21 of the ASA Report.

The site conclusions form a summary assessment that qualitatively and holistically considers whether each site is a feasible, practical or realistic alternative for a stadium development, based on the key principles of the Brighton and Hove Albion call-in decision (as set out earlier).

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5.2.4 Conclusions

A review of sites within the proposed catchment based on a 'policy off'[2] site search has identified a total of 51 sites within the area of search (see Figure 5.1). A plan and detailed proformas for each site are provided in Appendix 1 and 2 of the ASA.

Based on the methodology adopted, the ASA demonstrates that there are no alternative sites that could accommodate the requirements of Everton's new stadium in the wider LCC catchment area.

5.3 DESIGN EVOLUTION

5.3.1 Design Principles

In addition to taking account of the heritage sensitivities of the site (WHS, Conservation Area and presence of listed structures), the architectural design of the project also reflects the Principles of the current Club brief, which grew out of the requirements of the first and second design briefs issued over a period of three years.

Some principles remain unchanged between the first and third briefs. One of these is the Club directive to create a venue with state of the art, technically advanced football facilities to maximise team performance. Another of these is the directive to integrate inclusive design as a foundational element of the venue, such that modern accessibility requirements are exceeded and the new stadium reflects the Club's history as an inclusive institution.

Other principles reflect the evolution of the brief over time, and in particular, the considerations that emerged with the identification of Bramley-Moore Dock as the Club's preferred relocation site. An example of this is the requirement for the project to be a sustainable community asset; in the setting of Bramley-Moore Dock (BMD), the notion of sustainability encompasses the preservation of existing heritage elements, such that these can be enjoyed and made accessible for future generations.

Other principles reflect certain considerations that are no longer relevant and are therefore not part of the current Club brief. These include the requirements of the second brief for the stadium to accommodate an athletics track and facilities for the Commonwealth Games, which also informed stadium capacity at the time.

5.3.2 Initial Design Brief

The initial design brief focused on six themes for any new stadium for the Club: football, atmosphere, sustainability, community, design and hospitality. The following six themes, as articulated below, guided the initial design concept:

- **Football:** An inspirational stadium in which to play football. A 'state-of-the-art' playing surface supported by the best available preparation, treatment, changing and post-match player facilities.
- **Atmosphere:** The most atmospheric stadium in world football; an inspirational, exciting and intimidating arena; a place where only Evertonians want to play.
- **Sustainability:** '365 day' sustainability - a stadium that provides broad revenue streams beyond matchdays from commercial facilities dictated by the needs of the local economy and community.
- **Community:** A community stadium owned, used and loved by the Everton family; an integral part of its neighborhood; the People's stadium.
- **Design:** An iconic, 'talked-about' stadium which accentuates the Club's tradition for innovation and leadership.
- **Hospitality:** A truly unique entertainment experience which presents fans and their guests with the opportunity to enjoy exciting, contemporary hospitality. An environment that facilitates a new and innovative approach to sports-based hospitality.

5.3.3 Second Design Brief

In Spring 2017, with the support of Liverpool City Council, Bramley-Moore Dock was identified as a potential site for an athletics venue for the 2022 Commonwealth Games. To that end, the Club commissioned a feasibility study for phasing the stadium construction to temporarily accommodate an athletics mode for use during the 2022 Commonwealth Games.

In May 2017, a second design brief was issued to guide this feasibility study. The 'six themes' of the initial design brief remained as the governing principles of the project vision. The primary changes in the second brief comprise the identification of Bramley-Moore Dock as the project site, and an increase to the commercial requirements of the project to reflect the additional scope of the Commonwealth Games programme.

Both the overall capacity and the hospitality capacities of the stadium were increased to 60,000 and 5,000 respectively, from the 50,000 and 4,000 specified in the initial brief. A provision for 700 on-site parking spaces was also added.

5.3.4 Third Design Brief

Following the Commonwealth Games feasibility study, the third design brief was issued in February 2018. In this design brief, the Club outlined eleven 'Principles of Development' of the new stadium. The 'Starting 11' Principles represent an evolution of the initial six themes, largely in response to considerations of the unique heritage and historic context of Bramley-Moore Dock.

The eleven principles stipulated that consultations with Liverpool City Council and Historic England be undertaken to ensure that the project is able to both preserve and raise awareness of the site's heritage elements. This consideration drives much of the design, from stadium orientation and position on site to the material palette of the stadium exterior.

The Club shared these eleven Principles with fans during the public consultation process in April 2018, and again in November 2018. As articulated in the initial six themes, the spaces within the stadium and outside have been designed to be inclusive to all.

Under the third brief, the commercial requirements of the project, from capacity to the number of parking spaces, have been reduced to yield a structure whose volume is more appropriate to the site, and provides for ample circulation and public space around its footprint.

5.3.5 Design Options

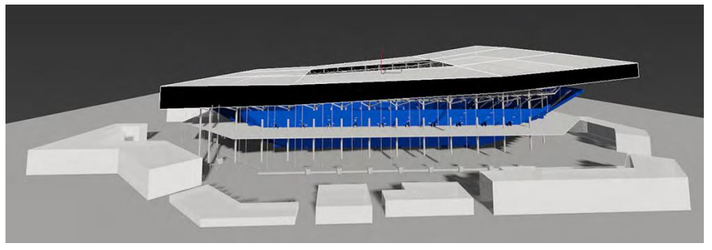
5.3.5.1 Initial Feasibility Study

Walton Hall Park was being explored by the club during the period of engagement governed by the first brief and was used as a placeholder by MEIS Architects to initiate design development whilst the site selection process was ongoing. A number of scheme options were explored as outlined below.

Walton Hall Park: Monolith Scheme

The new stadium was conceived as a simple rectilinear volume, incorporating verdant motifs into the facade. This scheme was ultimately discarded because the aesthetics were not considered Club-specific enough, and because the monumental roof and facade envelope would have presented a structural challenge, as well as representing a very costly quantity of material. This scheme option is shown in Figure 5.2 below.

Figure 5.2
Walton Hall Park: Monolith Scheme



[2] Assuming no policy constraints (i.e. open space, heritage, landscape, land use etc)

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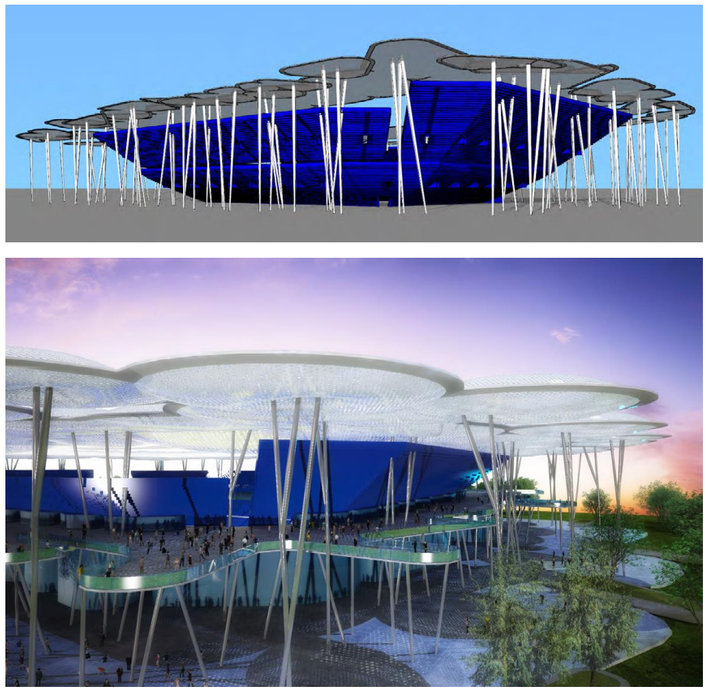
Walton Hall Park: Canopy Scheme

The new stadium is conceived as a 'pitch in a clearing in the woods.' A treelike network of spreading columns support a roof canopy, with the bowl largely exposed to external view. This scheme was ultimately discarded because it was not considered Club-specific enough; while this scheme was noted for its obvious link to the park site, the aesthetic was not considered to adequately reflect the Club's heritage. This scheme option is shown in Figure 5.3 below.

Figure 5.3
Walton Hall Park: Canopy Scheme



Walton Hall Park: Supertruss Scheme

Inspiration is derived directly from the structural innovations of Archibald Leitch at Goodison Park. The large truss of the Goodison Road stand is referenced in the form of a supertruss above the Home End of the new stadium, with a more traditional exposed cantilever truss system surrounding the stadium envelope.

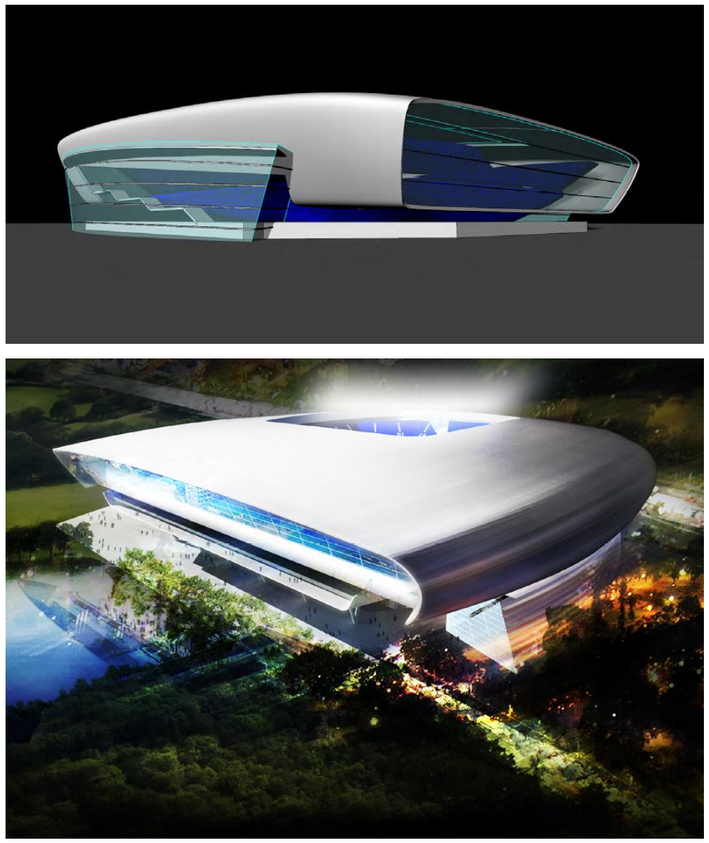
This scheme was progressed further than previous schemes because of its direct reference to Goodison Park; however, the structural system and facade design was considered too similar to existing English stadia and was not considered innovative enough to adequately reflect the Club's aspirations. This scheme option is shown in Figure 5.4 below.

Figure 5.4
Walton Hall Park: Supertruss Scheme

Walton Hall Park: Window Scheme

The stadium exterior is expressed as a modern, light form enclosing a bowl that is inspired by the intimate proportions of Goodison Park. The transposition of a curvilinear exterior form around a historically-derived interior was adjudged to meet the Club's project criteria for a scheme that reflects the values of the Club itself, both steeped in history and distinguished for its spirit of innovation. This scheme was 'held', pending confirmation of the selected site by the Club. This scheme option is shown in Figure 5.5 below.

Figure 5.5
Walton Hall Park: Window Scheme



Following this initial feasibility study, Walton Hall Park was not progressed as a potential site, as it was not considered to be a suitable or realistic option by either the Club or Liverpool City Council. One of the overriding reasons was the site's allocation as public open space, and value as a City Park serving as a key resource for the North Liverpool community. This was also reinforced by the significant weight of public opposition generated by the Club's consultation on the site as a possible stadium location. There were also concerns regarding the amount of enabling developments required to fund the scheme.

Following this, the club progressed with BMD as the preferred new stadium site.

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5.3.5.2 Commonwealth Games Feasibility Study

The Commonwealth Games feasibility study at Bramley-Moore Dock focused on the phasing of construction required for the stadium to operate in multiple modes of use over time.

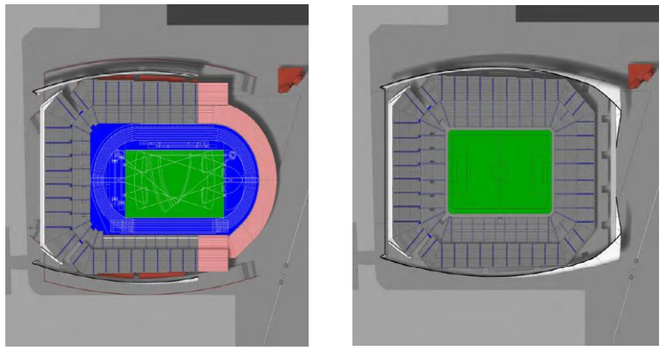
The Club brief for the feasibility study specified a minimum capacity of 40,000 in athletics mode. The bowl geometry required to reach 40,000 (per Commonwealth's athletics requirement) with an athletics surface yielded a capacity of 60,000 when closed in for football mode, which informed the working target capacity for the stadium during this period of RIBA Stage 2 design.

As the Commonwealth Games study progressed, the preferred approach became a three-phase sequence in which a football pitch and bowl would be constructed initially, followed by the installation of an elevated athletics platform to accommodate the Commonwealth Games, after which the bowl and envelope would be permanently closed in to accommodate football. An East-West stadium orientation is required in order to accommodate the dimensions of an athletics surface.

Following the announcement in September 2017 that Birmingham had been selected by the Department for Digital, Culture, Media, and Sport as the candidate city to represent England for the 2022 Commonwealth Games, all Commonwealth Games related feasibility and phasing studies for the stadium at Bramley-Moore Dock were concluded.

Figure 5.6

Commonwealth games phasing study at Bramley-Moore Dock - athletics mode (left) and permanent football mode (right)



5.3.6 Heritage Considerations at Bramley-Moore Dock Site

5.3.6.1 Assessing Heritage Value

In addition to the Club's brief and design principles, another crucial factor in the design process was the consideration of the heritage value of the site and surroundings. This section details the design approach to heritage and the following key drivers for the design: views of the stadium from within and outside the Conservation Area and WHS, the need to represent water connectivity and the reuse of the listed Hydraulic Tower.

Consultation with stakeholders such as Historic England and Liverpool City Council, as well as other conservation bodies, including the Merseyside Civic Society, have been integral to identifying key heritage considerations, and establishing design approaches with regard to the treatment of existing heritage elements.

In addition to UNESCO World Heritage Site and Historic England listing details and guidance and the Liverpool City Council World Heritage Site Supplementary Planning Document, surveys have been undertaken to map existing site topography and heritage constraints.

5.3.6.2 Design Approach to Heritage

The Club's eleven principles of design set out the approach to heritage, the directives of which are to respect the maritime heritage of Bramley-Moore Dock, capture the features and essence of the Club's new neighbourhood, and to make features of key restored structures on site.

The design approach to heritage can be organized into three main principles: to minimise local impact (i.e. impact to individual artefacts), to reflect the site's heritage in its masterplan, and to be inspired by, and respond to, the site's context in the aesthetic design of new elements, including the stadium.

In terms of minimising local impact, this approach seeks first to achieve a design solution that does not alter or damage existing heritage elements where possible. If impact cannot be avoided, the approach calls for the design to be mediated such that the impact to any heritage element is not permanent or is minimised. In either scenario, heritage elements are to be prominently featured and celebrated in the design, to draw visitors to the site and promote awareness of the history of the North Docks area.

For the dock infilling, which cannot be avoided in order to construct a stadium at BMD, minimising impact means the infilling and stadium engineering are designed in such a way that the historic dock walls are not only not damaged by the construction process, but can also be 'recovered' in their entirety if the stadium is disassembled in the future and the dock is returned to its prior state as a body of water. For the required openings in the Regent Road wall, this means creating the smallest openings possible to still provide safe access to and from the site.

In terms of masterplanning, the approach to heritage calls for the holistic redevelopment of the site, in particular the public realm, in a way that is sensitive to heritage. One example is in the setting of site levels flush with the tops of the dock walls, such that the dock walls are incorporated into the plaza as a design element. Another example is the position of the stadium on site, far enough west of the Hydraulic Engine House (HEH) that the HEH is afforded room to stand alone, to reduce the impact on setting, but far enough east to allow for the creation of a water channel to visually link the Sandon Half-Tide and Nelson Docks to reduce the impact on setting, preserving the historic feature of dock interconnectivity. Another example is the lower pedestrian platform at the east edge of the water channel, which reveals the dock wall's north and south shoulders and provides visitors with the opportunity to examine the shoulders close up.

In terms of aesthetics, the approach seeks to draw design inspiration from, and respond to, heritage elements on site and structures within the wider North Docks area. The industrial palette of the docks provides the basis of the material palette of the new stadium. With regard to principles of facade design, the proportions and material relationships of facades within the North Docks area have been studied to inform the design of the stadium facade. For the design of the public areas, as well as the detail of new openings created in the Regent Road Wall, new design elements are not intended to imitate the existing heritage elements; rather, the new design is intended to complement the existing heritage elements, and in so doing, to celebrate what makes the heritage features unique.

5.3.6.3 Water Channel

A key heritage component is the retention of a meaningful and authentic water channel to the west of the stadium to provide visual continuity of the historic dock network. The proposed water channel will be bound by an existing isolation structure to the south (between Bramley-Moore Dock and Nelson Dock), and by a proposed new isolation structure to the north (between Bramley-Moore Dock and Sandon Half-Tide Dock). The channel will be hydraulically connected to the dock system but will be non-navigable. The proposed water channel's depth will be set at +2.9m AOD.

The existing southern isolation structure is constructed out of two sheet piles with two horizontal ties at -1.5mOD and +2.5mOD. Eight pipes with a crown at +4.05mOD and bottom level at +3.45mOD provide the method of connection with the two docks, controlled by sluice gates. The northern isolation structure is also proposed to be constructed out of two rows of sheet piles, pre-bored into the underlying Sandstone, connected with multiple horizontal ties. Eight pipes will be cast in between the two sheet piles at identical levels to the existing southern isolation structure to enable the exchange of dock water to the north and south.

The water channel bed will be designed to 0.5m below the bottom of the pipes (+2.9mOD) to ensure any silt build up does not restrict the flow of dock water through the pipes. During construction, whilst the dock is filled, to ensure a method of connection between Sandon Half-Tide Dock and Nelson Dock, a temporary pump will be used when required to replicate the current operation of the sluice gates.

The listed dock wall on the western side of the channel will form the channel's western edge. The eastern edge will be formed by a row of secant piles that will also act as a retaining wall. The retaining wall will support the terraced steps that allow close access to the water edge from the west of the stadium.

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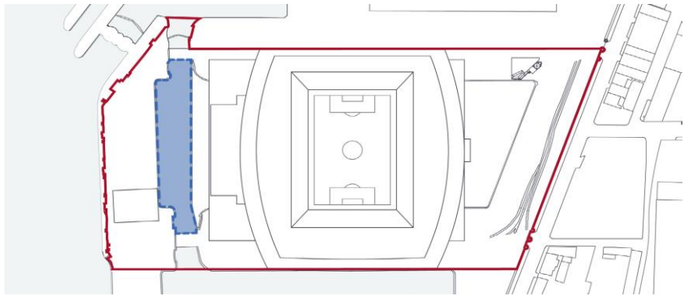
Figure 5.7
Extent of new water channel proposed between north and south isolation structures at Bramley-Moore Dock



5.3.6.4 Interaction with Hydraulic Engine House

Paragraph 1.6.3 of the World Heritage Site Supplementary Planning Document (SPD) (2009) [3] states that the conversion of historic buildings will be encouraged where it will stimulate the city centre economy and enhance the city's profile. The historic fabric of the WHS's historic buildings will be safeguarded to ensure it continues in appropriate use. Buildings considered to be 'at risk' due to their poor condition or which are under-used, will be brought into beneficial and sustainable use (para. 1.6.3).

The stock of listed buildings in the WHS is noted as being fundamental to its outstanding universal value (OUV) and to Liverpool's unique sense of place (para. 5.4.1). Maintaining a viable and appropriate use for historic buildings is considered an important factor in ensuring their survival, particularly as otherwise such buildings can be at an increased risk of decay. The SPD notes that *'…delivering viable and sympathetic uses for these properties is a key issue for the long-term management of the Site'* (para. 5.4.3).

Proposals for the viable and long-term reuse of historic buildings will be generally supported where they are in broad accordance with allocations and policies within the statutory development plan; maintain an appropriate mix of uses; will not result in the loss of significant elements of historic fabric and will not result in the degradation of the character of the street (para. 5.4.5).

Figure 5.8
Hydraulic Engine House tower

As a heritage element unique to Bramley-Moore Dock and the wider Public Realm, the grade II listed Hydraulic Engine House (HEH) is a prominent structure when viewed from Regent Road. Once the HEH is made safe, additional structural surveys are required before works are undertaken to the building and it is brought into viable use as an exhibition/cultural centre.

The HEH is an anchor element to the public pedestrian route along the River Mersey through the planned Liverpool Waters development, referred to as the River Walk. The HEH will remain publicly accessible on non-event days as well as event days; along with the retail storefront of the stadium, stadium box office, and any additional, temporary plaza amenities, the availability of the HEH contributes to the year-round usage of Bramley-Moore Dock.

Out of deference to the HEH, the stadium is positioned so that the complementary brick aesthetic of the stadium does not compete with that of the HEH. In its current location at the north of the east entry plaza, the HEH acts as a bounding element to the open space of the east plaza and allows for circulation around it, as required for stadium events.

Everton has committed to making the building safe and opening it up to public use. This application seeks a change of use of the building to accommodate an exhibition/cultural centre and ancillary cafe.

5.3.7 Bramley-Moore Dock: Design Development - Orientation

Following the Commonwealth Games feasibility study, design development at Bramley-Moore Dock continued, with operating requirements for the stadium focused on football.

Freed of the requirement for the stadium and seating bowl to accommodate an athletics mode, issues such as stadium orientation and position on site were informed by consideration of heritage elements and the design of public areas, in addition to technical considerations of stadium access and solar paths and interaction with the approved Liverpool Waters development to the south.

The project brief for the design submitted as part of the 2019 planning application, confirmed a minimum target capacity of 52,000, with the potential to increase capacity, subject to alteration to the stands and should safe standing be introduced in England in the future under a seating to standing ratio larger than 1:1.

The location of the Grade II listed Hydraulic Engine House was a fundamental consideration to the position of the stadium within the site. In an East-West orientation, the stadium is closer to the Hydraulic Engine House, with more of the length of the original Grade II listed dock wall, and more area of the original cobbles in the east and south of the site, covered by the stadium footprint.

In a North-South orientation, the stadium stands further away from the Hydraulic Engine House. Under this orientation, a shorter length of the original dock wall, and a smaller area of the original cobbles in the east and south of the site are covered by the stadium footprint.

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Figure 5.9
Diagram showing an East-West orientation and the vicinity to Heritage Assets on site

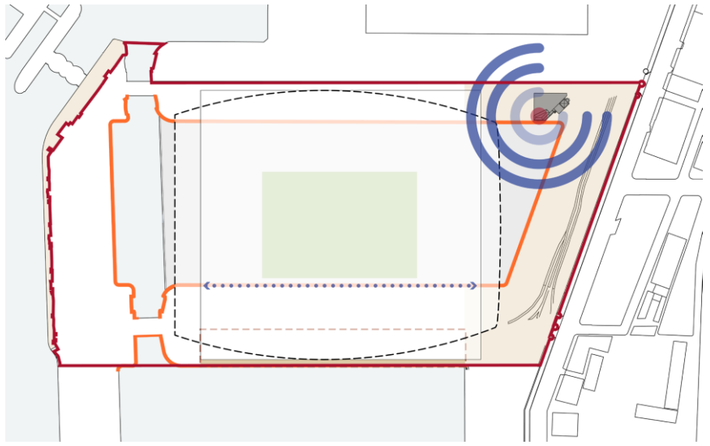
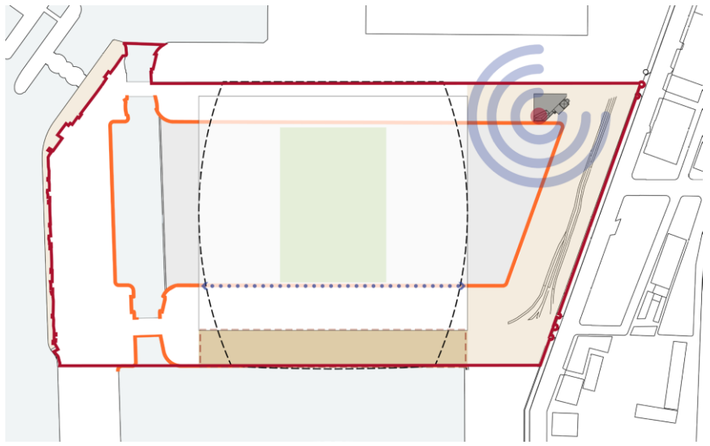


Figure 5.10
Diagram showing a North-South orientation and a further distance to the Heritage Assets on site



A number of stadium layout and orientation options were assessed as part of the initial design process with the north/south centred option chosen to progress further. Given the site dimensional constraints, it was decided at the outset of the design process for the BMD site that the stadium is to be developed with a double concourse, providing the lower concourse at grade, to provide a tighter building footprint.

5.3.8 Site Layout following Initial Design Development at Bramley-Moore Dock

Following consultation with HE and LCC, a water channel was included within the layout of the proposed stadium development. This maintains the visual connectivity of the interlinked dock system and, although is non-navigable, provides a visual reference to one of the key reasons for the WHS and Conservation Area designations.

A north-south orientation allows for large open areas to the east and west of the stadium, providing great flexibility to the design and usage of public areas and more opportunity to reveal heritage elements. This results in a large public amenity area to the east of the stadium, easing ingress and egress from the site and allowing for more space between the Hydraulic Engine House and the stadium.

To the west of the stadium, a wider exterior concourse was accommodated adjacent to the water channel visually linking the Sandon Half-Tide Dock and Nelson Docks to BMD. This layout was consulted on in Summer 2019 as part of the Liverpool City Region wide public consultation and underwent further technical assessments, including wind modelling, to understand the impact upon the site and surrounding environment.

5.3.9 Wind Considerations

Due to its position at the mouth of the River Mersey in the north-west of England, Bramley-Moore Dock is subject to a coastal climate. The site is exposed to prevailing winds, primarily from the north-west, west, and south-west throughout the year, but also from the south-east during the autumn and winter seasons. Given the pervasive extent of elevated wind speeds on site, any incremental increases in wind speed, including those caused by the aerodynamic performance of a building, increases the incidence rate of wind speeds that exceed thresholds for safety and comfort.

In order to understand the environment of BMD, and to inform the design response of the stadium and public realm in this environment, both physical wind tunnel testing and digital testing, known as computational fluid dynamic (CFD) testing, were undertaken. Working with both empirical (wind tunnel testing) and predictive (CFD testing) methods allowed the design team to work effectively at a range of scales, from building massing to the design of discrete elements, to design the site so that it can be safely operated under both event and non-event scenarios.

At a 'macro' level, initial wind mitigation design informed the development of stadium massing. Initially, a freestanding multilevel car park stood on the west quay of the site, with the stadium positioned to the east of the water channel. Wind mitigation performance led to the car park massing shifting to the east and joining with the stadium into one contiguous volume.

At a 'micro' level, early revisions of the proposed wind mitigation analysis shaped the design and location of elements at the west, south, and north elevations of the stadium volume, including corner conditions and elevated outdoor positions on the west side of the stadium.

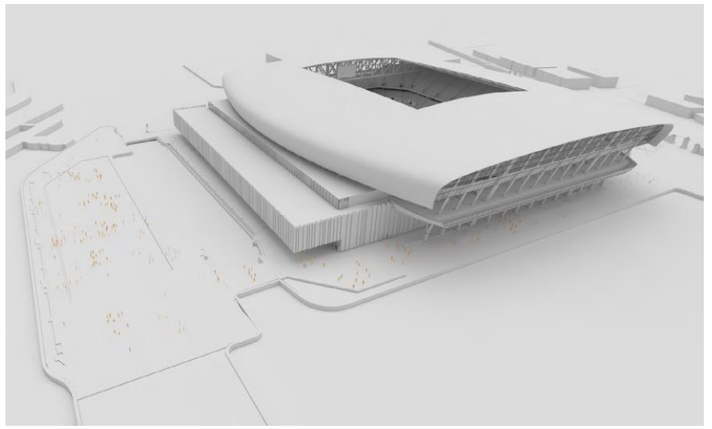
More detail regarding site performance and site compliance with wind safety and comfort standards can be found in the Wind chapter (Chapter 12, ES Volume II).

5.3.9.1 2019 Wind Mitigation Massing

Iterative testing in both wind tunnel and CFD environments demonstrated improved performance if the previously separate multilevel carpark structure to the west of the stadium was joined to the main stadium volume. One of the primary benefits of the new massing was the protection from weather afforded to visitors entering the stadium on the west side. Even though winds in exceedance of safety and comfort criteria were registered to the west of the new mass, these outdoor areas were not required for normal stadium ingress and egress; the area required at ground level was contained entirely within the previously proposed new mass.

It was proposed that the exposed outdoor area to the west of the stadium, including the lower promenade adjacent to the water channel, would be open to the public in normal conditions. In high-wind conditions, this area would be closed via operational measures and gates were proposed to allow this management to take place.

Figure 5.11
Previously proposed stadium and carpark massing – west aerial



5.3.9.2 2019 Wind Mitigation Elements

During the wind tunnel testing, measures introduced to mitigate high winds in targeted areas included horizontal baffle surfaces, mounted onto freestanding vertical piers or directly to the stadium, as well as hard & soft landscape elements.

Along the north, west, south-west, and south-east areas of the stadium, mitigation measures of a material palette consistent with the stadium and industrial dock heritage were proposed to bring the site into compliance on both event and non-event days.

The foundations of the baffles and vertical piers followed the same principles of the stadium foundation design, avoiding conflict with the listed dock retaining walls.

The north baffles along the north passage way and the central baffles at the south facade were proposed to be used for advertising and signage,

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but not the brick pier and perforated metal panel wind mitigation structures at the south-east and south-west corners of the building which would remain free from advertising and signage.

The location of the baffles was tested regarding the pedestrian and crowd modelling as well as the vehicular routes, to confirm they did not impede flows.

Figure 5.12
Previously proposed wind mitigation elements at south-west corner of stadium

Figure 5.13
Previously proposed wind mitigation elements at south-east corner of stadium

This design as described in the preceding sections formed the basis of the initial planning application for the proposed development submitted in December 2019 (LPA application reference number 20F/0001), and MMO licence application in March 2020 (MMO reference: MLA/2020/00109).

5.4 2020 DESIGN UPDATES

As discussed in Chapter 1 and 2 of this ES Volume, following the consultation process associated with the planning application, the Club sought to make design changes to the submitted scheme in response to consultee comments and technical advice from the design team. The changes made are detailed in the submitted Design & Access Statement Addendum.

The Places Matter design panel reviewed the scheme in early December 2019. In response to the panel's assessment, as well as feedback received from key stakeholders such as Liverpool City Council (LCC) and Historic England (HE), the Club revised their brief to the design team.

The Club's revised brief focused on an ambition for the scheme to create a new high-quality public realm to allow residents and visitors alike to explore and appreciate the stadium's location within the northern docks area of the World Heritage Site (and Stanley Dock Conservation Area) and on the city's famous waterfront. The northern docks area is presently not accessible to the general public and is generally not visible given the listed Regent Road wall, so increasing access and visibility were seen as crucial potential benefits of the scheme.

The significant changes to the brief included creation of a higher quality public space on the west side of the stadium to serve as a destination along the planned River Walk; the omission of the Multi-Storey Car Park (MSCP) which was previously integrated with the west stand of the stadium; moving the solar PV panels from a canopy over the west quay onto the main stadium roof to free up space, and optimising the wind mitigation design.

The design team incorporated consultation feedback from stakeholders and developed proposed enhancements to the scheme as a result. The Places Matter design panel reviewed the design again in in May 2020, positively receiving the proposed changes. The Historic England Advisory Committee also reviewed the scheme in July 2020, providing important feedback on the massing and materiality of the scheme.

The 2020 design revisions are described in detail in Section 3.7.1, in Chapter 3 of this ES Volume. The intended purpose of the Club's revised brief and the subsequent design development was to generate the following benefits:

- Character: The scheme is intended to better reflect the character of its setting with a stronger "brick box" massing and façade design.
- Continuity and Exposure: The design is intended to create more human scale places within the large-scale scheme, notably the west terrace steps that address the water.
- Ease of Movement: The scheme is intended to provide a high quality and accessible termination to the planned pedestrian River Walk from the city centre through the northern docks area of the World Heritage Site and Stanley Dock Conservation Area.
- Quality of the Public Realm: Proposed enhancements with increased tree planting, redesigned west quay and new west terrace.
- Diversity: To add public realm uses and increase flexibility for non-match day events on the west side of the site.
- Legibility: The scheme now attempts to address the waterfront with a big picture window and provides a visible landmark from the river or when viewed from the Wirral.
- Construction Waste: Utilising leading DfMA methods of construction should reduce material waste and vehicular traffic to site for a more sustainable build.
- Inclusivity: ensuring that inclusivity and accessibility are considered throughout the design and improvements made from the previous design.
- Sustainability: Meeting the Club's ambitious targets for sustainability through design and considered specification of materials.

It is considered that these design enhancements, overall, produce a scheme that fits better within its urban fabric and provides greater public benefits than that of the previously submitted scheme. The generous spaces created through the west terrace and west quay promise to be significant public places within Liverpool and its dockland, while the developments to the façade and massing have refined the building's appearance and reinforced a robust character suitable for its heritage dockland landscape.

5.5 REFERENCES

[1] HM Government, "The Town and Country Planning (Environmental Impact Assessment) Regulations 2011," London, SI 2011/1824, 2011.

[2] HM Government, "The Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations," London, SI 2015/660, 2015.

[3] Liverpool City Council, 'Liverpool City Council. Liverpool Maritime Mercantile City: World Heritage Site – Supplementary Planning Document," 2009.