



Hammersmith Bridge

Request for an EIA Screening Opinion

Prepared for:
The London Borough of
Hammersmith and Fulham

Date:
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Introduction

We write on behalf of the London Borough of Hammersmith and Fulham (hereinafter referred to as the 'Applicant') to request an Environmental Impact Assessment (EIA) Screening Opinion from the London Borough of Hammersmith and Fulham (LBHF) and the London Borough of Richmond Upon Thames (LBRuT) with respect to works associated with Hammersmith Bridge ('the site').

The Applicant is seeking planning permission and listed building consent for the refurbishment of Hammersmith Bridge and the installation of a temporary truss structure, which involves the installation of a temporary double-decker crossing within the structure of Hammersmith Bridge and supported on the existing river piers. This would allow the bridge to remain operational whilst its restoration is carried out involving repairs to bridge elements both on and off site. Together, these works are referred to as the "Proposed Development".

The full description of the Proposed Development is the: *'repair and restoration of Hammersmith Bridge - to include the substantial dismantling of the bridge. The works described as: removal of deck, hangers, bearings, anchors, and chains for repair off-site and return to the bridge for re-installation; and in-situ repair of towers and anchorages. Installation of temporary double-decker truss within existing structure of Hammersmith Bridge for pedestrians, cyclists and vehicles. Access for vehicles to be provided at the top deck, and access for pedestrians and cyclists via lower bottom deck of the truss structure. Temporary river moorings to be installed to facilitate the river traffic movements associated with the dismantling and construction of the bridge. The development will also include works to the approach roads on either side of Hammersmith Bridge and provision of working areas for the duration of the repair and restoration of the bridge.'*

The total site area is 4.5 hectares (ha).

Application of the EIA Regulations

The EIA Regulations provide screening criteria and thresholds at which certain types of development projects should be screened in order to determine whether a project is an 'EIA development'.

Regulation 2 of the EIA Regulations defines 'EIA development' as that which falls either under Schedule 1, for larger scale projects where EIA is mandatory, or under Schedule 2 which includes smaller scale projects which are more sensitive in nature and for which the development fulfils both the relevant criteria and thresholds is likely to have significant effects on the environment by virtue of factors such as its nature, size or location.

Schedule 1 Development

'Schedule 1' developments cover a range of large industrial and infrastructure developments such as major chemical or petrochemical projects and construction of ground or air transport infrastructure. Many of the categories of Schedule 1 development are defined by reference to certain thresholds or criteria. For 'Schedule 1' developments, an EIA is mandatory.

The Proposed Development does not fall under any of the categories of development within 'Schedule 1'. The Proposed Development is therefore not 'EIA development' under Schedule 1 of the EIA Regulations.

Schedule 2 Development

An EIA may be required where a development is of a type listed in Schedule 2 to the EIA Regulations if the development:

- (a) is located in a sensitive area (as defined under Regulation 2 of the EIA Regulations); or
- (b) meets or exceeds a threshold or criteria specified in Schedule 2 of the EIA Regulations.

An assessment must then be made as to whether the development is likely to have a significant impact on the environment.

The site, however, is not located in a 'sensitive area' as defined by the EIA Regulations. The Proposed Development does not expressly fall within any of the descriptions of development (and applicable thresholds and criteria) within Schedule 2.

The most relevant description and application threshold in Schedule 2 is 10(f) 'Infrastructure projects – construction of roads'. It is however noted that the truss structure is temporary in nature, and only required to facilitate the restoration of Hammersmith Bridge – therefore whilst this description ('construction of roads') is the most applicable within Schedule 2, it does not truly reflect the nature of the works proposed. The applicable threshold for this class of development is that the area of the works must exceed 1ha. The working area for the temporary truss structure and the rest of the Proposed Development does exceed the threshold area of 1ha, and involves the construction of a road comprised in the temporary truss structure required to enable Hammersmith Bridge to be brought back into operation whilst some bridge components are restored off site.

Only if the criteria for at least one of (a) or (b) above are satisfied does consideration need to be given to whether significant environmental effects are likely, and whether an EIA is required. The criteria for (a) has not been met, but the criteria for (b) above has been met given that the Proposed Development exceeds 1ha.

As noted above, given the unique nature of the Proposed Development, this EIA Screening letter is submitted voluntarily on behalf of LBHF and considers the potential for likely significant environmental effects associated with the temporary truss structure included within it.

The Marine Works (Environmental Impact Assessment) Regulations 2007

The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ('Marine Works EIA Regulations') requires that certain types of project with the potential to significantly effect the environment have an environmental impact assessment before a marine licence decision is made.

Similar to the explanation provided within the application of the EIA Regulations above, the Proposed Development does not expressly fall under one of the classes of development outlined in Schedule A2 of the Marine Works EIA Regulations.

The most relevant description is paragraph 62 *Construction of roads (projects not included in Schedule A1)*. Again, given the unique nature of the Proposed Development, this voluntary EIA Screening Letter provides further consideration of the potential for likely significant environmental effects associated with it in the context of the Marine Works EIA Regulations.

At this stage in the planning process, the design of the moorings is not finalised, and therefore it is not yet known whether the moorings will comprise "licensable activity" as prescribed by the Marine and Coastal Access Act (2009). If it is determined that a marine license is required, a request for an Environmental Impact Assessment (EIA) Screening Opinion will be sought from the MMO as necessary.

Information Required for EIA Screening

The Regulation (6(2)) of the EIA Regulations requires that the following information be provided:

- (a) a plan sufficient to identify the land;
- (b) a description of the development, including in particular -
 - (i) a description of the physical characteristics of the development and, where relevant, of demolition works;
 - (ii) a description of the location of the development, with particular regard to the environmental sensitivity of geographical areas likely to be affected;
- (c) a description of the aspects of the environment likely to be significantly affected by the development;

(d) to the extent the information is available, a description of any likely significant effects of the proposed development on the environment resulting from -

- (i) the expected residues and emissions and the production of waste, where relevant; and
- (ii) the use of natural resources, in particular soil, land, water and biodiversity; and

(e) such other information or representations as the person making the request may wish to provide or make, including any features of the proposed development or any measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.

This document includes all the above information.

Site Location – Identifying the Land

The site is centred on Ordnance Survey National Grid Reference TQ 22972 78091. The site location is shown in **Figure 1** and the indicative site red line boundary in **Figure 2**.

The indicative red line boundary is split into two parts. The main site area encompasses the Hammersmith Bridge and areas to facilitate the restoration works including welfare facilities, construction laydown and storage area and site offices. A smaller, triangular area to the north-east, which is identified for construction laydown and storage area, as well as welfare facilities and potentially site offices.

The closest station to Hammersmith Bridge is the Hammersmith London Underground station located approximately 560m northeast of the site.

The main site area of the Proposed Development is bound by:

- The north part of the site extends along Hammersmith Bridge Road to the north of the River Thames. This part of the site is bounded by residential properties to the west and the Old City Arms public house and other commercial properties to the east;
- The central part of the Site incorporates Hammersmith Bridge and sections of the River Thames where temporary moorings will be installed as part of the proposals; and
- The southern part of the Site includes Castelnau and is bound by Castelnau Mansions to the east and St Pauls Playing Field and residential properties to the west.

Figure 1 Site Location

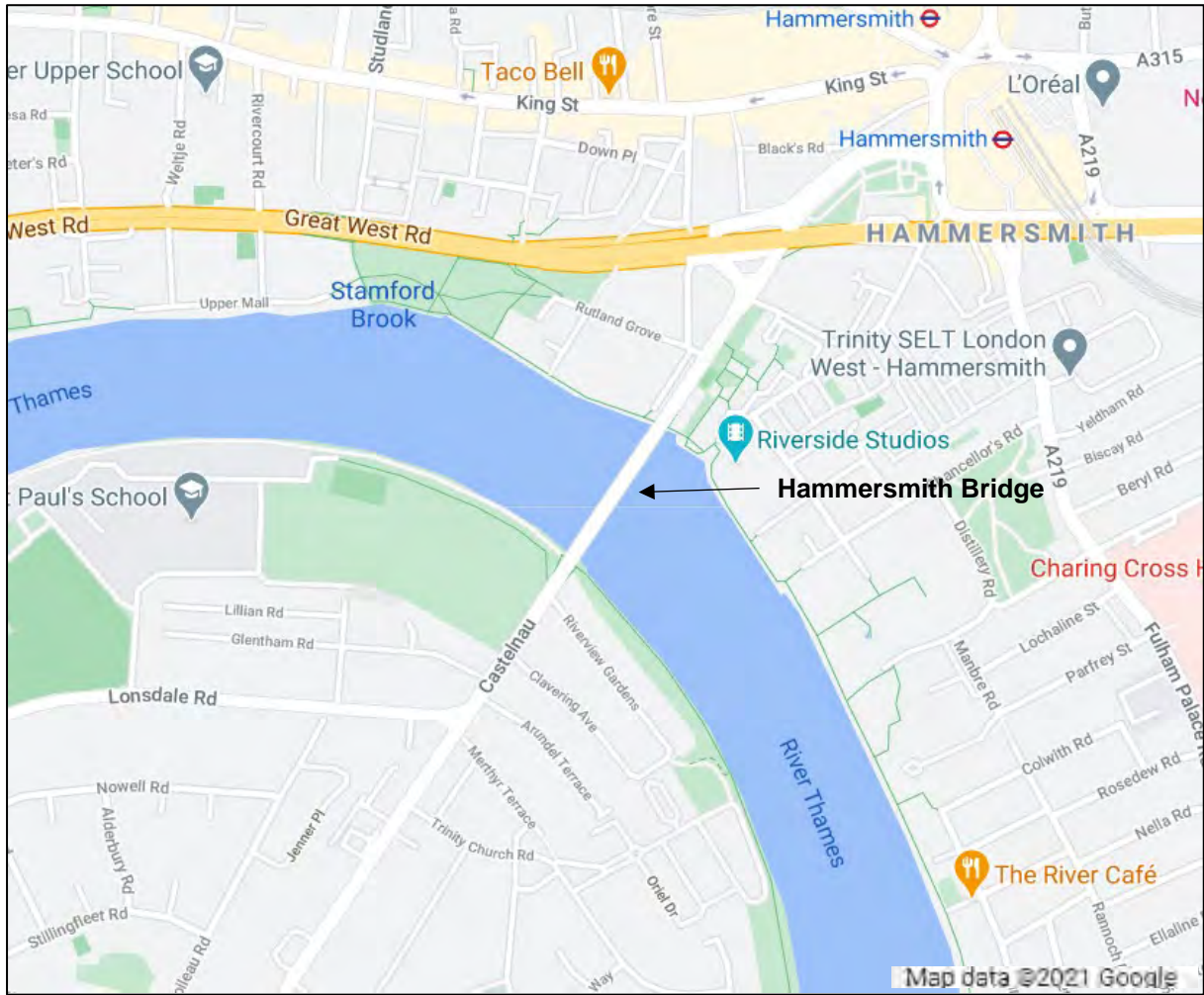
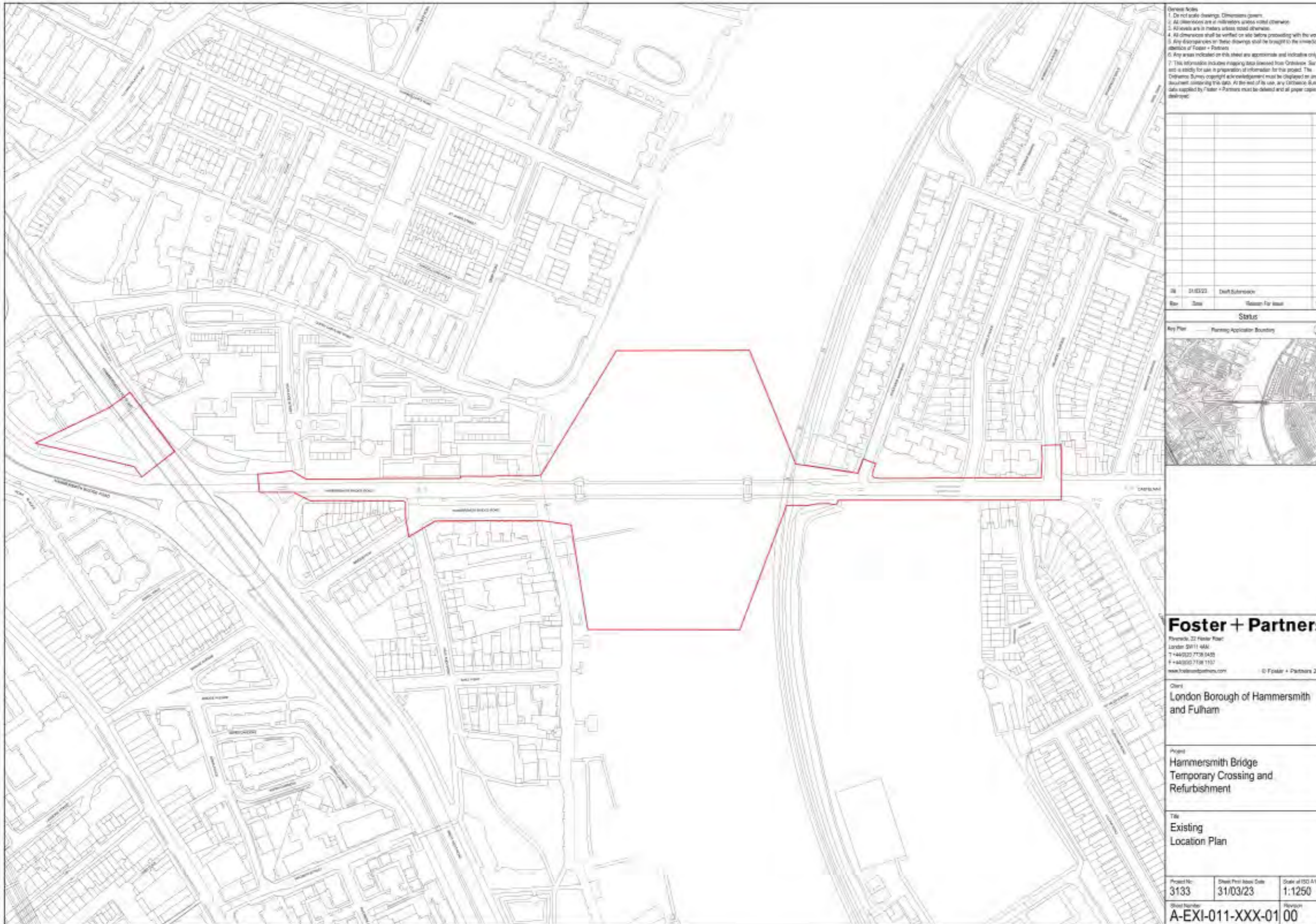


Figure 2 Indicative Red Line Boundary



The site itself is comprised mainly of Hammersmith Bridge which is a Grade II* Listed Building. It was designed by Sir Joseph Bazalgette and constructed in 1884 and opened in 1887. The remainder of the site comprises the approach to Hammersmith Bridge from Hammersmith Bridge Road and Castelnaud (the A306) to the north and south of the site.

The site also comprises part of the River Thames in an area designated as within Flood Zone 3 but within an area benefitting from flood defences (on the landward sides adjacent to the flood defences), with a small area on the south bank situated in Flood Zone 2. Areas within Flood Zone 3 have a 1 in 100 or greater annual probability of river flooding; or a 1 in 200 or greater annual probability of sea flooding. For land within Flood Zone 3 but which benefit from flood defences, there is a high probability of flooding without the local flood defences in this area. These defences protect the area against river flooding, with a 1% chance of happening each year, or sea flooding, with a 0.5% chance of happening each year.

The site is located within two Conservation Areas; The Mall Conservation Area, and the Castelnaud Conservation Area. The site is partly located within the Hammersmith Creek, Queen Caroline Street and Broadway Archaeological Priority Area (APA).

The site is located adjacent to the Thames Barn Elms Metropolitan Open Land and the St Pauls East Metropolitan Open Land (LBRuT). The site is also located within the River Thames Area of Metropolitan Importance Nature Conservation Area, with its foreshore, draw docks and inlets (including Chelsea Creek).

The bedrock geology is comprised of London Clay Formation – clay and silt. Superficial deposits are comprised of alluvium – clay, silt, sand and peat, and the Kempton Park Gravel Member – sand and gravel.

The site is identified as containing views along the River Thames towards landmarks.

Temporary Closure of the Bridge

Hammersmith Bridge has been temporarily closed to motorised traffic since 10 April 2019 when engineers found hairline fractures in the structure. On 13 August 2020, the 133-year-old bridge was further temporarily closed to pedestrians, cyclists and river traffic for safety reasons having regard to a sudden increase in the size of dangerous micro-fractures in the cast iron pedestals that hold the suspension system in place. This increased the risk of the bridge structure failing.

Before the temporary closure (pending repairs) in April 2019, Hammersmith Bridge carried 22,000 motor vehicles a day. Also, up until 13 August 2020, hundreds of boats travelled underneath it and 16,000 pedestrians and cyclists travelled across it each day. The closure has caused significant disruption to the local area, with many residents and businesses affected.

Since the closure, the LBHF and the Government have been working on plans to repair and reopen the bridge. In September 2020, the Government announced £141m in funding to repair the bridge.

On the 17 July 2021, the bridge re-opened to pedestrians, cyclists and river traffic beneath it following expert advice from safety engineers.

Description of the Proposed Development

Elements of the Grade II* listed bridge that need repair include the deck, hangers, bearings, anchorages and the chains. Of these, all but the towers and anchorages would be lifted away using the temporary bridge and transported by barges to an off-site facility for safe repair and restoration. The historic fabric of the Grade II* listed bridge will be fully preserved; it is only the deck surface and longitudinal edge trusses, which are both modern structures and do not contribute to the significance of the structure, that

will be replaced¹.

By repairing the bridge off-site, the immense and complex task of restoration can be done at greater speed, at a better level of repair. It would also minimise noise, environmental impact and onsite activity, as well as reducing the carbon footprint of the works. Importantly it results in a much safer working environment for workers, pedestrians and river users.

Unless a temporary solution could be found, traffic would not be able to use Hammersmith Bridge until it was restored. In order to undertake the necessary repairs to Hammersmith Bridge to make it operational again and enable its simultaneous use, a temporary double-decker truss within the existing structure of Hammersmith Bridge is proposed for pedestrians, cyclists and vehicles. Access for vehicles will be provided at the top deck, and access for pedestrians and dismounted cyclists will be via the bottom deck of the Temporary Truss Structure.

The proposed solution minimises the length of the vehicular ramps and its impact on the surroundings by reducing the depth of the truss at the abutment significantly, creating a truss with a tapered profile for the side spans. With this solution, pedestrians and cyclists will travel along the bottom deck of the truss in the central span where the truss is deep enough to provide the required headroom.

As they reach the sidespans, the truss begins to taper which reduces the internal headroom. At this point, the pedestrians and cyclists exit the truss through openings in the truss web and pass onto cantilever walkways and then steel ramps which bring them down to the existing pedestrian route on ground level.

The truss will provide construction access and support for existing bridge components to be removed and refurbished offsite, before being reinstated using the truss again for support. The temporary truss structure will also provide support for the existing bridge as its components are progressively moved off site as well as a safe platform for the remaining restoration works which are being carried out in situ. It will also be used to reinstall the refurbished components of the existing bridge.

LBHF has consulted with Cadent Gas, and it is now agreed that existing low and medium pressure gas mains which are currently carried across Hammersmith Bridge will be permanently disconnected and re-diverted to new gas mains prior to the construction of the temporary truss structure.

Truss Design and Fabrication

The temporary truss will be fabricated offsite and will be transported to site by road. Transport by river has been investigated but presents significant additional challenges due to the built-up nature of the riverbanks and restricted space available for offloading at the bridge site. Given its width and height, the temporary truss structure will need to be transported to site from the fabrication works as a series of sub-assemblies that are assembled on site to form the complete unit.

A temporary truss assembly area will be provided on both the Hammersmith and Barnes sides and will comprise:

- Site offices and welfare facilities;
- An assembly area and “launching bed”;
- A large area to store components delivered by road;
- Cranes which will move sections from the storage areas into the launching bed; and

¹ It should be noted that all components being removed from the site will be subject to inventory controls at all stages so that confirmation of any repairs necessary for the works are identified in advance and can be agreed with the competent authorities at the time.

- Foundations to facilitate the launching.

Truss Installation

The temporary truss will be installed using proven launching techniques in which the bridge is assembled in the “launching bay” and then incrementally launched across the river while supported on temporary bearings sitting on the existing abutment and tower piers. This method will ensure that the existing bridge deck and suspension system is not loaded at any stage by the temporary truss.

It is anticipated that the temporary truss assembly process will rely substantially on bolted connections between the components delivered to site. However, where subject to direct loading from vehicles, welding of the deck plate is preferable in order to provide suitable structural connections that avoid disrupting the running surface of the deck plate. The assembly process will use established techniques within the capability of experienced and qualified bridge fabricators.

Temporary Launch Bearings at Piers & Abutments

Temporary launch bearings supported on reinforced concrete pads will be provided on the piers and abutments to distribute the vertical loads from the temporary truss. Trial pits or cores are being carried out in advance to confirm the adequacy of the existing material. These pads will need to incorporate the temporary launching bearings and the bearings used to support the temporary truss during its operational life.

The two halves of the bridge will join in the middle of the River Thames. Temporary fixings will be required to hold the section ends in place and to permit welding.

Jacking Supports

Once the central joint is connected, the launch bearings need to be removed and the truss supported on the “permanent” bearings. The bearings will have the facility for vertical adjustment so that moments can be locked into the temporary truss to suit the required permanent bending moment profile for optimum load carrying capacity.

Cantilever Erection

Once the deck has been joined at the centre, the stub cantilevers can be installed. Cantilevers are required at every 4 bays with a double pair at alternative locations. This is to allow the deck to be lowered in segments such that there is a support at the end of each segment and one in the middle.

Existing Bridge Deconstruction

Securing Existing Bridge Deck

For the restoration of the bridge, the existing deck structure is first cut into segments by cutting through the existing timber decking and the pedestrian walkways. The longitudinal stiffening trusses are cut at a later stage. Local containment will be provided during the cutting operation to prevent materials from falling into the river beneath.

The top flange of the existing longitudinal girder will be restrained to the temporary truss in stages. The first stage is to install a jacking frame around each of the support cantilevers at every fourth hanger position. The jacking frame is also connected around the top chord of the longitudinal stiffening girder either side of the hanger.

Tension bars will be placed between a crosshead on the top of the cantilever and crossheads arranged

to pick up the stiffening girder by its top chord. An additional jacking crosshead is located above the crosshead over the cantilever, providing a space for a jack. The jacking frame will allow the existing deck to be lifted and secured to the temporary truss, ready to be cut into sections and lowered to the river by a separate strand jack system. Once the jacks are in place and the existing deck weight has been transferred to the temporary truss, the longitudinal steel girders of the existing deck may be cut.

At this stage, the vertical connections between the bridge deck and the piers and abutments can also be disconnected.

Existing deck removal

After the truss is in place, and the loads have been transferred off the hangers, work can begin to rig segments for lowering to a barge for removal. The same equipment as used for transferring the deck load to the truss will be adopted for the lowering operation, simplifying the load transfer. A pair of strand jacks, will be re-installed above the cantilever at all four lifting points for a given segment.

The seven segments over the water can be removed in this manner, taking advantage of the tidal range at the bridge location. The segment at either end of the bridge crosses over the river path will be disassembled piece small.

Chains

The suspension chains will be destensioned by jacking the chains up from temporary supports mounted on the temporary truss cantilevers. They will be supported in temporary frames between the cantilevers such that when the chain is cut at mid span, the chains are fully captive. The chains will be cut into sections and lifted off the bridge and taken away to an off-site facility to be dismantled, fully inspected, refurbished and repainted.

Towers

The tower strengthening is relatively minor (drilling out rivets and replacing with stronger bolts) and will be carried out in-situ as works only require access to the tower. The temporary truss enables good access to the tower tops for the bearing replacement work.

Hangers

The hangers require replacement as the end terminations do not provide the flexibility required to avoid overload in bending. A commitment has been made to preserve several hangers where possible. The deck removal scheme will remove the hangers from site so that those hangers that are to be reused can be refurbished off-site. An inventory of all components will be made prior to removal and each component will be catalogued to assist in the tracking of the works and the preservation of the historic fabric.

Temporary Truss in Regular Service and Refurbishment Off-site

Refurbishment of the bridge elements off-site will be undertaken in a factory-like facility, with appropriate equipment to handle and manipulate the bridge deck and chain elements, and a controlled environment. The benefits will be numerous, and will include:

- An enhanced level of quality control;
- The ability to identify and address latent defects without impact on programme; and
- Far greater levels of certainty over programme and cost.

On removal from the bridge, and before disassembly, all elements will be labelled clearly. Depending on the refurbishment options selected they will pass through a number of pre-defined work processes, with accompanying procedures for the identification, inspection and mitigation of defects.

As a minimum, the original material will be disassembled, blasted clean, inspected, repainted, and reassembled with a comparable modern connection detail.

Existing bridge reconstruction

On completion of the deck and chain refurbishment and re-assembly of the deck and chain segments, the superstructure will be reinstalled following a reversed procedure.

Truss Removal and Finishing Works

Back-launching of the truss similarly requires the reverse of the installation procedure. Following, and in-parallel with the truss back-launching the finishing works for the structure will be carried out. Hammersmith Bridge will then be re-opened.

Programme

The entire project from works commencement to full restoration is expected to take approximately three to three and a half years.

From works commencement, it is expected that design and fabrication of the temporary truss will take approximately 11 to 14 months. During this period, pedestrian access will be provided on the existing bridge. Installation of the temporary truss is expected to take approximately 3 months. Short closures to pedestrians will be required during truss launching operations.

Once installed, the temporary truss facilitates deconstruction of the existing bridge, which is expected to take approximately 3 to 6 months. During this period, pedestrian access will be provided on the temporary truss structure. The River Thames will be closed to river traffic for short periods during deck lowering operations. The chains are to be removed and transported by road. The temporary truss structure will then be open to vehicles.

Offsite refurbishment and bridge reconstruction is anticipated to take approximately 12 to 14 months during which time pedestrian and vehicle access will be provided on the temporary truss. Truss deconstruction and finishing works is anticipated to take approximately 6 months, during which time there will be a period of closure to vehicles while the truss is deconstructed. The existing bridge will then be fully restored and operation will commence in the same way as it did prior to closure.

Once the bridge is restored, it will have a lifespan of over 100 years.

Vehicle Movements

Vehicle movements will approach the site from the A-road network on either side of the bridge and will be very limited until launching of the temporary truss structure commences. The initial construction works will be limited to delivering piles, small amounts of concrete, some framing for the launch set up and the bearings for the temporary truss structure as well as sundry items such as cabins. This is likely to require less than one heavy goods vehicle (HGV) movement a day (likely 2 per week per side). Once the temporary truss delivery commences, it is likely that up to 100 vehicles will require access to the site of which approximately 66 vehicles will be large abnormal load (low loaders or similar) over a 6-week period, this is likely to equate to approximately 2 deliveries a day (1 per side of the bridge). During the reinstatement of the Grade II* listed bridge and finishing works, the removal of the truss will require

access for 66 abnormal load vehicles over a 3-week period, equating to approximately 4 vehicles trips per day (2 per side).

Toll or Charge

It is understood that a charge or toll may be applied to vehicular users of Hammersmith Bridge in order to secure the benefits of the refurbishment on a sustainable, long-term basis. The completion of the Proposed Development will result in the reopening of Hammersmith Bridge to vehicular traffic both on temporary and long term bases – via the temporary truss structure and the reopened Hammersmith Bridge respectively. This will change traffic behaviour from the present situation with the bridge closed to vehicular traffic. The imposition of a charge or toll can be expected to have an effect on road user behaviour and, therefore, travel patterns of vehicles in comparison both to an unconstrained bridge reopening and to the current situation. Accordingly, on a conservative basis, it has been assumed for the purposes of the screening assessment which follows that a charge or toll would not be in place, given that the no charge/toll scenario would be the worst-case assessment in terms of changes to air quality, noise and vibration and transport in comparison with the current scenario. It should be noted that no decision to impose a charge or toll (of any form) has in fact been made at the date of this letter.

Lighting

Hammersmith Bridge is a landmark for west London both in the day-time and night time. The lighting vision for the temporary truss will be considerate of the historical lighting of the current bridge. Both the upper deck and the lower deck require a functional lighting layer providing safe levels for vehicles, cyclists and pedestrians. All lighting to the towers are proposed to remain functional and will be enhanced where necessary. Additional lighting for the temporary truss structure will consist of layers of light carefully targeted to provide a safe passage for all users, enhance users' experience and avoid light spill to sensitive receptors (ecology and local residents). The lighting strategy will be no brighter than that occurring currently.

Figure 3: Installation Sequence of Temporary Truss Structure (Looking Towards Hammersmith)

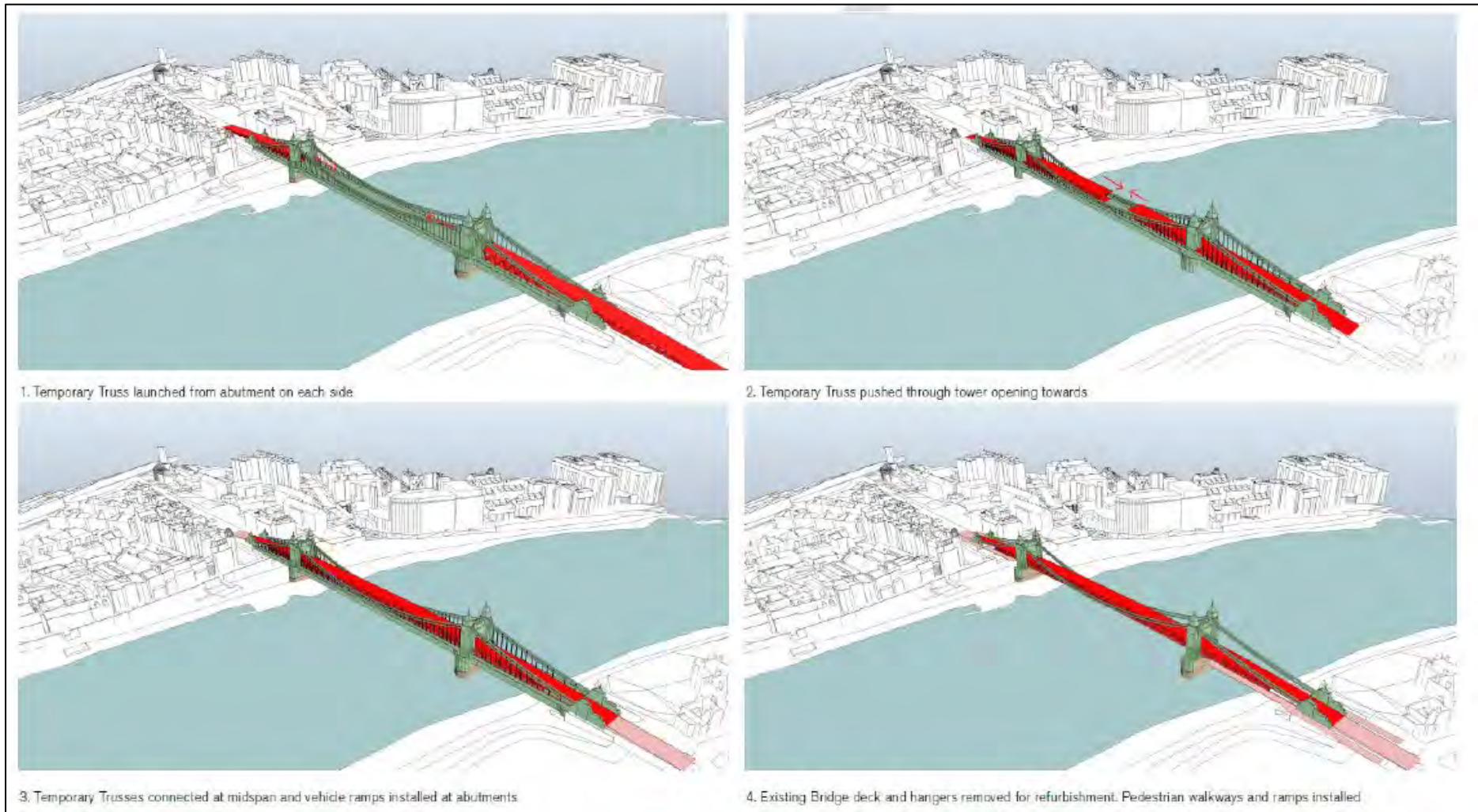
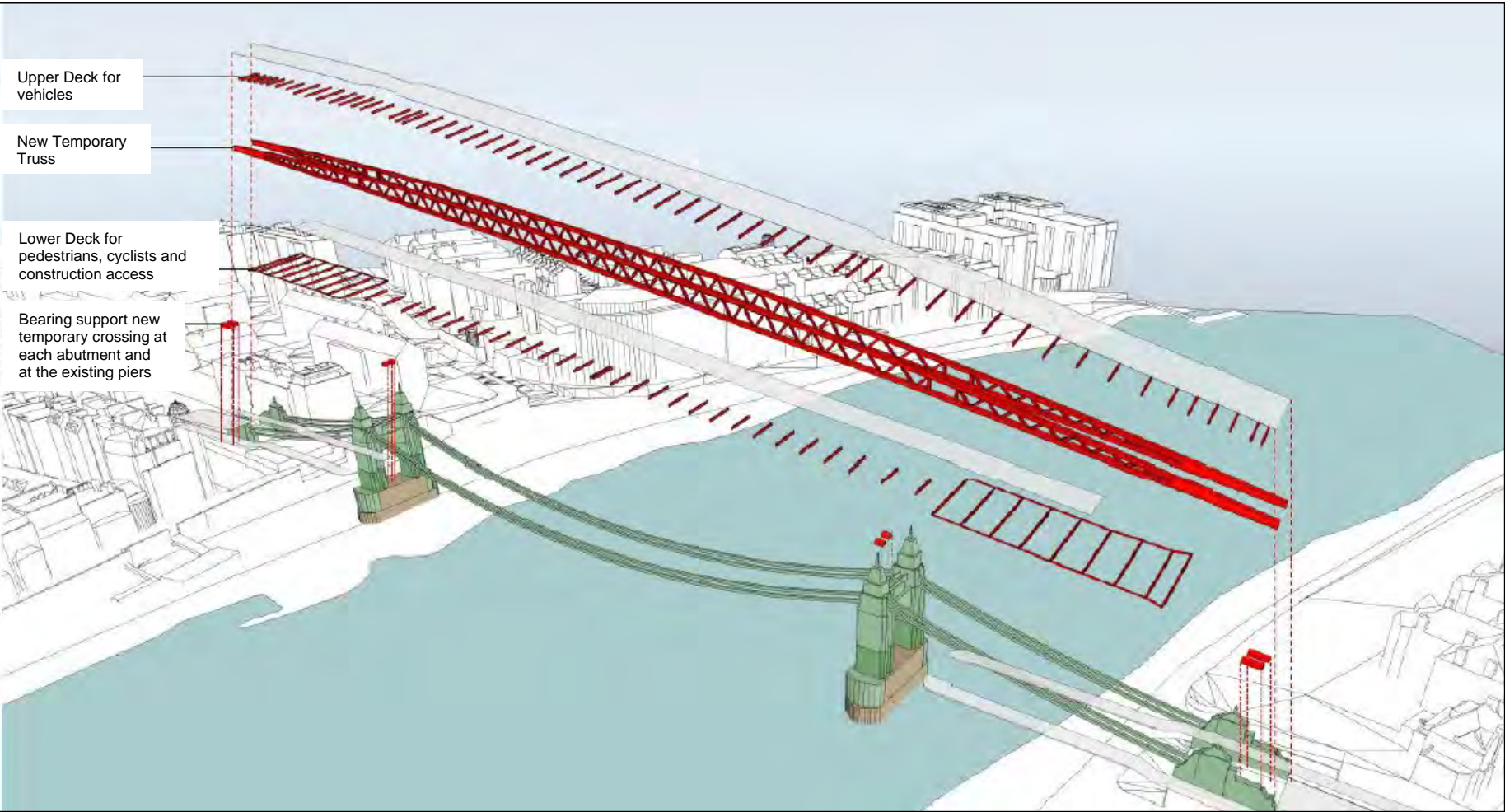


Figure 4: Exploded View of Temporary Truss





Planning Application

Planning Policy

The National Planning Policy Framework (NPPF)² sets the Government's economic, environmental and social planning policies for England and how these should be applied. The policies contained within the NPPF articulate the Government's vision of sustainable development, which are intended to be interpreted at a local level, to meet the requirements of local aspiration.

The Ministry of Housing, Communities and Local Government published a revised NPPF on 20 July 2021. This revision replaces the previous editions of the NPPF published in March 2012, revised in July 2018 and updated in February 2019.

The London Plan 2021³ is the spatial development strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth. The Plan is part of the statutory development plan for London, meaning that the policies in the Plan should inform decisions on planning applications across the capital. Borough's Local Plans must be in 'general conformity' with the London Plan, ensuring that the planning system for London operates in a joined up way and reflects the overall strategy for how London can develop sustainably, with the London Plan sets out.

The LBHF's Local Plan⁴ was adopted in February 2018 and the LBRuT's Local Plan⁵ was adopted on 3 July 2018 and 3 March 2020 . Both plans have been developed in accordance with the NPPF and include Detailed Policies and Strategic Policies. The Local Plans address the need for new development in the boroughs and the infrastructure needed to support growth up to 2035 (LBHF) and July 2033 (LBRuT).

Planning Application Supporting Documents

A number of environmental reports will be prepared as part of the planning application and these will include the following:

- Air Quality Assessment;
- Aquatic Ecology Impact Assessment;
- Noise Assessment;
- Preliminary Ecological Appraisal (PEA);
- Archaeological Desk-based Assessment (DBA);
- Heritage Statement;
- Townscape and Visual Impact Assessment (TVIA);
- Flood Risk Assessment, to include a Drainage Statement;
- Transport Statement;
- Socio-Economic Assessment;
- Health Impact Assessment;

² Ministry of Housing, Communities and Local Government (DCLG), (2019); National Planning Policy Framework

³ GLA, 2021; 'The London Plan: The Spatial Development Strategy for Greater London - March 2021.'

⁴ LBHF's Local Plan (2018) <https://www.lbhf.gov.uk/planning/planning-policy/local-plan>

⁵ LBRuT Local Plan (3 July 2018 and 3 March 2020) https://www.richmond.gov.uk/local_plan



- Draft Construction Logistics Plan; and
- Phase I Geo-environmental Desk Study.

Input from the technical consultants preparing these assessments has been sought to ensure that the environmental information presented in the following sections is accurate and robust.

A Construction Environmental Management Plan (CEMP) and a Detailed Construction Logistics Plan (CLP) will be secured through planning conditions.

Screening of the Proposed Development

The potential for the Proposed Development to have significant environmental and socio-economic effects has been considered in relation to the following disciplines:

- Built Heritage, Townscape and Visual;
- Archaeology;
- Ground Conditions;
- Traffic and Transport;
- Air Quality;
- Noise and Vibration;
- Water Resources, Drainage and Flood Risk;
- Ecology;
- Daylight, Sunlight, Overshadowing, Light Pollution and Solar Glare;
- Socio economics and health;
- Waste;
- Wind (microclimate)
- Energy and Climate Change;
- Major accidents and/or disasters; and
- Cumulative effects.

Given the nature of the Proposed Development, it is not considered that there is the potential for significant effects on aviation and telecommunication and therefore these have not been considered further.

A review of the potential for significant effects has been undertaken by Trium Environmental Consulting LLP (Trium) in conjunction with the relevant technical specialists and is presented below, with justification provided for concluding that significant effects are not likely. Environmental aspects have been considered in respect of the construction works, and once the Proposed Development is complete and in operation. In addition, and in line with Regulation 6(2)(e), information has been provided in the section below on *'any features of the proposed development or any measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment'*, as relevant.

Consideration of the potential for significant effects has been considered against both the "bridge closed" and "bridge open" baseline. This is because the relatively recent, temporary closure of the bridge for safety reasons has altered the current baseline conditions at the site (e.g. traffic, air quality and noise at various receptors). The "open bridge" baseline has also been considered because:

- The conditions currently experienced by the closed bridge are temporary. The bridge has been in operation for over 130 years and has only closed as a result of safety reasons; and



- Planning permission will be sought for the temporary works necessary to repair the bridge and not the existing bridge itself; and
- The existing bridge does not need planning permission to operate as a bridge.

Significant effects were previously experienced in relation to traffic and transport, air quality and noise and vibration, prior to the closure of Hammersmith Bridge. Therefore, in an “open bridge” baseline significant adverse effects were already being experienced on the routes approaching the bridge – which would not change as a result of the re-opening of the bridge.

In a “closed bridge” baseline scenario, with the re-opening of the bridge with the temporary truss structure, significant adverse effects would be experienced by the same residential receptors on the original pre-bridge closure routes. These significant effects however, would not be new or greater than those experienced when the bridge was previously in operation.

Equally, once operational, significant beneficial effects would be experienced by residential receptors on the roads no longer acting as the diversion routes which have been in use since the bridge was closed. Whilst these effects would be significant they would not be new or greater than the those experienced when the bridge was operational and would therefore not be sufficiently significant to warrant an EIA.

It can be expected that the residual effects of reopening the bridge would lie somewhere between the effects experienced in the “bridge open” baseline and those experienced in the “bridge closed” baseline and therefore the effects are always within the two baselines.

The Transport Assessment, Air Quality Assessment and Noise and Vibration assessment submitted in support of the planning application provide a qualitative assessment of both the “bridge open” and “bridge closed” baseline.

Consideration of the Potential for Significant Effects

Built Heritage, Townscape and Visual

A Built Heritage, Townscape and Visual Impact Assessment (the ‘HTVIA’) will be undertaken by Montagu Evans and submitted with the planning application. Informed by best practice guidance, it will identify the likely significant direct and indirect effects of the Proposed Development on built heritage, townscape and visual receptors.

The HTVIA will provide an assessment of the impact of the Proposed Development on the surrounding heritage, townscape and visual receptors. It will consider the scheme within its urban context, including the River Thames and the buildings on the river banks, the relationships between them, the different types of urban open spaces, including green spaces and the relationship between buildings and open spaces.

Built heritage effects will be assessed in terms of the scheme’s interaction with the particular significance of built heritage receptors, including the contribution made by setting to this significance, in the context of the relevant statutory duties of the Planning (Listed Buildings and Conservation Areas) Act 1990, the NPPF, Development Plan and relevant guidance.

The assessment will consider the impact upon visual receptors, informed by a detailed assessment of the impact upon local views, in particular river views from both the north and south banks of the Thames. Viewpoint locations are to be informed by architectural and historic accounts of the area, an appraisal of the existing site and surroundings, and relevant policy designations. The locations are to be agreed in advance with officers from both LBHF and LBRuT.



Baseline Conditions

The site primarily comprises the Grade II* listed Hammersmith Bridge and the associated landings to the bridge on either side of the River Thames.

Heritage

In accordance with paragraph 194 of the NPPF, a proportionate approach has been taken to the identification and assessment of built heritage receptors. Given the localised nature of the Proposed Development and their location within and affecting an already existing structure on the River Thames, accordingly, a radius has been identified so as to embrace all designated heritage receptors within a 500m radius of the site.

The site itself is a highly graded heritage receptor. The effects of the proposals on this heritage receptor will be the principal focus of the HTVIA.

In LBHF the bridge was originally listed at Grade II on 12th May 1970 and upgraded to Grade II* on 26th November 2008. In LBRuT the bridge was originally listed at Grade II on 25th June 1983 and upgraded to Grade II* on 26th November 2008. The list entry describes the structure and its historic and architectural significance. The reasons for designation are the following:

- '1. The architectural quality of Hammersmith Bridge is remarkable in both form, with its monumental towers, and ornamentation, as seen in the lavish colour scheme and heraldry; the bridge is one of the most distinctive on the Thames and is of more than special interest.*
- 2. Replacing one of the first modern suspension bridges in the world of which the foundations still survive, the bridge is of technological special interest for its materials and is also distinguished by its connection with the highly-significant Victorian engineer Joseph Bazalgette.'*

The form, physical authenticity, dimensions and colour of the individual components of the listed structure are key elements of its significance.

The land both sides of Hammersmith Bridge on the north and south riverbanks is designated as a Conservation Area, and the bridge itself is included in both designated areas. The Mall Conservation Area (LBHF) protects the historic core of the eighteenth and nineteenth century properties and boat houses and their relationship to the river banks and mooring stations on the north side of the River Thames. The Castelnau Conservation Area (LBRuT) protects land on the south of the River Thames and demarcates the preserved nineteenth century townscape.

There are a number of designated heritage receptors within the setting of the site. There are two Grade II listed buildings on the south bank. There is a more sensitive and coherent character to the north where the terrace of Grade II listed properties on the Lower Mall in The Mall Conservation Area are located.

The impact of the Proposed Development on the setting of these heritage receptors will be considered in the HTVIA. The HTVIA will consider the impacts on the settings of non-designated heritage assets also.

Townscape and Visual

The townscape on and surrounding the site broadly falls into three-character areas: The Bridge and its relationship with the River Thames, the built environment and its relationship to the river on the north and south of the river.

Both character areas north and south of the river are recognisably part of a busy urban context.

The River Thames forms a physical barrier between these two sides.



The site is a prominent landmark in all three-character areas and views are afforded of the site from the north and south banks. In particular from publicly accessible including the Thames Path and associated green spaces such as the Furnival Gardens on the north bank.

The site is not located within any protected vistas identified by the London View Management Framework (LVMF) (2012). The Bridge falls within locally designed views identified in the LBHF Local Plan (2018) and the LBRuT Richmond Local Plan (2018, 2020).

The assessment will be supported by local viewpoints agreed with the local planning authority (LPA).

The HTVIA submitted with the application will address the following potential townscape and visual impacts and likely effects:

- Temporary change in townscape character and visual intrusion during temporary bridge works. The assessment will consider the impacts of all phases of all the temporary bridge works, including steel truss, deconstruction and reconstruction of the listed bridge and any other associated temporary physical changes such as scaffolding/shrouding;
- Changes to the character, context and quality of the application site and the local townscape; and
- Changes to selected key views.

Scope of Assessment

The assessment will be informed by the principles set out in the Landscape Institute and Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Assessment – Third Edition' (GLVIA) (2013), although as the GLVIA guidelines are better suited to assessing landscape than townscape, they can form only a general guide to the method to be used. Reference will also be made to key national, regional and local guidance and policies.

Other guidance used in the assessment will include Historic England's, The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning (GPA3) (2017), and Conservation Principles Policies and Guidance (2008).

The study area for the visual assessment will be set according to townscape character, sensitive heritage receptors and key vistas of the site from any distant viewpoints.

Within the study area, four types of viewing location have been identified:

- Views that are considered significant by the LBHF and LBRuT or other stakeholders, e.g. in planning policy and guidance documents and Conservation Area appraisals;
- Other locations or views of particular sensitivity, including those viewpoints in which the Proposed Development may significantly affect the settings of the identified Listed Buildings and CAs;
- Representative townscape locations from which the Proposed Development would be visible; and
- Locations where there is extensive open space between the viewer and the Proposed Development so that it would be prominent rather than obscured by foreground buildings. This includes areas of open space that are important in a local context and will include the Thames Path and key recreation grounds on the north and south sides of the River Thames.

The viewpoints will be chosen so that they cover:

- The full range of points of the compass from which the Proposed Development will be visible;
- A range of distances from the site;
- Different types of townscape areas; and
- Any key viewpoints/views identified by the LBHF and LBRuT.

In summary these are likely to include:



- Six river views from the north and south banks, including a nighttime render.
- Four renders close and medium distance from each approach, north and south.
- Four wirelines to test long distance views.

Townscape and heritage effects will be assessed in terms of the Proposed Development's interaction with the form and character of the existing townscape, as well as the setting of above ground heritage receptors, both designated and non-designated.

The visual assessment will be supported by Accurate Visual Representations (AVRs), which will provide the basis for the assessment of the Proposed Development and its effect on agreed key views. It is important to note, however, that AVRs, even the most 'realistically' rendered, have limitations. They are 2-D representations from a fixed point of scenes which are perceived as one moves around.

Critically, they lack depth cues and are rendered in clear lighting conditions at times of greatest visibility (generally). Neither do they capture transient significant effects arising from noise or traffic on perception, or that wider range of expectations and associations that anyone in an urban scene may have.

The text accompanying each view will seek to contextualise it. Inevitably one must accept that judgment is involved in this specialist area on the basis of the above and the importance of design quality in the operation of policy. In preparing any written assessment, allowances are made for these factors as well as the assessor's knowledge of the Proposed Development.

Professional judgement will be used to gauge the likely extent of significant visibility of the Proposed Development, on the basis of site visits and prior knowledge of the urban form around the application site.

Potential for Significant Effects

The effects of the two stages of the proposals will be considered in the HTVIA. First, the effect of the temporary bridge structure on the heritage, townscape and visual receptors and second, the effect of the proposals to restore and replace (where necessary) elements of the structure and decorative parts of the Grade II* listed bridge.

The temporary truss structure, as a result of its scale and massing, would significantly alter the existing townscape character, as well as views of the site and its relationship with the landings either side of the River Thames. It is considered that elements of these effects could be harmful to the significance of the heritage receptor of the Bridge itself in so far as they change its intended appearance and would result in the removal of certain engineering elements of the structure to facilitate its repair.

These effects are temporary however and will be reversed once the off-site repair has been completed and the parts of the bridge are returned as part of the refurbishment of the overall composition.

The setting and context of nearby built heritage receptors, including listed and locally listed buildings, and conservation areas, could also be affected and will be considered in the assessment.

The final assessment will take into account the finished state of the Bridge and its relationship with the townscape character areas on both side of the River Thames. The effect of the proposals overall on these receptors and the visual receptors are likely to be beneficial and improve the quality of the heritage receptor and its contribution to the enjoyment of visual receptors and the townscape character areas on both sides of the River Thames.

An overall assessment of cumulative effects i.e. of the effect of the Proposed Development taking into account other proposed and consented schemes, will also be provided. The approach to cumulative assessment will be to consider the effects of the Proposed Development in combination with the cumulative schemes (refer to Table 1).



It is proposed that a Townscape Assessment is submitted alongside the planning application, which will assess the potential effects of the Proposed Development. In summary, the HTVIA will address the following potential townscape, visual and built heritage effects during both construction and operation phases of the Proposed Development, and in the cumulative context:

- Changes to the character, context and quality of the local townscape arising from the Proposed Development of the site;
- Effects upon the views of the site as agreed with the local authority, where these may include views which are statutorily or locally identified as important; and
- Effects upon the setting and heritage value of the Grade II* listed Bridge which is the focus of the proposals, and listed and locally listed buildings and conservation areas in proximity to the site.

Archaeology

An archaeological desk-based assessment prepared by MoLA has been undertaken and will be submitted with the planning application. The desk-based assessment draws on the results of the geoarchaeological deposit modelling (prepared by MoLA) which provides an archaeological interpretation of geotechnical information on ground conditions and depths of natural deposits at the site, as an indicator of likely archaeological and palaeoenvironmental potential.

A study area extending 500m out from the bridge and its approaches was considered to adequately characterise the likely archaeological conditions within the site. Greater London Historic Environment Record (GLHER) data within that area was obtained and that data has been examined for the preparation of this Screening Opinion Request.

With respect to the smaller, triangular area to the north-east, this is identified for construction laydown and storage area, as well as welfare facilities and potentially site offices. It is noted that this area is adjacent to the burial ground of St Paul's Church. However, no shallow foundations or excavation are proposed in this area, and therefore there will be no effects on archaeology in this location.

There are designated heritage assets either completely or partially within the study area. These comprise six Grade II* Listed Buildings, and 24 Grade II Listed Buildings. The Hammersmith Bridge is one of these, and comprises a Grade II* Listed Building. The bridge was constructed in 1884 and succeeded an earlier suspension bridge built in 1824. There is no evidence for a bridge across the river prior to this, as no bridge is shown on maps of 1745 and 1780. The north end of Hammersmith Bridge is located in APAs as designated by the LBHF:

- Hammersmith Creek, Queen Caroline Street and Broadway Tier 2 APA. Designated because the area is part of the possible original Saxon settlement of Hammersmith around Creek Mouth. It also includes the medieval and post-medieval settlement along the river front and a number of findspots from the foreshore (LBHF).

The geology comprises superficial deposits of alluvial silts over gravels on the south side of the River Thames and clay sand and gravels on the north side of the River Thames, overlying clay of London Clay Formation. The ground level at both ends of the bridge lies at around 5.5m Above Ordnance Datum (AOD), with the bridge approaches rising to c 7.0m AOD. The northern bridge approach was the site of post-medieval buildings which were demolished for the construction of the bridge and its approaches in 1827. The roadway is likely to be made up of post-medieval made ground from the construction of the earliest bridge in 1827, which could contain redeposited material from earlier periods. The upper portion of the roadway is likely to have been truncated by subsequent roadworks. The bridge approach is likely to have truncated pre-1827 archaeological features, but there remains the possibility of encountering the remains of earlier archaeological periods beneath the made ground. The geoarchaeological deposit model suggests that although paleoenvironmental remains and prehistoric remains are possible on both sides of the bridge, the greatest potential for paleoenvironmental remains



and prehistoric remains would be beneath the southern bridge approach.

There is low potential for the remains of other periods. The site lies away from all known settlement prior to the medieval period. However, despite the existence of a medieval settlement in the vicinity of Queen Caroline Street, excavated evidence for the later medieval period is scarce and any remains would be heavily truncated. Post-medieval buildings known to exist in the northern part of the site prior to 1827 were demolished for the construction of the bridge and any remains would be heavily truncated.

The proposal is likely to have a localised archaeological impact, given the relatively limited nature of the extent and depth of proposed ground disturbance. Only excavations for the rear abutment support are likely to have an archaeological impact.

The geoarchaeological deposit model and archaeological DBA conclude that the highest paleoenvironmental potential is on the south side of the bridge, with moderate potential on the foreshore. There is a moderate potential for prehistoric archaeological features and artefacts within the southern footprint of Hammersmith Bridge, the foreshore on the north and south bank of the River Thames and the high ground on the northern footprint of the bridge.

Potential Effects

The current proposal is for a temporary steel truss bridge that is incrementally launched in two halves from the existing abutments at Hammersmith and Barnes, through the openings at the existing towers until the two halves meet and are connected at midspan. The truss structure is independent of the existing bridge deck and the structure is supported only at the two abutments and the two existing piers. The temporary truss will be fabricated offsite in sections and transported to site.

The temporary truss will be installed using a launching technique in which the bridge is assembled in a “launching bay” and then incrementally pushed across the river while supported on temporary bearings sitting on the abutment and pylon foundation.

The launching system used will require two temporary foundations at the front and back of the launching bed. Foundations will be required to provide a significant horizontal force and therefore it is assumed that small diameter raking piles will be required. Further, the launch bearings would be supported on reinforced concrete pads which will be provided on the piers and abutments to distribute the vertical loads from the temporary truss. These pads will need to incorporate the temporary launching bearings and the bearings used to support the temporary truss during its operational life.

All the above works will take place entirely during the construction phase of the Proposed Development and will include processes which would result in ground disturbance. These are likely to include:

- the insertion of raking piles;
- the insertion of concrete pads for support;
- the insertion of new anchorage foundations; and
- the construction of site services including hoarding.

Physical impacts upon archaeological remains would all be permanent, whether or not the proposed constructions works are temporary in nature (e.g. ground excavation for temporary services, lighting and hoardings). Based on the baseline conditions noted above, the potential effects of the Proposed Development on buried heritage assets are anticipated to result from the truncation or removal of archaeological and palaeoenvironmental remains.

The assessment concludes that archaeological remains which may be affected by the Proposed Development comprise:



- **Paleoenvironmental remains:** There is high potential for paleoenvironmental remains to the southern footprint of Hammersmith Bridge and moderate potential for paleoenvironmental remains within the foreshore area on the north and south bank of the River Thames, given the site's location immediately adjacent to the River Thames and the potential for surviving alluvial deposits on the south side of the bridge. Such remains would be of low or medium heritage significance; and
- **Prehistoric Remains:** There is moderate potential for prehistoric remains within the southern footprint of Hammersmith Bridge, the foreshore on the north and south bank of the River Thames and the high ground on the northern footprint of the bridge, given the site's attractive location for settlement adjacent to the River Thames and the potential for Holocene alluvium on the south bank of the Thames. Well-preserved features would be of medium heritage significance, isolated finds of low heritage significance.

The survival of archaeological remains is likely to be varied due to the impact of the construction of the current bridge, although due to the possible thickness of alluvium on the south side of the site, there may be survival beneath the anchorage structures.

Recommendations

Extensive remains of high significance are not anticipated, and it is considered that the potential adverse effects of the scheme on buried heritage assets are not of a sufficient magnitude to require EIA. The Archaeological DBA will be submitted with the planning application which will set out the significance of buried heritage assets at the site, and the impact of the Proposed Development upon them.

The Impact on buried heritage assets can be successfully offset through a process of paleoenvironmental and archaeological investigation and appropriate dissemination of the results for public benefit. The results of any proposed geotechnical investigations would help to clarify the archaeological potential of the site, and the likely significance of any remains. Given the limited nature of the ground works which would have an archaeological impact it is considered that geoarchaeological boreholes and sampling would mitigate the impacts of the scheme on palaeoenvironmental remains in the southern part of the site, Any works associated with the scheme that break ground the northern land area within the bridge footprint and the foreshore areas should be monitored by an archaeological watching brief to ensure that any archaeological remains are not removed without record. This strategy would need to be approved by the LPA's archaeological advisor, to offset the potential adverse effects of the scheme to an acceptable level under a planning condition.

The Proposed Development is likely to result in adverse effects to archaeology assets. However, the impacts upon archaeological remains will be localised and are unlikely to be significant. An assessment of buried assets/archaeology will be undertaken and submitted alongside any planning application.

Ground Conditions

The surrounding area is underlain by the superficial geology of made ground, Alluvium (Secondary Undifferentiated Aquifer) and Kempton Park Gravel Member (Secondary A Aquifer). This is further underlain by the bedrock geology of London Clay (Unproductive Strata). The site is not designated for any geological interest or importance and is not located within a Source Protection Zone (SPZ).

The site is located within a densely urbanised area and there is the potential for contaminants to be present within the underlying soils and groundwater. The installation of the temporary truss and the piling works has the potential to encourage the remobilisation of contaminants and open up conduit contamination pathways which could result in the release of metal, metalloids and other inorganic/organic compounds into underlying permeable aquifers (Kempton Park Gravel's), shallow site soils and groundwater. However, a site investigation will be carried out and submitted in support of the planning application to confirm contamination risks and inform the detailed design including piling method statement. These potential contamination risks will be mitigated through design and standard industry practices.



There is also the potential for asbestos to be present in made ground. However, by repairing the bridge off site, the risk of contamination of the River Thames from refurbishment related activities (mobilisation of residues from lead paints etc) is minimised.

With respect to site workers, as contractors will be working directly in soils, there is a potential risk from existing contamination to construction workers, however the risk will be mitigated through health and safety risk assessments, use of suitable personal protective equipment (PPE) and welfare facilities. As such, significant effects are not considered to be likely. Good construction practises will also be followed to ensure that adjacent site users are not affected (such as dust suppression measures).

In addition to the above, a CEMP will be prepared which will confirm how contamination will be managed during general construction related activities. This will include, amongst other things, materials management, health and safety, and environmental protection controls.

Once operational, there will be no proposed areas of exposed soils and therefore the risk of future site users coming into direct contamination with potentially contaminated soils will be negligible.

It is anticipated that these measures will be secured through standard planning conditions. Through the implementation of standard mitigation, the construction of the temporary truss will not result in likely significant effects.

Traffic and Transport

The reopening of the bridge to vehicular traffic will revert the state of the highway network to its permanent position, alleviating the disruption caused to many people and businesses during the closure. Residents and businesses located on the temporary diversion routes via Putney Bridge and Chiswick Bridge will, in particular, benefit from a reduction in the unnecessary longer vehicular trips that are currently taking place as a result of the temporary closure.

Local residents and businesses in Hammersmith and Barnes will benefit from the reintroduction of cross river bus services, reducing severance for those unable to walk or cycle across the bridge.

Overall, there would be no change in transport terms between the permanent previous baseline and the with development scenario of the reopened bridge.

For completeness, a qualitative assessment of the temporary “bridge closed” baseline and the “bridge open” permanent scenario has been undertaken within the Transport Statement, which will be submitted alongside the planning application. This comparison would show a reduction in traffic on the temporary diversion routes via Putney Bridge and Chiswick Bridge, and an increase in traffic on the routes via Hammersmith Bridge, back to their pre-closure levels. There would therefore be beneficial impacts to residents on the current diversion routes and adverse impact to residents on the bridge approaches who would experience increased traffic levels towards their pre closure levels. However, it should be noted these adverse effects were experienced by the same residents before Hammersmith Bridge was closed to road traffic.

As the changes would not result in traffic levels in any location that are new or greater than that which are experienced both currently or in the pre closure scenario, no significant effects in addition to those experienced in either scenario would be experienced. The significant effects are not of magnitude to warrant an EIA. Therefore a Transport Statement will be submitted in support of the planning application.

In the event that a toll/charging system is introduced for vehicles, or where vehicles are too large or too heavy to use the temporary truss structure, these vehicles would continue to use the current temporary diversion routes. Some traffic has been removed from the network since the closure of the bridge, an effect that can be explained by people choosing to walk or cycle across the bridge, or not to travel at all, given the inconvenience of the alternative temporary diversions. The introduction of a charge or toll



would maintain some this traffic suppression effect by discouraging use of the route or travel at all,, meaning that overall traffic levels can be predicted to be lower than they would otherwise be without a toll in place. The associated transport effects of the proposals with a toll or charge would, therefore, lie somewhere between those experienced in the current temporary situation (with the bridge closed to traffic), and those experienced in the previous permanent situation (i.e. with the bridge open to all traffic without charge). In this event, residents living on the diversion routes would see a reduction in traffic with reduced congestion and disruption on these routes; and, residents on the route via Hammersmith Bridge (Hammersmith Bridge Road, Castelnau, Rocks Lane, etc.) would experience lower traffic levels than would occur with an untolled bridge.

In terms of construction traffic, vehicle movements will approach the site from the A-road network on either side of the bridge and will be very limited until launching commences. The works associated with delivering piles, concrete, some framing for the launch set up and the bearings as well as sundry items such as cabins, will likely require less than one HGV movement a day (likely 2 per week per side). Once the temporary truss delivery commences, it is likely that up to 100 vehicles will require access to the site of which approximately 66 vehicles will be large abnormal load (low loaders or similar) over a 6-week period, this is likely to equate to approximately 2 deliveries a day (one per side of the bridge). During the reinstatement of the Grade II listed bridge and finishing works, the removal of the truss will require access for 66 abnormal load vehicles over a 3-week period, equating to approximately 4 vehicles trips per day (two per side). The vehicles associated with the construction works are therefore limited and these effects will be temporary and not significant.

Rutland Grove on the Hammersmith side and Clavering Avenue on the Barnes side will need to be closed periodically to enable construction activities and delivery of construction materials.

The vehicle ramp for the temporary truss on the Barnes side extends partially into the junction with Riverview Gardens and it is likely that Riverview Gardens will need to be closed for the duration that the temporary truss is being installed and removed. Riverview Gardens would become a cul-de-sac during this period (around three months for installation and half that for removal). Traffic would be diverted in and out via Clavering Avenue in order to re-join Castelnau. It is likely that several car parking spaces (6-10 vehicle lengths) would need to be removed to provide turning heads and passing places along its length to enable it to become a two-way street. The loss of spaces would be absorbed within the local controlled parking zones, with a slightly higher parking ratio. A refuse collection strategy would also need to be developed and agreed with the council for the works duration. Whilst these closures are adverse, they are temporary, local and not considered significant after the necessary mitigation measures have been put in place.

A CLP will be implemented and monitored throughout the construction programme. The CLP will include measures to manage and mitigate adverse effects of construction vehicular activity, as required. This will include, amongst other things, a periodic review of road closures, vehicle movements and suitable operating hours and management of deliveries around peak hours (for example, to ensure minimal disruption to nearby sensitive receptors such as residents and the St Paul's Church of England School).

In summary, the temporary bridge will maintain accessibility for local functions by avoiding transport severance during the refurbishment works. Accessibility will be maintained with the A306 north-south of the River Thames, the A306 Hammersmith Bridge Road leading onto the Hammersmith Gyratory on the north bank and the A306 Castelnau leading onto the A205 Upper Richmond Road to the south bank. The proposed temporary truss structure, once operational, will not give rise to any significant changes in pedestrian, cycle, or vehicular movements compared to the permanent "bridge open" baseline, nor the permanent "bridge open" with development scenario.

In the context of measures to mitigate the effects of construction traffic to be contained within CLP and the vehicle movements associated with the operational temporary and permanent bridge structures (lying between those of current temporary closed situation, and a return to the permanent open



situation), it is not considered that any significant effects would be likely during the installation period, during operation of the temporary truss structure nor once the Proposed Development is completed i.e. temporary truss structure removed and the bridge re-opened.

Navigation

In accordance with Port of London Authority (PLA) requirements, the height clearance of the temporary bridge will match that of the existing bridge. Given that the temporary truss structure will be installed from the road on either side of the bridge, the use of the River Thames itself will only be impacted when the deck and hangers of the Grade II* listed bridge that need repair are lifted away using the temporary bridge and transported by barges to the off-site facility for repair and the once again reinstated once repaired. The chains will be removed using the upper deck as a lifting platform with transporter units moving the chains off the deck during night time closures. The other elements of the bridge for repair including the towers and tunnel anchorages will be repaired in situ therefore will not require navigation.

For all river works, the contractor will be required to apply for a temporary river works licence from the PLA before works can take place. The river would be closed to mitigate the construction risk to river users and is standard practice for this type of operation. This would be communicated to river users through notice to mariners as part of the PLA's Temporary River works license application process.

These works will be temporary and significant effects are not anticipated.

Air Quality

Whilst the current closure of the bridge, for both safety reasons and during the installation of the truss structure, is likely to improve air quality at roadside locations in the immediate vicinity due to a reduction in traffic on the bridge and its adjoining roads. The majority of the nearest sensitive receptors (i.e. residential dwellings) are set well back from the roadside along Castelnau (the southern route to access the bridge) and Digby Mansions and Hammersmith Bridge Road to the north of the bridge. Any current reductions in traffic emissions as a result of the temporary closure of Hammersmith Bridge will be most pronounced very close to the roads, and at the receptors are likely to be small and not significant.

During the Temporary Truss Construction Phase

As a result of the pre-manufactured nature of the components, construction traffic volumes for the site are likely to be small and therefore lead to not significant air quality effects. Dust emissions, for the limited construction work required, will be managed by standard construction environmental management measures - low emission machinery, adherence to working hours, dampening of surfaces, appropriate covering of materials, dust monitoring and control. Flame cutting girder chords has the potential for minor emissions from lead-based paints, but these activities will be conducted with local containment and are on the bridge away from sensitive receptors.

For the deck timbers, containment fitted on the bottom flanges of the cross girders would be required to enable cutting and to contain any residue. These measures will be detailed within the project CEMP to be agreed prior to the commencement of works on site.

The deck elements of the Grade II* listed bridge that need repair will be transported from the site using barges, which are towed to the site with a tugboat and which will then return to collect the barges when ready. The barges will be moored in the appropriate location under the bridge for a period of no more than two weeks. Barges will be in position under the main spans for periods of no more than a few hours; for the side spans, they may be in place for 24 hours. Due to the short-lived and infrequent nature of the barge movements, no significant impact as a result of emissions from the barges (or the tugs delivering and removing the barges) is therefore anticipated.



The proposed temporary truss structure will change the location of traffic emissions relative to the permanent bridge road deck, by elevating the emissions by several metres. However, as the emissions are elevated and as such moved further from away from sensitive ground-level receptors, the changes in pollutant concentrations and associated effects will not be significant.

The proposed temporary truss structure – and permanent reopening of Hammersmith Bridge to vehicular traffic – will re-introduce vehicles to Hammersmith Bridge, and as noted in the Traffic and Transport Section, will have an adverse impact to residents on the bridge approaches who would experience increased traffic levels towards their pre closure levels. Given these residents experienced these traffic levels pre-closure, no new significant effects in relation to air quality to these receptors are anticipated.

As discussed in the Traffic and Transport section, a comparison of the temporary bridge closed baseline and the bridge open permanently scenario (either the permanent bridge or temporary truss structure) would show a reduction in traffic on the temporary diversion routes via Putney Bridge and Chiswick Bridge, and an increase in traffic on the routes via Hammersmith Bridge, back to their pre-closure levels. This would result in beneficial air quality impacts at receptors adjacent to the current diversion routes and adverse impacts to receptors on the Hammersmith Bridge approaches. The total pollutant concentrations at receptors on both the temporary diversion routes and the Hammersmith Bridge approaches would return to levels no higher than their previous pre-closure levels; with the temporary truss structure in place, or once the Proposed Development is completed i.e. temporary truss structure removed and the bridge re-opened. As result no additional significant effects would occur relative to those experienced in the pre-closure scenario.

Noise and Vibration

Similar to Air Quality above, the current closure of the bridge for safety reasons is likely to reduce road traffic noise levels at roadside locations in the immediate vicinity of the site.

Noise arising during the installation of the raised temporary truss structure could result in temporary effects to the neighbouring receptors from the works such as the piled foundations required for the bridge launch, saw cutting of the deck and deck erection works (welding and bolting).

However, during the works, noise related to the installation of the temporary truss structure will be controlled to limit noise emissions. 'Best Practicable Means' will be used to control and reduce levels in accordance with the Control of Pollution Act (1974). In addition, the CEMP will contain specific approaches relating to the works. Activities associated with the piled foundations have the potential to produce the highest noise levels at receptors over the course of the installation, however given the temporary nature of the piling and the construction works in general significant effects are not expected. Impacts from vibration will be controlled in accordance with BS 5228 to ensure that emissions are suitably controlled. As such, significant noise effects due to construction activities are not considered likely.

Noise from construction traffic will be limited as the components of the temporary truss structure will be pre-manufactured off site, reducing vehicle movements. Given the limited number of HGV movements, construction traffic noise will not be significant.

Once operational, noise levels would be similar to those of the permanent bridge (as it was when it was open, or when re-opened), as the new temporary truss structure sits within the existing Hammersmith Bridge footprint. No new or additional noise effects during the operation of the temporary bridge are therefore anticipated, when compared to the bridge open scenario.

As discussed in the Traffic and Transport section, a comparison of the temporary bridge closed baseline and the bridge open permanently scenario (either the permanent bridge or temporary truss structure) would show an increase in traffic on the routes via Hammersmith Bridge, back to their pre-closure levels.



This would result in adverse noise impacts to receptors on the Hammersmith Bridge approaches during operation of the temporary bridge, if assessed against the bridge closed baseline. Noise levels at sensitive receptors close to the Hammersmith Bridge approaches would return to levels no higher than their previous pre-closure levels; with the temporary truss structure in place, or once the Proposed Development is completed i.e. temporary truss structure removed and the bridge re-opened. As result no additional significant effects would occur relative to those experienced in the pre-closure scenario.

Water Resources, Drainage and Flood Risk

The Environment Agency (EA) flood risk maps indicate that the site is located within tidal Flood Zones 2 and 3. Outwith the banks of the River Thames the floodplain is defended, and as a result there would only be a residual risk of flooding to these areas in the highly unlikely event of a storm surge coinciding with failure of the River Thames defences. There would be no increase in vulnerability, as the bridge would continue to operate as a vehicle and pedestrian bridge. Hammersmith Bridge itself is significantly elevated above the River Thames, and therefore by its nature is not at risk of flooding. This is confirmed by the EA's breach flood modelling (Figure 5).

The level of the temporary truss structure is above that of the existing bridge, the amount of hardstanding is not expected to increase and the scheme will not result in increased flood risk to third parties as a result of suitable management of surface water runoff both during construction and operation. Therefore, the temporary truss structure will not give rise to significant adverse effects with regards to flood risk. Whilst the site is located in an area of Flood Risk (due to its location above the River Thames), for the reasons above there would be no impact on Flood Risk. However, to ensure compliance a Flood Risk Assessment commensurate with the nature of the works would be submitted with the application.

Whilst the temporary moorings are within the River Thames itself, they are connected to the proposed maintenance of Hammersmith Bridge. Once the designs have evolved post planning, discussions will be undertaken with the EA (and other appropriate authorities) to ensure that they are designed appropriately, and that no significant adverse effects will occur. A Water Framework Directive (WFD) assessment will be undertaken post planning if required by the EA. This will ensure that the scheme is designed appropriately, and that any management procedures are put in place throughout the proposed works.

There will be demand for wastewater capacity during the construction works which would be agreed prior to commencement. The CEMP which will be implemented prior to and during the construction phase of the project, will include appropriate measures to manage any discharges of water from the site to ensure no increased risk of (surface water) flooding. Significant effects are therefore not considered likely.

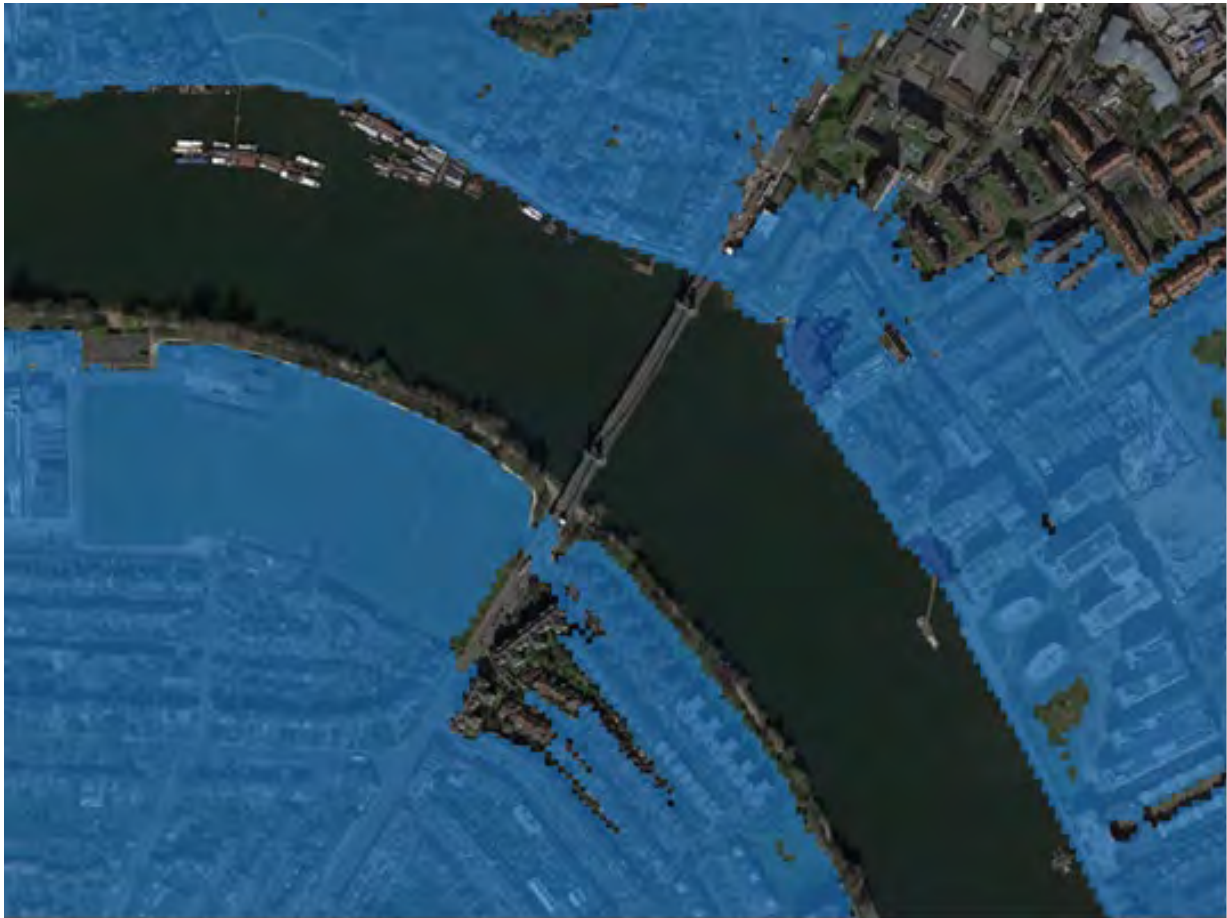
There will also be demand for clean water during the construction works (e.g. for damping down), however the volume is not expected to be substantial given the temporary and limited nature of the works proposed on either side of the temporary truss, and therefore effects will not be significant. A minor amount of sediment disturbance is possible, but it is unlikely that this will significantly affect water quality particularly with adherence to the CEMP, which will include best practice measures to avoid debris falling into the River Thames.

Drainage of the truss structure is likely to be similar to the existing bridge with runoff discharging as per the existing situation, and therefore no significant effects are anticipated. A drainage strategy commensurate with the nature of the works will however be prepared and submitted in support of the planning application in order to ensure no significant effects.

Once Hammersmith Bridge is restored and the temporary truss structure removed, drainage of the Bridge will operate as previously, and therefore no significant affects are anticipated.



Figure 5 Environment Agency Breach Flood Modelling



EA's 'Thames Tidal Upriver Breach Inundation Modelling 2017'.

Ecology

The area within the red line comprises predominantly hardstanding (roads), with open-areas to the north and south of the site to be used as construction lay-down areas. No works within the River Thames are proposed.

A Preliminary Ecological Appraisal (PEA), consisting of a field study and desk study will be submitted alongside the planning application. An extended Phase 1 habitat survey was undertaken in January 2022 and a desk study was undertaken in February 2023.

The site is located within the Impact Risk Zone for Richmond Park (SAC and SSSI), Wimbledon Common (SAC and SSSI) and Barn Elms Wetland Centre (SSSI). There are five SINC's within 1 km of the site. A priority mudflat habitat is located along the north-west side of the Bridge. The site is in a highly urban area and the habitats on the site were of moderate ecological value. The site could support reptiles, invertebrates, foraging bats and nesting birds. However, the Proposed Development is not expected to negatively impact any of these species. A summary of the Ecological Features within the Zone of Influence of the Proposed Development is summarised below.

Statutory Designated Sites

The two SACs located within 5 km of the site are assigned their status due to the presence of stag beetle associated with the ancient trees. The site does not support habitat suitable for larval stag beetles, and the SACs are considered to be sufficiently well separated from the site, so no adverse



impacts are anticipated. Barn Elms Wetland Centre SSSI is 700m south-east of the site, which is considered to be sufficiently well separated from the site, so no adverse impacts are anticipated. The site is within the Impact Risk Zone for the SSSI but not for the type of development proposed.

Two LNRs are within 1km of the site. The Proposed Development involves the restoration of Hammersmith Bridge and impacts are not expected to adversely impact statutory designated sites as they are sufficiently well separated from the site.

Non-Statutory Designated Sites

The River Thames, a SINC of metropolitan importance, falls within the site area.

The River Thames at Hammersmith Bridge is connected to the Thames Upper WFD water. The Thames Upper water body is classified as transitional and is heavily modified. The ecological classification in 2019 was Moderate and it was classified as a 'Fail' for Chemical status due to the concentrations of a number of Priority Hazardous Substances (EA 2021).

Priority Habitats

There is a mudflat habitat adjacent to the site. There is also a mudflat habitat 1 km west of the site. The mudflat adjacent to the site is likely to be impacted by the Proposed Development due to the mooring of barges on or near the mudflat habitat. Effects on the invertebrate assemblages within the mudflats could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats becoming degraded and being less suitable for invertebrates. Barges moored on or near the mudflat habitats could disturb the mudflat habitat and affect species using the habitat.

Bats – Roosting

A total of two bat species were recorded within the desk study. The site offers minimal roosting potential under the Hammersmith Bridge. The high levels of disturbance within the area are likely to deter bats from roosting. There is therefore negligible potential for roosting bats on site. The habitats on site are of low quality for roosting bats.

Bats – Foraging

The Proposed Development could result in additional lighting and noise (during construction phase). However, with the inclusion of a CEMP and a lighting management plan there will not be significant impacts on foraging bats. Soprano pipistrelles (*Pipistrellus pygmaeus*) were found within 1km of site. This bat species tends to select riparian habitats for commuting and foraging. However, the majority of UK bat species prefer broadleaved woodland habitats for foraging. The habitats on site are of low quality for foraging bats and the Proposed Development will not impact foraging habitats.

Bats – Commuting

Bats could be using the river Thames as a commuting corridor due to the vegetation lining the river providing a green connective linear feature. However, with the inclusion of a construction Environmental Management Plan (CEMP) and a lighting management plan there will not be significant impacts on foraging bats.

Soprano pipistrelles (*Pipistrellus pygmaeus*) were found within 1km of site. This bat species tends to select riparian habitats for commuting and foraging.



Nesting Birds (Non-Schedule 1)

Numerous non-Schedule 1 bird species were recorded within 1 km on site. The site has the potential to support nesting non-Schedule 1 birds. The bridge structure provides nesting potential on the bridge beams and bridge arches. Pigeons are especially known to nest on ledges. Nesting birds could also be using the vegetation on the adjacent riverbanks and trees.

Nesting Birds (Schedule 1)

Three Schedule 1 bird species were recorded within the desk study. Black redstart, fieldfare and redwing were all found within 1km of the site. Black redstarts tend to nest in open and semi-open landscapes, of which there are none on site. Fieldfares tend to nest in woodland habitat and hedgerows. They are also known to nest in gardens amongst rock or log piles. Fieldfares usually nest in close proximity to others of the same species. There is no suitable habitat on site to support fieldfares. Redwings are largely a winter visitor to the UK with the first arrivals reaching us in October. They are known to spend their autumns in UK hedges and orchards, of which none are present on site.

Mitigation and Recommendations

Potential construction related effects (including the potential for water contamination) can be controlled through adherence to the CEMP which will ensure that invertebrate habitats using the surrounding mudflat habitats aren't affected by any direct or indirect pollution from the site. There are some common recommendations associated with the river Thames which can be incorporated such as avoiding the smelt spawning period of March and April inclusive, and restricting the construction activity to daylight hours. Other recommendations include:

- A low-level lighting strategy should be implemented in order to minimise the risk of disturbance to fish during construction and post-construction;
- Lighting used for construction will be switched-off when not in use and positioned so as not to spill on to the water wherever possible;
- The use of low noise/vibration piling techniques, plus the avoidance of piling in the wet whenever possible; and
- Eel migration generally occurs at night-time. In order to prevent significant pollution events and resulting adverse effects from occurring, a Construction Environmental Management Plan will be produced for the site which will incorporate working precautions and procedures in accordance with published Guidance on Pollution Prevention.

All birds, their active nests and eggs are protected from harm under the WCA. This legislation makes it an offence to kill, injure or take any wild bird or to take, damage or destroy the nest of any wild bird while that nest is in use or being built. An offence could therefore occur during clearance and refurbishment work on the site.

The bridge and vegetation could support nesting birds. To ensure legal compliance, clearance of habitat suitable for nesting birds (all vegetation and buildings) should be undertaken outside the nesting bird season (i.e., between October and February inclusive). However, should this not be practical, the following measures must be adhered to:

- Works must be undertaken in line with a Precautionary Working Method Statement (PWMS);
- Prior to clearance, an ecologist should carry out a nesting bird inspection of areas to be cleared;



- Should any active birds' nests be found, the work may not take place within an appropriate established buffer zone (usually 5m), which should be left intact until it has been confirmed that the young have fledged, and the nest(s) is no longer in use.

Lighting used during construction will be kept to an absolute minimum. Additional lighting and night-time working will be limited as far as possible.

Hammersmith Bridge is already illuminated. The truss structure will sit within the footprint of the existing Hammersmith Bridge and will include suitable lighting to ensure safe conditions for its users at night. This lighting will be similar but no brighter, to that currently in place. It will be designed to prevent light spilling onto features including the River Thames and trees in the immediate vicinity of the site. The lighting strategy will ensure minimal risk of disturbance to aquatic receptors, biodiversity and residents. On the basis on the above and given that the proposed lighting will be no brighter than that currently provided, no significant effects are anticipated.

Once the bridge is operational both post installation of the new raised truss structure and once refurbishment of the bridge is completed it is not considered likely to have significant adverse effects on ecological receptors.

Aquatic Ecology

An Aquatic Ecology Impact Report will be submitted alongside the planning application. The impact on aquatic ecology is anticipated to be limited to the temporary installation and subsequent removal of moorings. These have the potential to impact on the following aquatic ecology receptors, either a.) directly - through habitat loss/disturbance or b.) indirectly - through impacting the behavioural performance and health of individual species and life stages:

- Mudflat habitat;
- Benthic species;
- Fish; and
- Wintering birds.

Mitigation measures embedded within the project design includes:

- Adherence to best practice guidance to limit the introduction and spread of 'invasive' non-native species (INNS); and
- Adherence to guidance to reduce risk associated with accidental pollution events.

Additional mitigation will need to be adhered to as follows:

- Avoid in-river works during smelt spawning times (March to April inclusive). This is considered to be adequate to mitigate for impacts on migratory and resident fish species as there is no loss of subtidal habitat; and
- A silt curtain will be deployed to limit the extent to which resuspended sediments disperse into the Thames during the installation and removal of the moorings.

With the implementation of the mitigation identified above, no significant effects on aquatic ecology are anticipated.

Daylight, Sunlight, Overshadowing and Solar Glare

Given the limited scale of the Proposed Development and the fact that the temporary truss structure sits within the footprint and profile of the existing Hammersmith Bridge, impacts related to sunlight and



daylight are not deemed to be significant. The design will not give rise to effects from solar glare.

Light pollution is addressed in the ecology section above.

Socio-Economics

Several sport and leisure clubs (boating activities) are located close to the site, and these functions require a navigable route to remain open during construction. Given that the temporary truss structure will be installed from the road on either side of the bridge, the use of the River itself will only be impacted when the deck elements of the Grade II* listed bridge that need repair, are lifted away using the temporary bridge and transported by barges to an off-site facility for safe repair and reinstated once repaired. There will be local brief impacts when containment platforms are fitted to facilitate the cutting of the deck and the bolting of the new deck which will not require river closures. These works will be temporary and significant effects are not anticipated.

The towpath will be directly impacted by the Proposed Development. However this will only occur during the limited phases of installation of the bridge. This period of installation is expected to last approximately nine months. During these works, towpath diversion routes will be in place at two stages, the first is when the bridge is launched across the side span and will last approximately a month, and when the weight of the existing deck is transferred to the temporary truss which will be a period of two weeks. Prior notice of any towpath and river closures will be given to the local community, including any groups who use the River Thames as a recreational resource.

Whilst the installation will be undertaken over a period of approximately nine months the disruptions will be no worse than the present situation. There will be limited periods where there could be additional disruption to local business. This will be from temporary closures to pedestrians and cyclists for safety critical operations that lasting mainly for a few hours at a time, with the greatest period being of the order of a for the deck lowering and lifting (once refurbished). The proposals represent the most efficient and least time consuming of the options which have already been explored to date regarding the Bridge's restoration. Once the temporary truss structure is operational, the bridge will provide the necessary accessibility for local functions and business, linking communities once again which is considered to be beneficial.

LBHF and LBRuT are currently reviewing the potential for introducing toll or charges on the bridge as a means of securing the benefits of the refurbishment on a sustainable, long-term basis. This is not unusual, with ten tolled crossings and crossings subject to charges in place across the UK carrying major roads and a further eight carrying minor roads (including the Clifton Suspension Bridge in Bristol, which similarly has significant heritage value). Pedestrians and Cyclists are expected to be exempt, meaning that a tolling or charging policy would likely align with the Mayor's wider initiatives aimed at reducing vehicular traffic within Greater London such as Ultra-Low Emissions Zone (ULEZ) expansion and Low Traffic Neighbourhoods (LTNs). A full Equalities Impact Assessment will be submitted alongside the planning application, which will weigh the social benefits and potential disbenefits of toll or charge introduction and identify any differential or disproportionate impacts on those with protected characteristics under the Equality Act 2010. On this basis, the introduction of tolling or charging, if pursued, is not likely to result in significant socio-economic effects.

The Socio-Economic Assessment submitted in support of the planning application will consider the following:

- Impact on local residents, workers and businesses during construction;
- Social value created through workforce training, apprenticeships and new entrants; and
- Permanent impacts on local residents, workers and businesses on completion (with bridge in full operation).



Health Impact Assessment

A Health Impact Assessment (HIA), in line with the HUDU checklist and Rapid HIA Assessment Tool, will be undertaken and submitted as a standalone planning document. The HIA will consider the potential health risks and benefits that would result from the Proposed Development. The HIA will include a review of relevant policy and legislation, and a health baseline assessment of the surrounding local area to understand current conditions of relevant health indicators and facilities. It is not considered there will be any significant health effects as a result of the Proposed Development.

Equalities Impact Assessment

A full Equalities Impact Assessment will be submitted alongside the planning application, which will weigh the social benefits and potential disbenefits of toll introduction and identify any differential or disproportionate impacts on those with protected characteristics under the Equality Act 2010.

As noted above, these supplementary reports will explore key issues which are likely to be material considerations in the determination of the planning and listed building consent applications, but as discussed above are not likely to result in significant socio-economic effects from an EIA perspective.

Waste

Given the refurbishment nature of the project, the generation of waste is expected to be minimal during the construction and installation of the Proposed Development, mostly related to the piling works required. The temporary truss is designed such that it is effectively modular and can be reused in a different location either within London or elsewhere.

All construction companies have a duty of care towards managing their waste under s.34 of the Environmental Protection Act⁶ and waste will be managed accordingly. A Site Waste Management Plan (SWMP) will also be prepared prior to commencement of the works. This will be secured via an appropriately worded planning condition and will outline the different procedures to be undertaken to complete the various construction works. Individual trade contractors will be required to incorporate requirements for environmental control, based on good working practice, such as careful programming, resource conservation, adhering to environmental regulation and quality procedures. The trade contractors will be required to demonstrate how they will meet the requirements of the SWMP and how waste (amongst other things) will be reduced or minimised.

In line with the five-step Waste Hierarchy, introduced in the EU Waste Framework Directive in 2008, a primary aim during both construction works and subsequent decommissioning of the temporary truss structure (noting the structure itself will be reused for other projects) will be to reduce the quantities of waste generated and exported from site. This is consistent with the UK Government's 'Our Waste, Our Resources: A Strategy for England'⁷. As per the five-step Waste Hierarchy, the 'disposal' of waste will be treated as the least attractive waste management measure, with the other steps prioritised from the top to the bottom of the Hierarchy. Where waste materials are disposed, the waste or other materials removed from the site will be disposed of in accordance with the requirements of all relevant legislation. Significant effects relating to waste from the Proposed Development are not anticipated.

Wind

Given that the installation of the temporary truss structure will be within the footprint of Hammersmith

⁶ *Environmental Protection Act 1990*

⁷ *HM Government, 2018, Our Waste, Our Resources: A Waste Strategy for England, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf*



Bridge, the flow of wind through and around the bridge is not expected to change significantly when compared within the existing conditions. Significant effects related to wind will not occur.

Energy and Climate Change

With reference to climate change, it is acknowledged that the updated EIA Regulations place a greater emphasis on the need to consider a development project's impact on climate change, as well as the potential impact of climate change on a development project.

In accordance with Schedule 4, paragraph 5(f) of the EIA Regulations, requires consideration of *“the impact of the project on climate”* and *“the vulnerability of the project to climate change”*.

IEMA guidance⁸ is that any increase in greenhouse gas emissions might be considered significant; however, the residual emissions as a result of the Proposed Development during construction and once operational would be a very small component in the context of the regional and local emissions. The principles of the IEMA guidance are that where GHGs cannot be avoided, that mitigation should be provided to minimise GHGs. However, the proposals to refurbish Hammersmith Bridge represents one of the most sustainable means of refurbishing Hammersmith Bridge, as the proposed approach already minimises emissions. This is because the existing bridge is being used rather than the construction of a new temporary one. Vehicle movements during construction would be reduced as a result of the temporary truss structure being largely manufactured off site to enable a quicker installation and the primary material of the truss structure is steel rather than concrete which has a much large carbon footprint. Furthermore, the temporary truss structure relies on existing elements of the bridge such as the piers for support, further limiting the materials required.

It is considered highly unlikely that potential impacts from changes in climate conditions would result in significant effects on the Proposed Development. Effects from the Proposed Development will be addressed through a Circular Economy Statement, which is being prepared by Fosters and Partners and will be submitted alongside the planning application. It is not anticipated effects from the Proposed Development will be significant.

Major Accidents and Disasters

With reference to Schedule 3 of the EIA Regulations, consideration must be given to the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge. The EIA Regulations require consideration of *“...the expected significant effects arising from the vulnerability of the proposed development to major accidents or disasters that are relevant...”* (Regulation 4(4) and Schedule 4(8)).

Available guidance (IEMA Quality Mark Article 'Assessing the Risks of Major Accident and Disasters in EIA (WSP, 2016)) defines major accidents and disasters as follows:

“man-made and natural events which are considered to be likely, and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with/rectify”

In line with available guidance (IEMA Quality Mark Article 'Assessing the Risks of Major Accident and Disasters in EIA'), the major accident or disasters that could be considered 'likely' and of relevance to the Proposed Development include:

- Extreme weather events: The bridge design presents a resilient structure and will be designed in accordance with relevant guidance and standards;
- Risk of navigation accidents: As noted above, for all river works, the contractor will be required to apply for a temporary river works licence from the PLA before works can take place. The river would

⁸ IEMA, (2020); *Climate Change Resilience and Adaptation*



be closed to mitigate the construction risk to river users and is standard practice for this type of operation. This would be communicated to river users through notice to mariners as part of the PLA's Temporary River works license application process; and

- Risk of pollution of the River Thames: With the implementation of a CEMP the risk associated with the impact of accidental pollution events is considered low.

As set out above, with appropriate design, the Proposed Development is not considered to be affected by major accidents and disasters, and therefore significant effects are not considered likely.

Cumulative Effects

The EIA Regulations require that the potential for cumulative effects of a development project are considered in determining whether a development project is 'EIA development'.

Cumulative Criteria

Other development projects that meet the following criteria have been reviewed to allow for the consideration of whether significant cumulative effects with the Proposed Development are likely:

- schemes located within 1 km of the redline boundary of the site; and
- schemes which produce an uplift in gross floor area of 10,000m² or schemes providing 150 residential units or more.

It is noted that the EIA Regulations only refers to '*cumulation with other existing development and/or approved development*'. As such, only consented schemes need to be assessed cumulatively under the EIA Regulations. Best practice dictates that cumulative schemes that are the subject of applications that have been submitted but not yet determined should also be considered. The list of cumulative schemes considered is provided in **Table 1**. Hammersmith Town Hall and the Thames Tideway Tunnel have been considered within the cumulative assessment, however it should be noted that they do not form part of the cumulative criteria, so have not been included within the table below.



Table 1 – Cumulative Schemes

Ref	Address	App. Ref.	Description of Development	Status As per desk-based review
1	Landmark House, Hammersmith Bridge Road	2017/00172/FUL	Demolition of the two existing office buildings (Class B1) and the erection of a part 6, 12, 22 storey building (including ground level public realm) to provide a mixed-use development comprising 14,668m ² GEA hotel (Class C1) including high level bar, offices (Class B1), ground floor retail (Class A1/A3), flexible cultural space at ground and basement level, 2 storey basement level providing car/cycle parking and servicing and associated public realm, landscaping, plant and all enabling and ancillary works (Amended description and additional documents received).	Under construction
		2018/04037/VAR	Variation to Condition 2 for amendments including increasing the floorplate of the buildings 1.5m east and west, reorientation of external stairs, removal of external bracing, introduction of rooftop plant and PVs which results in an increase in height, increase in the height of the undercroft and relocation of the arts/cultural use from the basement to ground floor to planning permission 2017/00172/FUL granted 18 August 2017 for the "Demolition of the two existing office buildings (Class B1) and the erection of a part 6, 12 and 22 storey buildings (including ground level public realm) to provide a mixed-use development comprising 14,668m ² GEA hotel (Class C1) including high level bar, offices (Class B1), ground floor retail (Class A1/A3), flexible cultural space at ground and basement level, 2 storey basement level providing car/cycle parking, servicing and associated public realm, landscaping, plant and all enabling and works.	Approved 23 May 2019
2	The Triangle (5-17 Hammersmith Grove) And Britannia House (1-11 Glenthorne Road), 3 And 3A Hammersmith Grove And 12-18 Beadon Road, Hammersmith, London W6 0LH	2017/02717/FUL	Demolition of all existing buildings on the site and redevelopment to provide a building of between 8 and 14 storeys in height plus two basement levels, comprising of 466m ² GEA retail/commercial space (Class A1, A2 or A3) at ground floor level to the south and west of the building; office entrance, reception and ancillary office/gallery space to the east and north of the building at ground floor level fronting Hammersmith Grove and Glenthorne Road; service area to west accessed from Beadon Road including 1 accessible parking space; Class B1 office space from first to thirteenth floors (23,878m ² GEA); plant enclosure at roof level; 15 car parking spaces, gym, plant, cycle storage and ancillary retail/office space in the two basement levels.	Approved
		2020/01000/FUL	Demolition of all existing buildings on the site and comprehensive redevelopment to provide a mixed-use development accommodated in a single building of up to 16 storeys plus sub-terranean works; comprising of offices, hotel and ancillary office and hotel facilities at ground floor level; external seating area; roof level plant enclosure; landscaping and other associated works.	Pending Determination
3	West London Magistrates Court 181 Talgarth Road London W6 8DN	2020/00915/FUL	Comprehensive redevelopment and erection of two buildings comprising hotel use (Use Class C1) with ancillary facilities; ancillary plant; servicing; cycle parking; creation of a public realm; wider landscaping improvements and enabling works.	Approved December 2020

Landmark House (under construction) (located approximately 200m north of the site), the Triangle (approximately 500m north), and West London Magistrates Court (located approx. 800m north-east) both have low potential to interact cumulatively with the Proposed Development and are highly unlikely to result in significant effects, given that the vehicle movements related to the Proposed Development are very low.

Hammersmith Town Hall was considered as it is located approximately 450m northwest of



Hammersmith Bridge. However, whilst located within 1km of Hammersmith Bridge, this development does not meet the criteria, as the gross floor area is less than 10,000m². It is also unlikely to interact cumulatively given the limited number of vehicle movements proposed.

As with Hammersmith Town Hall, The Thames Tideway Tunnel project does not meet the cumulative criteria; although it has the potential to interact with Hammersmith Bridge. The Thames Tideway Tunnel is due for completion in 2025 and is happening across 24 construction sites in London. Hammersmith pumping station combined sewer overflow (CSO) site is the closest of the Thames Tideway Tunnel sites to Hammersmith Bridge and the majority of the construction works for this site is almost complete. However, given the very limited number of vehicle movements anticipated during the installation of the Proposed Development, no significant cumulative effects are anticipated during construction. No significant cumulative effects are anticipated during operation either.

Conclusion

In summary, environmental effects associated with archaeology, ground conditions, traffic and transport, air quality, noise and vibration, water resources, drainage and flood risk, terrestrial ecology, aquatic ecology, navigation, daylight, sunlight, overshadowing, light pollution and solar glare, ecology, socio-economics, wind microclimate, climate change and major accidents and disasters, resulting from the Proposed Development are not anticipated to be significant. Whilst adverse Townscape, Built Heritage and Visual effects may occur during construction and operation of the Proposed Development, these would be temporary and offset by the beneficial effects of the repair of the Bridge.

By repairing the bridge off-site, the immense and complex task of restoration can be done at greater speed, at a better level of repair and at significantly reduced cost. It would also minimise noise, environmental impacts and onsite activity, as well as reducing the carbon footprint of the works.

We trust that the information presented within this report is sufficient in order for the LBHF and LBRuT to produce and issue an EIA Screening Opinion which agrees that no new or greater significant effects would be experienced as a result of the Proposed Development, and accordingly it does not constitute 'EIA Development'.

Kind regards,

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