

An aerial photograph of a river scene. In the upper right, a suspension bridge spans across the water. Along the riverbank, there are several multi-story buildings with varied facades. In the upper left, a cluster of boats is docked at a pier. The water is calm, reflecting the sky and the structures on the bank.

**Uber Boat**  
by **thames clippers**

**HAMMERSMITH  
TEMPORARY FERRY  
EIA SCREENING REPORT**



**JUNE 2021**  
2023-BRL-02-XX-RP-C-1000



**BECKETT RANKINE**  
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## CONTROLLED DOCUMENT STATUS

<b>CLIENT</b>	Uber Boat by Thames Clippers					
<b>PROJECT TITLE</b>	Hammersmith Temporary Ferry					
<b>SUBJECT</b>	Planning Permission					
<b>DOCUMENT TITLE</b>	EIA Screening Report					
<b>DOCUMENT REF</b>	2048-BRL-02-XX-RP-C-1000					
<b>REVISION RECORD</b>						
REV	STATUS	DATE	SUMMARY OF CHANGES	PREP	CHK	APP
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P02	S2 – Suitable for Information	12/05/2021	Updated following RFI. Incl. pedestrian & cyclist data	NS	GG	HP
P03	S2 – Suitable for Information	13/06/2021	Updated following LBRuT comments	GG	HP	GG

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## **1 INTRODUCTION**

### **1.1 Purpose of Report**

1.1.1 Beckett Rankine (BR) has been commissioned by Uber Boat by Thames Clippers (UBTC) to undertake the Environmental Impact Assessment (EIA) Screening Report for the Temporary Hammersmith Pier and Barnes Pier which form the fixed infrastructure for the Hammersmith Ferry scheme. These piers will be in use to provide a temporary river crossing while Hammersmith bridge is closed to pedestrians during refurbishment works. UBTC have been contracted by Transport for London (TfL) to provide the ferry service and associated enabling infrastructure.

1.1.2 This report aims to inform an EIA Screening Opinion under the following regulations:

- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017; where the relevant authorities are:
  - The London Borough of Hammersmith and Fulham (LBHF)
  - The London Borough of Richmond upon Thames (LBRuT)
- The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017; where the relevant authorities are:
  - The Marine Management Organisation (MMO)

1.1.3 This report accompanies a written request for an EIA Screening Opinion, and it will inform the relevant authorities about the potential for significant environmental effects arising from the proposed development, in accordance with requirements of the above referred regulations.

### **1.2 Purpose of the Scheme**

1.2.1 Hammersmith Bridge provides a major link between Hammersmith and Barnes. There are no cross-river London Underground services in this location. The bridge closure has resulted in major disruption to the local and wider area due to the

absence of an alternative nearby river crossing. The bridge's closure has caused road congestion on Putney and Chiswick bridges as people who used to walk or cycle across Hammersmith bridge are diverted to alternative longer river crossings by road vehicle.

1.2.2 TfL has concluded that the quickest way to provide a safe alternative river crossing at Hammersmith is to provide a temporary ferry operation for pedestrians and cyclists. To enable this service two temporary piers are required, one on the Hammersmith shore and the other on the Barnes shore.

1.2.3 Recognising the environmental and social sensitivity of the area, BR has been working with, and is in ongoing discussion with, the following statutory authorities:

- London Borough of Hammersmith and Fulham (LBHF)
- London Borough of Richmond Upon Thames (LBRuT)
- Marine Management Organisation (MMO)
- Environment Agency (EA)
- Port of London Authority (PLA)
- Greater London Authority (GLA)

1.2.4 Additionally, consultations are being held with residents, local schools and river users.

### **1.3 Environmental Impact Assessment Regulations**

1.3.1 The EU Directive 2011/92/EU and amended Directive 2014/52/EU (the Environmental Impact Assessment Directive), requires that certain types of project with the potential to significantly affect the environment have an Environmental Impact Assessment (EIA) before a consent decision is made.

1.3.2 The Marine Works (EIA) Regulations 2017 and Town and Country Planning (EIA) Regulations 2017 are the transposition of the EIA Directive, and therefore, the material within both regulations is coincident with requirements about the

information to be presented, and criteria used, to determine if the project is likely to have significant effects on the environment, and whether it requires an EIA.

1.3.3 Schedule 1 development as defined by the Town and Country Planning (EIA) Regulations 2017, and Schedule A1 of the Marine Works (EIA) Regulations 2017, constitute major projects that have significant effects, for which an EIA is mandatory. The proposed Temporary Piers do not constitute an EIA development according to these Schedules.

1.3.4 As the proposed piers are part of a pedestrian and cycle route, the project could be considered to fall under “10 Infrastructure projects (h) Inland-waterway construction not included in Schedule 1, canalisation and flood-relief works”; of Schedule 2 of Town and Country Planning (EIA) Regulations or equivalent n.64 of Schedule A2 of Marine Works (EIA) Regulation. However, the total area of the project will be approximately 0.25ha, which is well below the 1 ha threshold set in the schedules previously referred to.

1.3.5 Selection criteria also consider the sensitivity of the receiving environment. Recognising this, the project has been tested against the criteria as defined in Schedule 3 of the Town and Country Planning (EIA) Regulations 2017 and Schedule 1 of Marine Works (EIA) Regulations 2017, to determine whether the proposed project is likely to have significant effects on the environment.

## 1.4 Approach to EIA Screening

1.4.1 This report has been prepared in accordance with the Town and Country Planning (EIA) Regulations 2017 and Marine Works (EIA) (Amendment) Regulations 2017. Table 1 presents the information that must accompany a request for a Screening Opinion, linking them to the relevant section within this report.

**Table 1 Information Required**

Town and Country Planning (EIA) Regulations 2017	Marine Works (EIA) (Amendment) Regulations 2017	Report Section
a) a plan sufficient to identify the land;	a) a chart or map (or both) sufficient to identify the location of the project and of the regulated activity;	Appendix A

<b>Town and Country Planning (EIA) Regulations 2017</b>	<b>Marine Works (EIA) (Amendment) Regulations 2017</b>	<b>Report Section</b>
b) a description of the development, 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;	b) a description of the project, including in particular: (i) a description of the physical characteristics of the whole project and, where relevant, of demolition works; and (ii) a description of the location of the project, with particular regard to the environmental sensitivity of geographical areas likely to be affected;	Section 2
c) a description of the aspects of the environment likely to be significantly affected by the development;	c) a description of the aspects of the environment likely to be significantly affected by the project;	Section 3
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	d) a description of any likely significant effects of the project on the environment, to the extent of the information available on such effects resulting from – (i) the expected residues and emissions and the production of waste, where relevant, (ii) the use of natural resources, in particular soil, land, water and biodiversity; and	Section 4
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 be significant impacts on the environment.	e) such further information or representations as the applicant may wish to provide or make, including a description of any features of the project or measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.	Section 4

1.4.2 Information presented within this report has been based on desktop studies of material from readily available data sources;

- Multi-Agency Geographic Information for the Countryside (MAGIC)
- National Biodiversity Network (NBN)
- Greenspace information for Greater London (GiGL)
- EA Catchment data explorer
- Thames River Basin Management Plan



1.4.3 Where geographic information was available, it has been mapped and presented in order to give a better understanding of the potential interaction of environment features with the proposed Temporary Piers.

1.4.4 In addition, the EIA Screening Report is supplemented by the information from the following reports (see Appendix B).

- UXO Risk Assessment (102963-PEL-GEN-ZZZ-SUR-RM-00002)
- Flood Risk Assessment (2048-BRL-02-XX-RP-C-1200)
- Contamination Report (102963-PEF-BAS-ZZZ-REP-EN-10010)
- Aquatic Ecology Desktop Study (DER6480-RT003-R01-00)
- Water Framework Directive Assessment Report (DER6480-RT004-R01-00)
- Hydrodynamic and Scour Assessment (DER6480-RT001-R01-00)
- Underwater Noise Assessment (DER6480-RT002-R01-00)
- Preliminary Navigation Hazard Analysis (20-NASH-105-100-R02-00)
- Air Quality Assessment (J10-12312A-10\_FI)
- Heritage Statement (1817-125-05/21)
- Archaeology Assessment – Hammersmith Ferry – *Mills Whipp Projects*
- GI Report (102963-PEF-BAS-ZZZ-REP-GE-00002)
- Landscape and External Design & Arboricultural Assessment (2048-BRL-02-XX-RP-C-1700)
- Preliminary Ecological Appraisal (VBRP115/002/001)

1.4.5 The impact and effects discussed within this document are not limited to either LBHF or LBRuT specifically but are transboundary and should be considered by each borough as appropriate.

## **2 PROPOSED DEVELOPMENT**

### **2.1 Location of the Scheme**

- 2.1.1 The Ferry Service and associated Temporary Piers are located in the London Borough of Hammersmith and Fulham and London Borough of Richmond. The Temporary Piers will be located on either side of the river, immediately downstream of Hammersmith Bridge. Hammersmith Temporary Pier on the north bank will land at the end of Queen Caroline Street, while Barnes Temporary Pier will land on the Thames towpath on the south bank.
- 2.1.2 The site is approximately 0.25ha in size and the proposed piers within the River Thames link Queen Caroline Street in the north and Castelnau in the south.
- 2.1.3 On the north side of the River Thames the site is located within The Mall and Fulham Reach Conservation Areas with several heritage assets located nearby including the Grade II\* Listed Hammersmith Bridge. The LB of Hammersmith & Fulham's policy map also shows that the site is located within a nature conservation area (M31).
- 2.1.4 On the south side of the River Thames the site is located within Conservation Area 2: Castelnau. The character appraisal for the Conservation Area identifies the possible opportunities for development in the area including improving and protecting the landscape and river setting; the preservation, enhancement and reinstatement of architectural quality and unity; the coordination of colour and design and the improvement in the quality of street furniture and pavements; the improvement of the condition and pedestrian convenience of pavements, and rationalisation of existing signage and street furniture.
- 2.1.5 Barnes Temporary Pier includes land located within the Thames Path towpath connecting onto Castelnau and Metropolitan Open Land (MOL).
- 2.1.6 The location is shown in Figure 2.1, Hammersmith Temporary Pier and Barnes Temporary Pier are located at TQ2308978003 and TQ2299377985 respectively.

The blue hatched area is an exclusion zone which has been established to prevent vessels from navigating near the bridge.

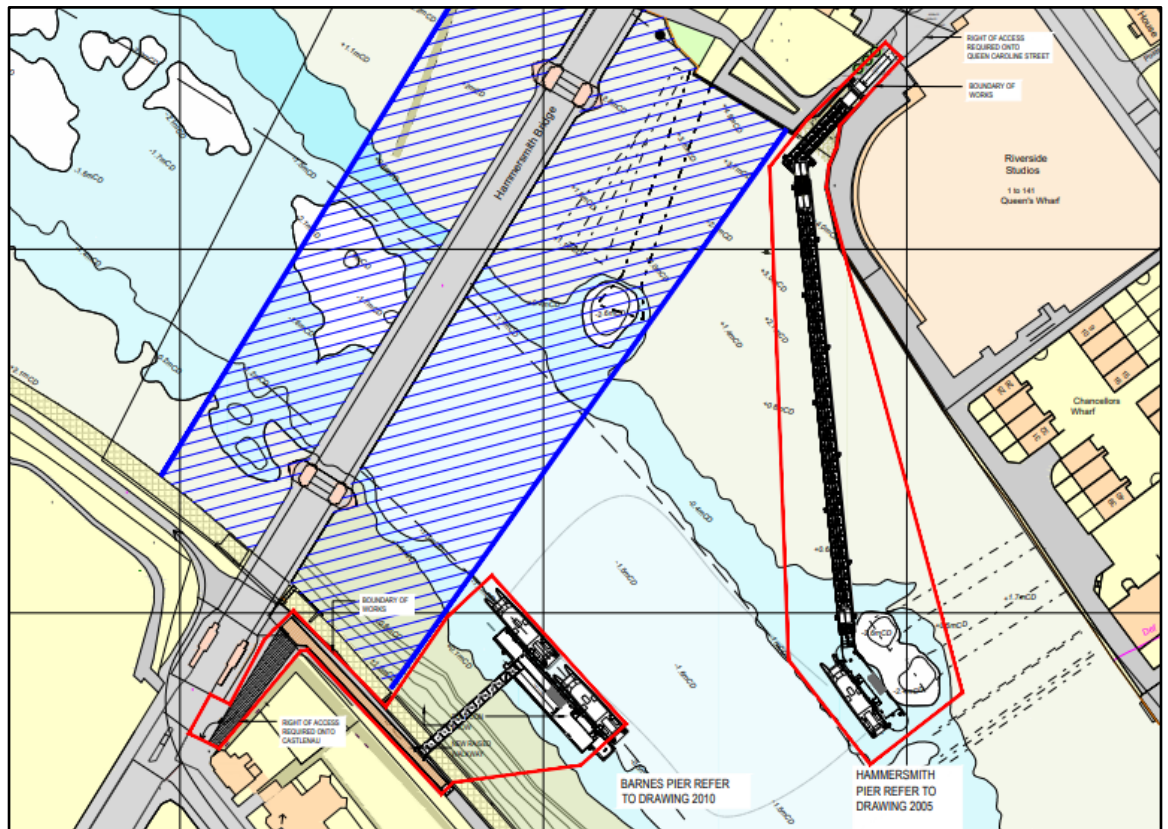


Figure 2.1: Proposed Scheme Location

2.1.7 There are no Marine Conservation Zones, RAMSARs or areas of outstanding natural beauty in proximity of the site. The Barn Elms Wetland Centre SSSI, is located approximately 650m to the south of the proposed Hammersmith Ferry. No effects on this SSSI are likely, but consultation with Natural England is on-going to confirm this.

## 2.2 Characteristics of the Proposed Development

2.2.1 The two piers are formed of similar structures which seek to respond to the immediate surroundings and their interaction with the respective land site environments. The piers are intended to be in place for up to 3 years. They will be removed on re-opening of Hammersmith Bridge. The design of each structure has therefore been completed with ease of removal as a key criterion.

2.2.2 Each pier is to have minimal onboard infrastructure and will comprise bollards, handrailing, vessel access gangways, riparian lifesaving equipment and a shelter only. The shelters will be Mmcité Aureo AE200-SD with a maximum height 2.55m. Deck arrangements are seen in Appendix A

2.2.3 A summary of each of the Temporary Piers follows.

### **Hammersmith Pier**

2.2.4 The proposed Hammersmith Temporary Pier is to land on the slipway located at the end of Queen Caroline Street. The slipway is not used by watercraft/boats on a regular basis and is closed off with timber flood boards. Access to the pier is to be via a lightweight steel ramp which will span over the flood boards.

2.2.5 A 125m long modular floating walkway (using units by EZ Dock) will span between the flood defence wall and a second-hand barge (28.83m x 5.66m), modified for use as a pier. The walkway will be restrained by 12 No. 13.5m tubular piles of up to 0.5m diameter (each with 4m embedment) – these piles are demonstrated within the drawing package included in Appendix A. The required piling is minimised to avoid major impacts and disturbance of the river environment.

2.2.6 The barge will be restrained by a pair of 13.6m long 508mm diameter spud legs (with wall thickness 16mm and embedment ~3m) – these have been selected given their temporary nature and lesser impact when compared to piles. The pier is skewed downstream to facilitate passage of large vessels beneath Hammersmith Bridge (the bridge is open for occasional navigation when no works are in progress on the bridge).

2.2.7 Lighting will be present on the pontoon, walkway and landside ramp. This shall be comprised of LED fittings which are to be bolted directly to the handrail. Navigation lights are also to be implemented on the pontoon itself in accordance with PLA guidance.

## **Barnes Pier**

- 2.2.8 The proposed Barnes Temporary Pier is formed from the old Savoy Pier (45m x 7.18m), itself a temporary structure, which will be repurposed for this development. The pontoon will be modified such that is restrained by a pair of 12.5m long, 508mm diameter spud legs (with wall thickness of 16mm) rather than its current radial arms to minimise impact on the foreshore. Each spud leg will have an embedment of ~3m.
- 2.2.9 Access to the pier is by a 35m aluminium linkspan, with clear width 2.4m, connecting to the landside Thames footpath.
- 2.2.10 The Thames footpath is located beneath flood defence level and floods on large tides. As part of the works, a 45m lightweight steel frame walkway will be installed to allow dry access to the pier. The clear width of this structure will be a minimum of 2.5m to suit segregated pedestrian and cycle traffic.
- 2.2.11 Lighting will be present on the pontoon, canting brow and landside towpath which will match that provided for the Hammersmith Pier.

## **2.3 Temporary Hammersmith Ferry Service**

### **Service design, operating hours, frequency, and journey time.**

- 2.3.1 The proposed service will run from 06:00 – 22:00 on weekdays, and 08:00 – 22:00 at weekends and will have a capacity of 800+ passenger movements per hour during peak times and 500+ passenger movements per hour during off-peak periods.
- 2.3.2 Weekday peak services will operate using two vessels from 06:00 – 10:00 and 15:00 – 19:00, with the service operating between every 5-7 minutes in both directions. Weekday off-peak services will operate using one vessel from 10:00 – 15:00 and 19:00 – 22:00 a frequency between 10-12 minutes in both directions. Journeys will take 3 minutes including transit and berthing.

## **Vessels**

- 2.3.3 Three FBM Hydrocat 'Thames Class' catamarans will be available to deliver the service. The vessels were built specifically for operation on the shallow, fast-flowing waters of the tidal Thames. The vessels are of an efficient low-wash (wake) design, with a static draft of 0.8m. The third will be stationed at Plantation Wharf Pier (a 25-minute transit), a pier owned and operated by UBTC to provide resilience and maintenance cover.

## **Capacity**

- 2.3.4 The vessels will have capacity of 62 passengers including up to 12% occupancy for bicycles for two of the vessels and 6% for the remaining back up sister vessel. Inclusive of the 62-passenger capacity, each vessel can accommodate two wheelchairs or one mobility scooter.

### **3 THE SITE AND ITS ENVIRONMENTAL SENSITIVITY**

#### **3.1 Land use**

3.1.1 The Temporary Piers will be located on the North and South of the river respectively, immediately downstream of Hammersmith Bridge. Hammersmith Pier lands in LBHF and Barnes Pier in LBRuT.

3.1.2 The Pier landings, henceforth referred to collectively as the Site, are surrounded by urbanised areas on both sides of the River Thames. The areas near the site are a combination of residential properties, social infrastructure, commercial properties, and open space.

3.1.3 The precise area where the Hammersmith Pier will land is the slipway located at the end of Queen Caroline Street. The area is characterised by the heavily built-up river frontage, with new mixed commercial and residential properties to the east side of Hammersmith Bridge, Riverside Studios and Queens Wharf. According to the planning application of this new development, the building includes 165 residential units and the new Riverside Studios (previously an historic film studio formed in 1930), that includes a performing arts centre, a gallery, bars, and restaurants.

3.1.4 To the west side of Hammersmith Bridge at the Lower Mall, is a row of old Victorian buildings running along the river which provide residential use, commercial uses (pubs and restaurants) and social uses (three rowing clubs). Two areas of green space (Furnivall Gardens to the west and Frank Banfield Park to the east of Hammersmith Bridge) are found just over 250m from the proposed site.

3.1.5 The Barnes Pier landing is on the towpath on the south riverbank which leads to Castelnau, and Riverview Gardens. The riverfront is much more naturalised with the towpath running along the river bounded by a line of trees, the surrounding area running along Castelnau from Hammersmith Bridge, is dominated by buildings with mixed use (residential and commercial). To the east, at Riverview Gardens, the area is mainly residential properties. To the west section, the playing fields of St Paul's School are a demarked green space.

## **3.2 Socio-economic, Community and Transport**

### **Borough's Socio-economic profile**

3.2.1 The LBHF is an inner London borough in a strategic location on the transport routes between the City and Heathrow. The borough has a very successful and diverse economy, and it makes a significant contribution to the economies of London and the UK, with its concentration of businesses, retail and tourism uses. The population of Hammersmith and Fulham has risen by over 10 per cent from 165,242 in 2001 to 182,500 in 2011. The GLA's 2015 projections estimated the population to be 186,800. Projections point to a rising trend of population for the upcoming years.

3.2.2 The LBRuT is in southwest London and forms part of Outer London and is the only borough of the city spanning both sides of the River Thames (with about 21 miles of river frontage). More than a third of the borough land is open space (including Richmond Park, Bushy Park and Kew Gardens). The other predominant land use is residential. Most businesses within the borough consist of services, retail, and property development. According to the 2011 Census the resident population of the borough was 187,000 representing an increase of 8.5 per cent in relation to 2001 (172,311 residents in this year). It is estimated that the population in 2018 was approximately 199,419: that is an increase of 6.6 per cent compared with 2011.

### **Local community and social infrastructure**

3.2.3 As previously discussed, the land surrounding the Hammersmith Ferry is a combination of residential properties, social infrastructure, commercial properties, and open space. Along the northern riverside, sports clubs and a leisure venue are found. Furnivall Sculling Club, Auriol Kensington Rowing Club and British Rowing are found within 200m west of the proposed Site, and Fulham Reach Boat Club is found within 250m east of the Site. These sports clubs utilise the river as part of their activities and thus have the potential to be affected by the proposed works, particularly during construction. Riverside Studios, an arts centre which also contains a bar and restaurant, is situated adjacent to the proposed northern



landing point. Furnivall Gardens located in the riverfront at Lower Mall is the closest green space to the Site on the north bank, having environmental and social importance for the local community. The riverside is also home to pubs and restaurants; The Old City Arms is located at Hammersmith Bridge Road and The Blue Anchor and Rutland Arms are located at Lower Mall. To the south of the Site, several local businesses, including pubs and restaurants, guesthouses, supermarkets, and a pharmacy are located at Castelnau.

3.2.4 Metropolitan Open Land (MOL) is found at the rear of Riverview Gardens and St Pauls Playing Field (see Figure 3.1). The towpath and the southern half of the river is designated as MOL, i.e. green space for community leisure.



Figure 3.1: Metropolitan Open Land (MOL)

3.2.5 Regarding core social infrastructure, the following schools and medical care can be found near the Site:

- St Paul's CofE Primary School is located within 250m to the north of the Site;
- St Vincent's House Care Home is located within 250m to the north of the Site;
- Bright Horizons Barnes Day Nursery and Pre-School is located within 250m south of the Site; and

- St Paul's School and its rugby pitches is located within 50m of the proposed southern landing.

3.2.6 Charing Cross Hospital is the nearest hospital to the Site, but its distance means it is unlikely to be negatively impacted upon by the proposed works. Since the closure of Hammersmith Bridge, the hospital has become much more difficult to access from the south of river to the detriment of both staff and patients.

### **Transport and connectivity at the site and its surroundings**

3.2.7 The Hammersmith Bridge is an important link between both sides of the River Thames, and between the LBHF and the LBRuT. The Hammersmith Ferry connects the north and south of the river.

3.2.8 The north bank is well served by London Underground connections with the Hammersmith London Underground Station located 600m from the Hammersmith Pier, providing a good access to all central London. In contrast, the south bank of Richmond is lacking in cross river London Underground services; and the closest underground station is only found in Putney (approximately 4 km to the east). Therefore, commuters living in Richmond used to travel on one of the five bus routes across the Hammersmith Bridge before it was closed in April 2019. Before the Hammersmith Bridge closure to vehicles, it was estimated that 20,000 cars and 1,800 buses crossed the bridge every day.

3.2.9 To estimate the population affected by the closure of Hammersmith Bridge, baseline pedestrian and cyclist traffic surveys crossing the bridge were carried out by TfL, between July 20th and August 8th in 2019. Results demonstrate that over the duration of the survey, Hammersmith Bridge was used by 167,157 walkers and 47,554 cyclists. During one day, the maximum number of walkers and cyclists recorded was 13,260 and 4,587 respectively. Additionally, on average the bridge was used by 11,114 walkers and 3,170 cyclists. Since these studies were carried out, the bridge has been closed to all pedestrian and cyclist traffic further compounding the situation.

- 3.2.10 It is noted that the next closest pedestrian and cyclist river crossing points are located at Barnes Bridge approximately 2.8km upstream (although it has steep steps at each end), and Putney Bridge approximately 2.8km downstream of Hammersmith Bridge.
- 3.2.11 The surrounding area also offers cycle and walking routes, with the Thames Path National Trail running parallel to either side of the River Thames. The path is a Public Right of Way and an important recreational route of London. For further information on this and the cycle connectivity of the proposed scheme, refer to 3.2.41.
- 3.2.12 In line with the London Plan, both London Boroughs have considered policies within their Local Plans highlighting the importance of improving walking and cycling opportunities, as part of a strategy to improve air quality, accessibility and health of the local community. This is evident in Hammersmith and Fulham Local Plan: Policy CF1 – Supporting Community Facilities and Services; Policy T1 – Transport; and Policy T3 - Increasing and promoting opportunities for cycling and walking. The same strategy is within the following policies of Richmond Upon Thames Local Plan: Policy LP 30 - Health and Wellbeing; Policy LP 31 - Public Open Space, Play Space, Sport and Recreation; and Policy LP 44 - Sustainable Travel Choices. Likewise, the Thames Path has been considered of high importance within the policies related to the River Corridor (Policy LP 18 of Richmond Upon Thames and Policy RTC1 – River Thames of Hammersmith and Fulham Local Plan.

### **Pedestrian & cyclist analysis**

#### Thames Path Survey Data

- 3.2.13 Surveys were undertaken on Thursday 29 April 2021 (0800-0900 & 1700-1800) and Saturday 01 May 2021 (1300-1400) to understand the existing peak distributions of pedestrian and cycle movements at the location of the proposed Pier accesses. The surveys recorded the number of pedestrians and cyclists travelling along the Thames Paths north and south of the river and those travelling to and from the river from Queen Caroline Street and Castelnau, respectively. A

diagram showing the survey extents and the origin-destination coding is shown in Figure 3.2.

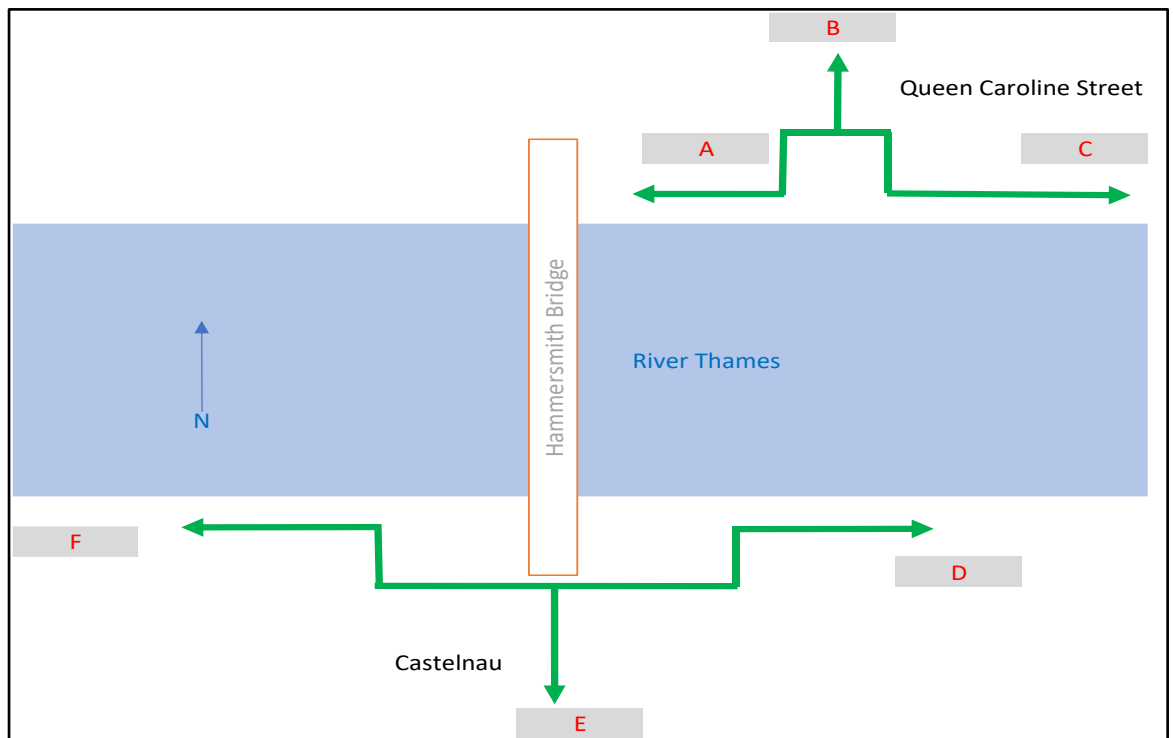


Figure 3.2: Thames Path Pedestrian Survey Extents

3.2.14 Summaries of the survey results for the Weekday AM, PM and Saturday Peak hours are shown in Tables 3-1, 3-2, and 3-3, respectively.

Table 3-1: Thursday AM Survey Results

	A-C & C-A			A-B & B-A			B-C & C-B		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
08:00 - 08:15	59	35	94	7	3	10	23	14	37
08:15 - 08:30	28	43	71	7	2	9	17	17	34
08:30 - 08:45	61	44	105	4	1	5	21	13	34
08:45 - 09:00	61	19	80	7	3	10	31	19	50
08:00 - 09:00	209	141	350	25	9	34	92	63	155

	D-F & F-D			E-F & F-E			D-E & E-D		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
08:00 - 08:15	15	0	15	5	0	5	13	6	19
08:15 - 08:30	18	0	18	14	3	17	17	15	32
08:30 - 08:45	14	1	15	15	2	17	12	19	31
08:45 - 09:00	9	3	12	9	1	10	4	13	17
08:00 - 09:00	56	4	60	43	6	49	46	53	99

Table 3-2: Thursday PM Survey Results

	A-C & C-A			A-B & B-A			B-C & C-B		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
17:00 - 17:15	60	23	83	7	2	9	30	10	40
17:15 - 17:30	60	36	96	5	2	7	25	12	37
17:30 - 17:45	53	38	91	4	2	6	20	12	32
17:45 - 18:00	78	30	108	18	2	20	25	13	38
17:00 - 18:00	251	127	378	34	8	42	100	47	147

	D-F & F-D			E-F & F-E			D-E & E-D		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
17:00 - 17:15	0	3	3	2	0	2	0	1	1
17:15 - 17:30	1	3	4	3	0	3	1	1	2
17:30 - 17:45	14	3	17	11	0	11	5	3	8
17:45 - 18:00	13	3	16	7	0	7	9	0	9
17:00 - 18:00	28	12	40	23	0	23	15	5	20

Table 3-3: Saturday Survey Results

	A-C & C-A			A-B & B-A			B-C & C-B		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
13:00 - 13:15	65	12	77	13	3	16	33	7	40
13:15 - 13:30	70	5	75	11	2	13	28	5	33
13:30 - 13:45	73	12	85	16	5	21	14	3	17
13:45 - 14:00	103	7	110	10	1	11	23	6	29
13:00 - 14:00	311	36	347	50	11	61	98	21	119

	D-F & F-D			E-F & F-E			D-E & E-D		
	Ped	Cyc	Total	Ped	Cyc	Total	Ped	Cyc	Total
13:00 - 13:15	20	17	37	9	0	9	2	3	5
13:15 - 13:30	24	14	38	6	1	7	11	7	18
13:30 - 13:45	33	8	41	11	1	12	2	5	7
13:45 - 14:00	28	11	39	10	0	10	3	3	6
13:00 - 14:00	105	50	155	36	2	38	18	18	36

3.2.15 The surveys identified that peak pedestrian movements occur at the weekend, and peak cyclist movements occur during the Weekday AM peak hour.

Projected Flows and Crossing Capacity

3.2.16 This section describes the analysis carried out to estimate potential demand for the temporary ferry crossing. An appropriately detailed estimation process has been undertaken using the counts from the Hammersmith Bridge and fare elasticity findings from the Rotherhithe to Canary Wharf river crossing project.

3.2.17 To determine the difference in demand between Hammersmith Bridge and the Temporary Ferry, factors from previous river crossing analyses were used as a

proxy and applied to the counts above. In 2017, pedestrian and cycling modelling – informed by stated preference surveys - was undertaken for the Rotherhithe to Canary Wharf project to determine potential demand for different types of river crossings. In summary, it was found that pedestrian demand for a ferry with a £1.45 fare was 56% of the demand for a bridge. Cycling demand was just 1.5% for the ferry compared to a new bridge.

3.2.18 Due to limited data, no account has been taken for the difference between commuting and non-commuting behaviour. It is possible that having to use a ferry would deter more discretionary trips than commuter trips.

3.2.19 Taking account of the available data, two pedestrian demand scenarios were derived:

- The maximum peak demand scenario is based on the pre-covid January-20 surveys, and
- a low “lockdown” scenario from the March 20 surveys.

3.2.20 It is expected that the flows will lie somewhere between these two scenarios, with travel activity expected to be greater than during a lockdown period but not returning to pre-covid levels within the Temporary Ferry’s operating timescale.

Pedestrian Analysis

3.2.21 Table 3-4 shows a summary table of the peak hour bridge crossing counts.

**Table 3-4: Flow count summary table**

	<b>AM (0800 – 0900)</b>			<b>PM (1600 – 1700)</b>			<b>SAT (1300 – 1400)</b>		
	N	S	Total	N	S	Total	N	S	Total
“Lockdown” Counts	632	418	1050	658	431	1089	546	519	1065
Pre-Covid Max Counts	1528	1111	2639	1148	657	1805	662	556	1218

3.2.22 Table 3-5 shows a summary of the bridge counts converted to ferry demand, with the maximum predicted demand of 856 northbound trips and 622 southbound trips occurring during the AM peak hour (this is the busiest hour during the day for both northbound and southbound trips).

**Table 3-5: Lower and upper bound temporary ferry service demand forecasts**

	AM (0800 – 0900)			PM (1600 – 1700)			SAT (1300 – 1400)		
	N	S	Total	N	S	Total	N	S	Total
“Lockdown” Counts	354	234	588	368	241	610	306	291	596
Pre-Covid Max Counts	856	622	1478	643	368	1011	371	311	682

3.2.23 The maximum predicted demand (856), at full pre-covid bridge flows, and assuming no reduction in demand for discretionary journeys would exceed the initial peak service capacity of 744 passengers per direction. This is not predicted to occur within the five-year timeframe of the operation of the ferry, and certainly not during initial operations. In the event that demand increases over time, such that additional services (or alternative craft) are required, there are provisions within TfL’s contract with Thames Clippers to ensure that demand could be met.

3.2.24 Pedestrians therefore make up the majority of the demand for the ferry, and at the absolute maximum range of predicted demand, additional service capacity may need to be introduced towards the end of the contract. Cyclists only make up 1-3% of the total demand, with most preferring to use alternative crossings (i.e. Chiswick or Putney Bridge) instead. This is likely due to comparable journey times, no cost and waiting times. Pedestrians have fewer options to divert, with only Barnes Bridge a reasonable alternative which would likely increase journey times.

*Projected Flows and Pier Arrivals*

3.2.25 To facilitate efficient boarding, foot passengers and cyclists will be queued independently on the piers and use separate boarding ramps to embark/disembark the vessel. Inclusive of the 62-passenger capacity, each vessel can accommodate

two wheelchairs or one mobility scooter (with advance approval via our mobility scooter scheme). If footfall is greater than anticipated during off-peak periods or weekends (one boat service), a second vessel can be mobilised to support the demand providing a frequency and capacity equal to peak time operation.

3.2.26 There will be no requirement for queuing landside on the public highway or public rights of way.

Flow Distribution

3.2.27 No survey data is available to identify the pre-existing distribution of trips at either end of the bridge when it was open. However, it would seem likely that, on weekdays, a higher proportion of people would continue north and south rather than using the Thames Path. For the purposes of assessment, this is assumed to be 1/10 east, 1/10 west and 8/10 north-south.

3.2.28 At the weekends, a higher proportion of leisure trips would be expected, likely increasing the use of the Thames path. For the purposes of assessment, this is assumed to be 1/3 east, 1/3 west and 1/3 north-south.

3.2.29 The assumed distributions are shown in Figure 3.3.

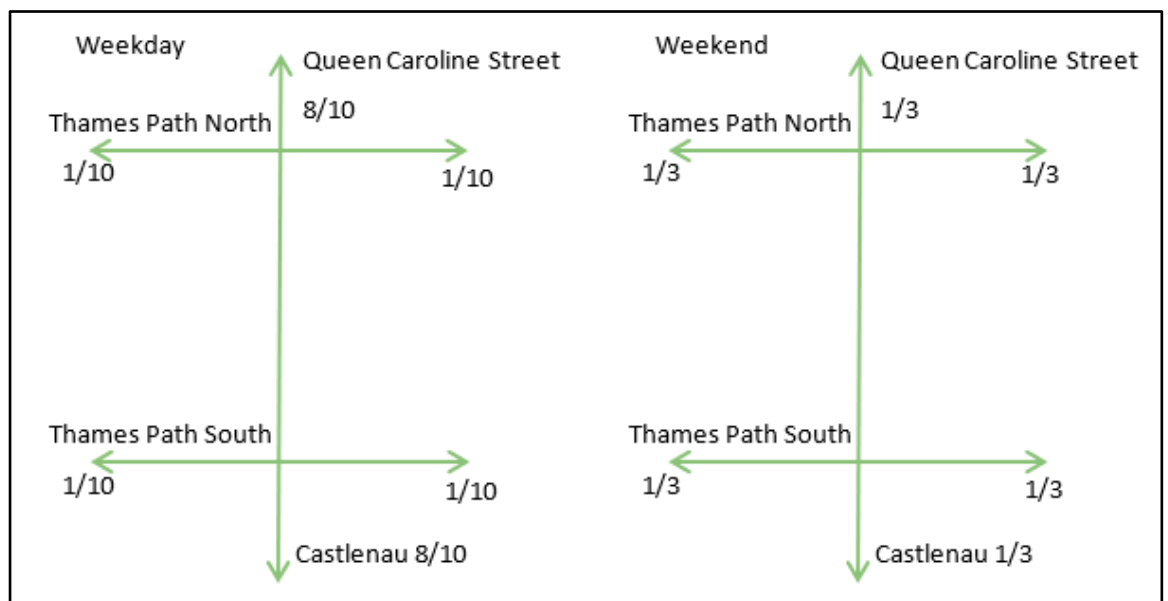


Figure 3.3: Pedestrian and cycle distributions



Pedestrian Comfort Level Assessment

- 3.2.30 A pedestrian comfort assessment has been undertaken for the access routes to the Temporary Ferry Piers, namely, Queen Caroline Street and The Thames River Paths (north and south of the river). Castelnau has not been assessed as it was used by significantly greater volumes of pedestrians and cyclists while the bridge was open and will return to this intensified use once the bridge is re-opened.
  
- 3.2.31 For the purposes of this assessment, the methodology described in Pedestrian Comfort Guidance for London published by TfL has been followed.
  
- 3.2.32 The aim of a pedestrian comfort assessment is to understand the pedestrian experience as people walk along the street. Pedestrian Comfort Levels classify the level of comfort based on the level of crowding a pedestrian experiences along the route. Pedestrian crowding is measured in pedestrians per metre of clear footway width per minute.
  
- 3.2.33 The first step when assessing pedestrian comfort is classifying the study area. Of the available classifications, the ferry service terminals are best represented by the criteria for a ‘Transport Interchange’ as shown in Figure 3.4. As stated in TfL guidance, the main peak pedestrian times in Transport Interchanges take place during the AM and PM weekday peaks, between 08:00 to 10:00 and 16:00 to 19:00, respectively. This is reflected in the peak pedestrian movements observed in the historical surveys and the projected ferry flows.

	HIGH STREET		OFFICE AND RETAIL		RESIDENTIAL		TOURIST ATTRACTION		TRANSPORT INTERCHANGE	
	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max	Peak	Ave of Max
A	COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE	
B+	COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE		COMFORTABLE	
B	ACCEPTABLE		COMFORTABLE		ACCEPTABLE		ACCEPTABLE		COMFORTABLE	
B-	AT RISK		ACCEPTABLE		ACCEPTABLE		AT RISK		ACCEPTABLE	
C+	UNACCEPTABLE/ UNCOMFORTABLE		ACCEPTABLE		AT RISK	AT RISK	UNACCEPTABLE/ UNCOMFORTABLE		ACCEPTABLE	
C-	UNACCEPTABLE/ UNCOMFORTABLE		AT RISK	AT RISK	UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		AT RISK	AT RISK
D	UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE	
E	UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE		UNACCEPTABLE/ UNCOMFORTABLE	

Figure 3.4: Criteria for Transport Interchange

3.2.34 Crowding is calculated by dividing the people per minute by the clear footway width in metres (ppmm), as shown in Table 3-6. A Pedestrian Comfort Level (PCL) Value of F (“Fail”) is given wherever the clear footway width is less than 1.9m wide.

**Table 3-6: PCL crowding categories**

	Crowding (ppmm)	0-3	3-5	5-8	8-11	11-14	14-17	17-20	20-23
Comfortable / Acceptable	Pedestrian Comfort Level A+ to B-	A+	A	A-	B+	B	B-	C+	C

	Crowding (ppmm)	23-26	26-35	35+	N/A				
At Risk / Unacceptable	Pedestrian Comfort Level C+ to E	C-	D	E	F				

3.2.35 Following the described methodology, typical PCLs have been calculated for each approach route to the ferry pier access, on the basis of existing AM peak hour flows (surveyed 29 April 2021 as shown in Table 3-1) and with the addition of the maximum projected AM peak hour flow for the ferry service demand (As shown in Table 3-5). At all other times, the cumulative flows are lower, and the PCLs would be more comfortable than as shown in this worst-case assessment.

**Table 3-7: PCL analysis results**

Location	Existing PCL	Max Future demand PCL (no mitigation)	Max Future demand PCL (QCSE decluttered)
Queen Street Caroline Street Eastern Footway	F	F	B+
Queen Street Caroline Street Western Footway	F	F	F
Thames Path North (East)	A+	A+	A+

Location	Existing PCL	Max Future demand PCL (no mitigation)	Max Future demand PCL (QCSE decluttered)
Thames Path North (West)	A+	A	A
QCS/Thames Path/Pier access crossing	A+	A-	A-
Thames Path South	A+	B	B

3.2.36 Table 3-7 shows that the existing footway widths on Queen Caroline Street are generally insufficient to provide qualifying PCL scores, i.e. the available footway width is regularly less than 1.9m.

3.2.37 On the western footway, significant improvements are not possible as, at times, the full footway width is less than 1.9m, and where the footway does widen, regular significant pinch-points are created by trees that should not be removed.

3.2.38 On the eastern side, there is much more opportunity for improvement with the overall width approaching 2.5m and the principle of decluttering the existing street furniture such as bollards and bins, permitting the PCL value to score A+ with the existing pedestrian flows and, more importantly, a “comfortable” B+ with 100% of the Queen Caroline Street flows assigned to the eastern footway (i.e. we have not assigned any additional pedestrian traffic to the western footway due to the existing poor PCL, although in reality, some ferry passengers would choose to walk on the western side of the street).

Cyclist Analysis

3.2.39 The maximum cycle demand in any one hour was observed in July 2019, with 450 cycle movements in any one direction. Based on the 1.5% conversion rate, this equates to less than 10 bicycles in the peak hour of a peak summer’s day. During a typical weekend day, three bicycles per hour per direction would be expected to use the Temporary Ferry service.

- 3.2.40 This number of cyclists mounting and dismounting close to the ferry entrances is unlikely to cause any significant disturbance to the flow of other pedestrian and cycle movements in the area.
- 3.2.41 A number of cyclists travel east-west (or vice versa) on the northern Thames Path, dismounting to access the Thames Path from Hammersmith Bridge Road, where the path narrows to 1.5m (1.2m at pinch-points), making it impossible for cyclists and pedestrians to pass without giving way to each other. These cycling movements would also conflict with pedestrians leaving the northern pier, as from both directions they would be arriving from behind the pedestrians and then turning across their path.
- 3.2.42 Due to the configuration of the Thames Path in this location, it is not possible to provide acceptable pedestrian cyclist conflict intervisibility, and it is therefore proposed to close the Thames Path to cyclists between Queen Caroline Street and Hammersmith Bridge Road. A diversion will be introduced with appropriate wayfinding signage via Worlidge Street and Queen Caroline Street. The diversion adds 225m to a cyclist's journey (less than 1 minute at typical cycling speeds) but removes the need for cyclists to dismount and walk along the narrow access to the Thames Path adjacent to the bridge, which inconveniences pedestrians and is likely to add more than 1 minute to the journey time for cyclists.
- 3.2.43 A number of school pupils use the Southern Thames Path to cycle westwards to school in the morning peak hour and conversely in the opposite direction at the end of the school day. It may be necessary to require cyclists to dismount for the sort section of raised accessway to the South Site Pier to ensure pedestrian and cyclist safety in this location. If required, Customer Service Assistance will help to enforce compliance to ensure safety for all.

### **River Navigation**

- 3.2.44 The River Thames is an historical navigation route of national and international importance. The PLA is the custodian of the tidal Thames and works to ensure navigational safety and protect the river's environment.

3.2.45 A Preliminary Navigation Hazard Analysis has been undertaken (20-NASH-105-100-R02-00); this has identified that larger vessel traffic tended towards the northern side of the navigation channel where there is the greatest headroom beneath the bridge. Hammersmith Pier has been positioned such that the impact on safe navigation through the bridge is minimised. It is noted the bridge is currently closed to navigation most of the time, but it is assumed it will be opened within the Temporary Piers' life.

3.2.46 Phase 2 of the navigational risk assessment for the ferry project is required by the PLA and is currently being undertaken by navigational specialists Nash Maritime Ltd.

### **3.3 Geology and Hydrogeology**

3.3.1 The Phase 1 Geotechnical and Geo-environmental Desktop Study of Hammersmith Bridge Refurbishment (102963-PEF-BAS-ZZZ-REP-GE-0002) has been assessed for applicability to the current scheme. Given the significant overlap in project area its contents have been collated alongside The British Geological Survey's (BGS) Geology of Britain Viewer to provide an understanding of the local geology.

3.3.2 The River Thames channel is underlain by bedrock geology of London Clay formation and superficial deposits of alluvium formed of Clay, Silt, Sand and Peat. It is noted that the area is not designated for any geological interest or importance. The bedrock geology of London Clay is classified as an Unproductive Aquifer. The superficial Kempton Park Gravel deposits are classified as a Secondary (A) Aquifer and the superficial River Channel Alluvium deposits are classified as a Secondary Undifferentiated Aquifer. There are no groundwater abstraction licenses within 1,000m of the site and the site is not located within a Source Protection Zone (SPZ)

## **3.4 Surface Water and Flooding**

### **River Thames Water Body**

- 3.4.1 The proposed Hammersmith Ferry crosses the River Thames, which flows from the west in the Cotswolds to the east, where it reaches the coast in Kent, and the marine waters of the English Channel. It is the main water body of the Thames River Basin District. No other inland rivers of note have been identified close to the Site.
- 3.4.2 The Site falls within the Thames River Basin Management Plan, which describes the Water Framework Directive (WFD) requirements for water bodies in the area. The Site specifically falls within the Thames Upper Water Body that is classified as heavily modified, due to the construction of fluvial defences for flood and coastal protection, and management of the waterbody for navigation: both of which have modified its natural course.

### **Water Quality**

- 3.4.3 Although the River Thames has had a history of pollution and was declared as biologically dead in the 1950s and 60s, it is now classed as one of the cleanest metropolitan rivers in the world. However, it is still frequently exposed to pollution in the form of litter, and industrial and sewage discharge incidents.
- 3.4.4 Water quality is monitored by the Environment Agency (EA) at several locations along the course of the river. The closest sampling site to the proposed Hammersmith Temporary Ferry is at Dove Pier, approximately 385m west of the Site. The latest results for this site (taken in October 2019) suggest that dissolved oxygen, temperature and pH are at an acceptable level and can support river life. The river is turbid, but this is partly expected as the Tidal Thames is highly turbid due to mud, silt and underlying clay geology. The EA has also recorded the presence of priority substances and other polluting chemicals listed as part of the Environmental Quality Standards Directive (EQSD), and the Cefas Action Level 1, such as heavy metals, organics and organo-metallic compounds, at this Site. In accordance with the WFD, all water bodies are to achieve 'good' status (or 'good'

ecological potential and chemical status for heavily modified water bodies). In 2016, the status condition of the Thames Upper Water Body was Moderate for Overall WFD Status and Ecological Status and Fail for Chemical Status.

- 3.4.5 A full WFD assessment has been carried out by HR Wallingford to support the scheme (DER6480-RT004-R01-00).

### **Flood Risk**

- 3.4.6 A full Flood Risk Assessment (FRA) has been carried out by Beckett Rankine to support the scheme (2048-BRL-02-XX-CA-C-1200).

- 3.4.7 The Site is situated within Flood Zone 3a, meaning it is an area characterised by a high probability of flooding from fluvial and/or tidal sources, however this designation does not consider the presence of flood defences. The Thames Tidal Defences, which are situated on both banks of the River Thames, are designed to defend against 1 in 1,000-year events. Although there is a risk of the defences being overtopped, the breach hazard rating for the site is considered low.

- 3.4.8 The piers will float and the flood defence level will be incorporated in the pile design such that the arrangement will not become free from their moorings in the case of flooding. The Hammersmith Ferry will not be operational in flood conditions.

- 3.4.9 Barnes Pier lands riverside of the flood defence on a towpath which regularly floods. A raised platform is being installed such that access is possible at high tide.

- 3.4.10 The scheme represents a negligible impact on the current flood storage volume and will not significantly impact existing flood risk.

## 3.5 Ecology

### Designated Sites

#### Statutory Sites

3.5.1 No international designated Sites (marine or terrestrial) have been identified within 5 km of the Site.

3.5.2 No marine statutory designated Sites have been identified within 5 km of the Site. The following land-based statutory designated Sites of importance for nature conservation have been identified within 1km of the Site:

- Barn Elms Wetland Centre Site of Specific Scientific Interest (SSSI), located approximately 650m south of the proposed Site;
- Chiswick Eyot Local Nature Reserve (LNR), located approximately 940m west of the Site; and
- Leg of Mutton Reservoir Local Nature Reserve (LNR), located approximately 1km south-west of the Site.

3.5.3 The Site is also situated within a SSSI Impact Risk Zone for Barn Elms Wetland Centre SSSI

#### Non-statutory Sites

3.5.4 The following non-statutory designated Sites of Importance (shown below in Figure 3.5) for Nature Conservation (SINCs) have been identified within 1km of the proposed Temporary Ferry site:

- River Thames and Tidal Tributaries (M031), located within the Site and classified as a Site of Metropolitan Grade Importance;
- Furnivall Gardens, located approximately 285m north-west of the Site and classified as a Site of Local Importance;



- Disused track bed west of Hammersmith station, located approximately 600m to the north-west of the Site and classified as a Site of Borough Grade Importance (Grade I);
- Ravenscourt Park, located approximately 895m north-west of the Site and classified as a Site of Borough Grade Importance (Grade II); and
- Margravine Cemetery, located approximately 780m east of the Site and classified as a Site of Local Importance.

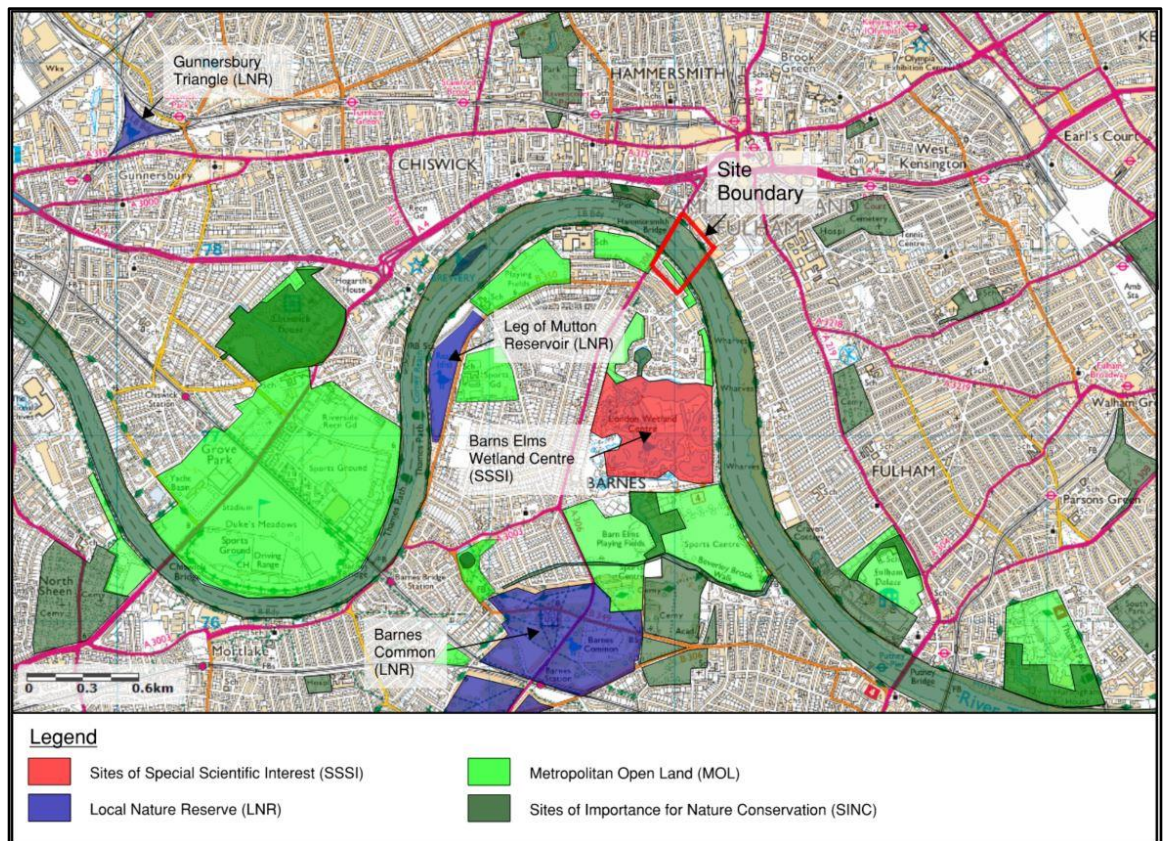


Figure 3.5: Ecological Designations

### Tree preservation orders and conservation areas

3.5.5 No Tree Preservation Orders (TPO) are found near the Site. However, there are three Conservation Areas within the Site and immediately adjacent; the Mall Conservation Area, Fulham Reach Conservation Area and Castelnau Conservation Area; therefore, trees within those conservation areas are under protection.

## Terrestrial Ecology

- 3.5.6 A Preliminary Ecological Appraisal (PEA) (ref. VBRP115/002/001) has been undertaken for the Hammersmith Temporary Ferry scheme by Thomson Ecology. The PEA records the key habitat types at the Site, assesses the potential for these habitats to support protected or notable species, and determines key ecological constraints relating to the development of the Temporary Ferry.
- 3.5.7 The UK legislation to protect wildlife and habitats, EU Directives (including Habitats Directive and Wild Birds Directive) and planning policies in relation to ecology and biodiversity were considered within the PEA. The PEA was based on a desktop study and a site walkover survey. This section includes a brief description of terrestrial ecology based on the PEA, and a more detailed account can be found within that report.

### Habitats

- 3.5.8 Habitats recorded during the PEA site survey have been categorised in line with Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Classification. The distribution of habitats across the Site is shown on the Phase 1 Habitat Plans attached in Figure 3.6. Habitats present at the Site include the following:
- Hardstanding and Structure (JNCC Code J4 & J3.6);
  - Scattered Broadleaf Trees (JNCC Code A3.1);
  - Intertidal mudflats (JNCC Code H1.1) and shingle (H1.2);
  - Running water (JNCC Code G2) that corresponds to the River Thames; and
  - Ephemeral vegetation (JNCC Code J1.3) and Scattered scrub (JNCC Code A2.2).
  - Amenity Grassland (J1.2)
- 3.5.9 It is noted that the Intertidal Mudflats are a UK Priority Habitat due to their high productivity and ability to support predatory bird and fish species. Intertidal mudflats were observed at low tide along the northern and southern banks of the River Thames. This habitat is considered to be of value to feeding birds. Mudflats

are also of importance to wintering birds and migrant species. However, given the location within this particular Site, it is considered that the mudflats would support less biodiversity than areas of less recreational disturbance and pollution. No vegetation was observed within the mudflats during the PEA survey. Scattered Broadleaf Trees (JNCC Code A3.1) are present to the north and south of the Hammersmith Bridge which have the potential to support roosting bats. Tree species include ash (*Fraxinus excelsior*), common lime (*Tilia x europaea*), elder (*Sambucus nigra*), London plane (*Platanus x hispanica*), Black poplar (*Populus nigra*) and Willow (*Salix spp sp*).

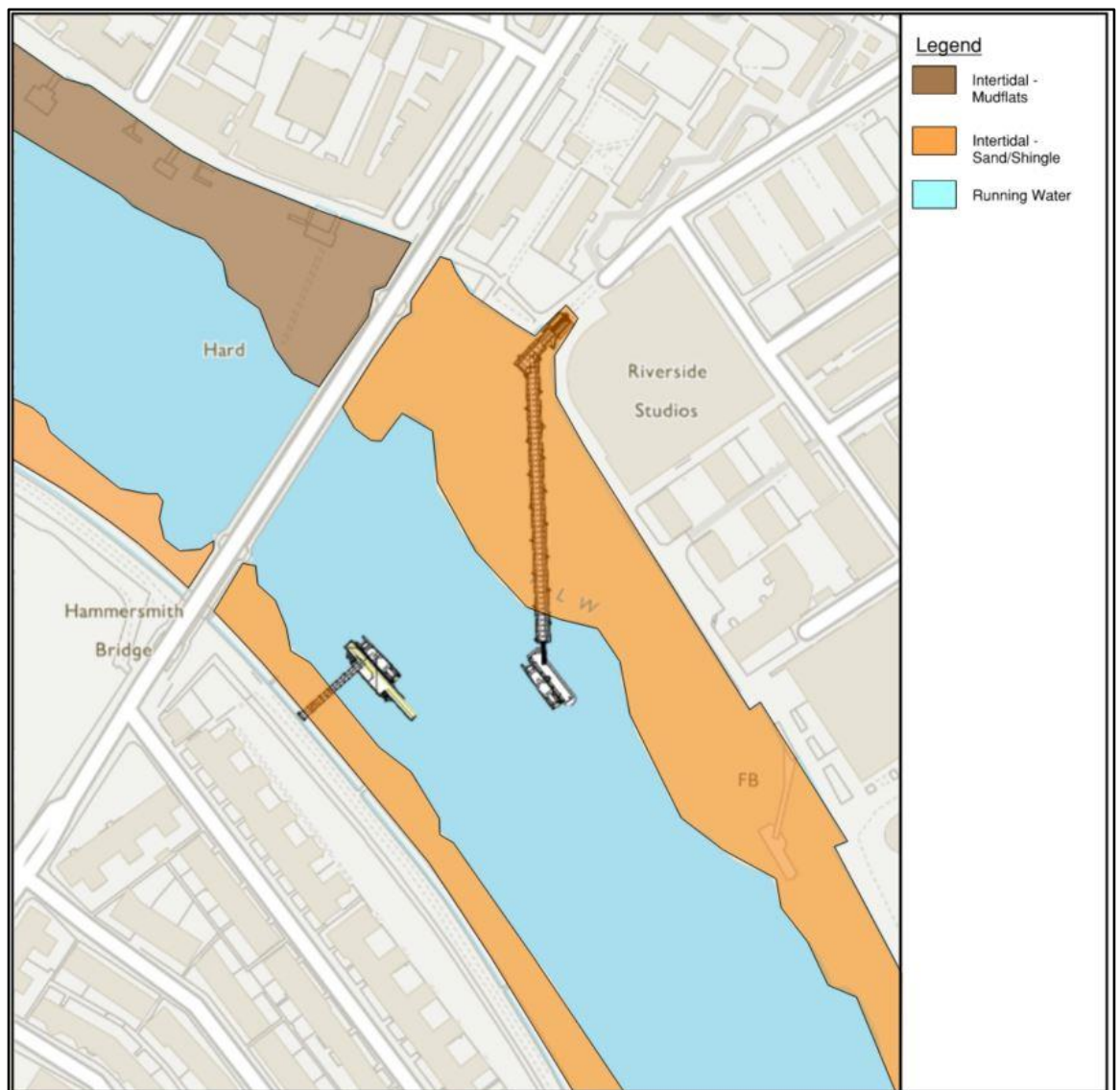


Figure 3.6: Habitat Designation

### Protected and Notable Species

- 3.5.10 The PEA considers records from the National Biodiversity Network (NBN) and Greenspace Information for Greater London CIC (GiGL) which identify eight European protected bat species within a 2km radius of the site. Other protected species records found within 2km of the site included four species of amphibian, 181 species of bird (with 85 notable bird species either found on the BoCC Red List or Schedule 1 Part 1 of the Wildlife and Countryside Act), two species of fish (one UK Biodiversity Action Plan priority fish species), two species of mammal and three species of reptile.
- 3.5.11 Bat species records were returned within the PEA desk study, with seven species being identified present within the Barn Elms Wetland Centre to the south-east of the Site. Tree lines and the linear feature of the River Thames are considered to provide commuting and foraging grounds for bat species. Mature trees to the south of the Hammersmith Bridge could also have concealed bat roosting features behind ivy where it is present. No potential roosting features were identified within any of the trees to the north of the Hammersmith Bridge. Hammersmith Bridge itself is considered to have low suitability roosting habitat for bats.
- 3.5.12 Regarding birds: the mudflats are identified as important for foraging, wading and wintering birds as they are exposed at low tides. During the survey 11 species of bird were recorded.
- 3.5.13 Due to the urban setting of the Site, and its isolation from suitable habitats (such as the Barn Elms Wetland Centre), it is considered unlikely that a reptile species, badgers (*Meles meles*), otters (*Lutra lutra*), water voles (*Arvicola amphibious*), great crested newts (*Triturus cristatus*) or dormice (*Muscardinus avellanarius*) would be present. No signs of these species were identified during ecological surveys.

### Invasive Species

- 3.5.14 The NBN search has returned records for invasive non-native species Chinese mitten crab (*Eriocheir sinensis*), Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*), and New Zealand pigmyweed (*Crassula helmsii*) within 2km of the site. The closest Chinese mitten crab was found 1km to the west of the Site. Invasive plant species Japanese knotweed, giant hogweed and New Zealand pigmyweed were found approximately 1.10km to the north east, 1.05km to the south east and 1.10km to the south of the Site respectively
- 3.5.15 During the PEA survey, no scheduled invasive species, such as Japanese knotweed or giant hogweed were identified, but it should be noted that the survey was completed outside of the optimal flowering season for these species. Buddleia, which is locally invasive and listed on the London Invasive Species Initiative (LISI) was identified.

### **Aquatic Ecology**

- 3.5.16 An Aquatic Ecology desktop study (DER6480-RT003-R01-00) was undertaken by HR Wallingford.
- 3.5.17 Available aquatic data was collected for groups of fish, marine mammals, and benthos. Findings related to aquatic species are summarised in the sections below.

### Fish Species

- 3.5.18 Fish species that are likely to be found within the vicinity of the Site include Atlantic salmon (*Salmo salar*), Barbel (*Barbus barbus*), brown/sea trout (*Salmo trutta*), bullhead (*Cottus gobio*), common Dace (*Leuciscus leuciscus*), common goby (*Pomatoschistus microps*), European eel (*Anguilla anguilla*), European seabass (*Dicentrarchus labrax*), European smelt (*Osmerus eperlanus*), Flounder (*Platichthys flesus*), river lamprey (*Lampetra fluviatilis*) and roach (*Rutilus rutilus*). These species have been recorded as present between Teddington Lock and Wandsworth Bridge by the Zoological Society of London (ZSL).

- 3.5.19 These species are split into different fish types with the common goby spending its entire life in the Tidal Thames, some species being found in the freshwater-dominated Tidal Thames, some using the Tidal Thames to spawn or grow whilst juveniles, and some migrating through the Tidal Thames to freshwater or saltwater. The species can be present at different times of year near the Site. Several of the fish species mentioned are protected, including Atlantic salmon, barbel, brown / sea trout, bullhead, common goby, European eel, European smelt and river lamprey. European eel and smelt are protected under NERC Species of Principle Importance, MCZ FOCI (Feature of Conservation Importance), London BAP Species and UK BAP Priority Species.
- 3.5.20 The Thames smelt population are known to spawn close to the project area. European smelt are sensitive to pollution and thus can be an indicator of good water quality. Data from previous reports suggests that the likely dates for smelt spawning and hatching are between March and April. Following spawning, juvenile smelt drift with the currents until they can swim independently, and they remain in the Tidal Thames throughout summer. A report by HR Wallingford for ZSL (2016) recorded that past spawning has occurred at Wandsworth Bridge, but the potential extension of the spawning ground includes upstream at Hammersmith Bridge.
- 3.5.21 European eel are known to pass Hammersmith Bridge during upstream and downstream migration. This species has been listed as 'Critically Endangered' on the International Union for Conservation of Nature (IUCN) Red List since 2008. Eel have been recorded at a monitoring site 7km upstream of Hammersmith Bridge. They have also been recorded 1.5km downstream alongside Craven Cottage (Fulham Football Club Stadium) as part of an Environmental Statement (ES) submitted by Fulham FC. This survey also recorded common goby, bass, flounder, common bream (*Abramis brama*), three-spined stickleback (*Gasterosteus aculeatus*), smelt, dace and roach.
- 3.5.22 The EA undertake freshwater monitoring at Beverley Brook (2km downstream of the Hammersmith Bridge). Other fish species recorded (that have not been previously mentioned) include gudgeon (*Gobio gobio*), chub (*Leuciscus cephalus*), stone loach (*Barbatula barbatula*), rudd (*Scardinius erythrophthalmus*) and tench (*Tinca tinca*).

3.5.23 A data search on the NBN Atlas revealed aquatic species results for European eel, sea bass, smelt and Jenkin's spire snail / New Zealand mud snail (*Potamopyrgus antipodarum*). No records for algae were recorded.

3.5.24 Therefore, it is considered that a number of protected and common fish species are likely to be present at the Site, across a variety of times throughout the year. This includes likely spawning areas for smelt, and the upstream migration of a number species, including eels, and a typical fish assemblage for a river of this type.

#### Marine Mammals

3.5.25 Marine mammals are present throughout the Thames Estuary during all months of the year, according to ZSL. Sightings of seals, harbour porpoises (*Phocoena phocoena*) and bottlenose dolphins (*Tursiops truncatus*) have been recorded much further upstream than Hammersmith Bridge.

3.5.26 Marine mammals likely to be found around the Site (based on past public sightings) include the grey seal (*Halichoerus grypus*), harbour seal (*Phoca vitulina*) and the harbour porpoise.

3.5.27 ZSL has also recorded some public sightings of grey seals and harbour seals in the Fulham and Putney area in 2020.

3.5.28 Therefore, it is considered that grey and harbour seals and harbour porpoise may be occasionally present, in low or single numbers at the Site.

#### Benthic Ecology Species

3.5.29 A number of invertebrate species were recorded during past benthic surveys, including for the Fulham FC ES, and a survey at Wandle Half Tide Weir (4km downstream of the proposed Temporary Ferry site). It was concluded that there were no species or assemblages of conservation importance, with only common species being recorded.

3.5.30 The Fulham ES (conducted in 2017) reported that swollen spire snail (*Mercuria confuse*), duck mussel (*Anodonta anatine*), swollen river mussel (*Unio tumidus*) and crustacean shrimp (*Corophium lacustre*), which are all IUCN Red Data List species, have been recorded in the upper Tidal Thames. The Tidal Thames is also thought to support populations of the tentacled lagoon worm (*Alkmaria romijni*), protected under the Wildlife and Countryside Act. However, none of these species were present during the survey.

3.5.31 The Wandle Half Tide Weir survey also recorded non-native species, such as the New Zealand mud snail and Asian clam (*Corbicula fluminea*). No species of conservation importance were recorded.

### **3.6 Archaeology and Heritage**

3.6.1 Mills Whipp Projects have undertaken an Archaeology Assessment, The assessment found 34 designated heritage assets within, or partly within the 500m study area which comprise six Grade II\* Listed Buildings, 24 Grade II Listed Buildings and six Conservation Areas. Three of those Conservation Areas are found adjacent to the proposed Hammersmith Ferry (see Figure 3.7):

- Fulham Reach Conservation Area is situated to the north east of the Site;
- The Mall Conservation Area is situated to the north west of the Site; and
- Castelnau Conservation Area is situated to the south west of the Site.



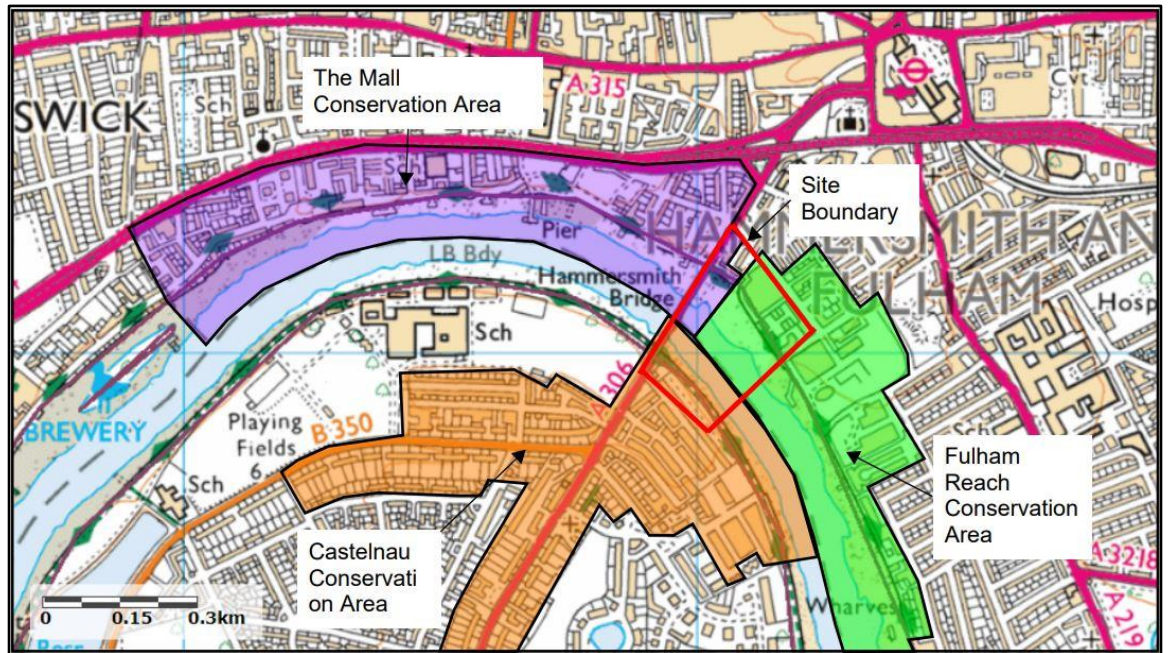


Figure 3.7: Location of Designated Conservation Areas

3.6.2 All three of these conservation areas are considered of medium historic and architectural significance, the exception is The Mall Conservation Area, which is of high significance. The Mall Conservation Area has been designated for its surviving elements of 17th century and later waterfront buildings and the relationship of the area with the River Thames. The asset contains several Listed Buildings. The asset derives much of its significance from its architectural and historic interest.

3.6.3 The Hammersmith Bridge is a Grade II\* Listed Building, which stands adjacent to the proposed Hammersmith Ferry. This is an asset of High Significance that has been designated due to its high architectural qualities and its ornamentation, which makes it one of the most distinctive bridges on the Thames.

3.6.4 The desktop study also highlights that there are three Archaeological Priory Areas (APA) within the study area namely (Figure 3.8):

- Hammersmith Creek, Queen Caroline Street and Broadway APA – which is situated to the north/north-west of the Site;
- Winslow Road APA – which is situated to the south east of the Site; and
- Thames Foreshore and Bank APA – which is situated to the south of the Site.

3.6.5 The results demonstrate that there are also 21 non-designated heritage assets within, or partly within the 500m study area. Most of these fall into the three APA's mentioned above. These non-designated heritage assets are typically formed of artefacts from a range of different periods and building / structure remains.

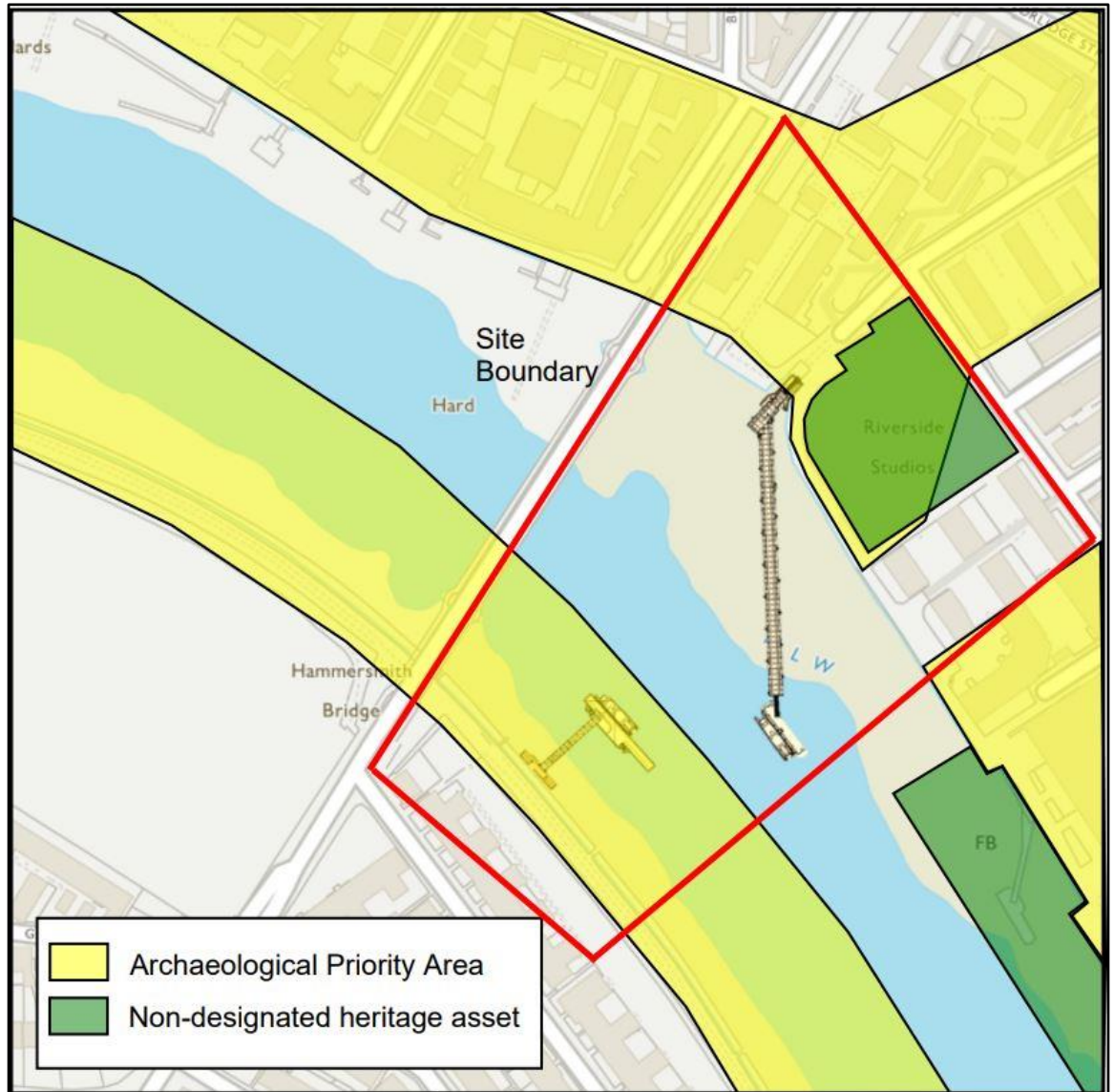


Figure 3.8: Location of non-designated heritage assets and APA

### 3.7 Townscape and Landscape

3.7.1 Hammersmith Bridge lies within the Inner London National Character Area. This landscaped designation is dominated by a built environment and scattered with parks, and numerous heritage assets of national and international importance. It is noted that no Areas of Natural Outstanding Beauty are present in this character area.

- 3.7.2 The River Thames is the most immediately visible natural feature of the London Landscape Character Area, having vital functions for the balance of the urban ecosystem: as the principal draining feature; a wildlife habitat; and supporting human activities from transport to leisure. The River Thames has long been a cultural inspiration, demarking the townscape and urban settlement, and the proposed project Site and its surroundings are no exception to this.
- 3.7.3 The Site lies within The Thames Policy Area. This designation, and associated policies, protects the features of the riverside and of the river, including townscape and views. At the Site, it is noted that the riverfront of the River Thames provides an imperative open view including notable local landmarks, of which the historic Hammersmith Bridge is the most iconic.
- 3.7.4 As described in Section 3.6, the Site lands on both sides of River Thames in Conservation Areas that were designated due to the historic and architectural significance of its buildings and its special townscape character.
- 3.7.5 On the northern riverbank, the Thames Path National Trail follows the river with a strong built frontage, offering extensive walking and cycling opportunities with open views for users. To the northeast of Hammersmith Bridge, the townscape character of the riverfront is enriched by the Victorian houses of The Mall Conservation Area (Figure 3.9), from Hammersmith Bridge Road to the west along the river. The Conservation Area has been divided into several Character Areas, the closest of which is Lower Mall, which has buildings varying in interesting architectural styles. Pubs, such as the Blue Anchor for example, and rowing clubs are part of the identity of this place. Two residential moorings give a special charm to the riverfront. To the west, the Furnival Gardens, classified as a Site of Local Importance, is the most significant green space in the transition to the west to the Upper Mall (other Character Area of the main Conservation Area, The Mall).



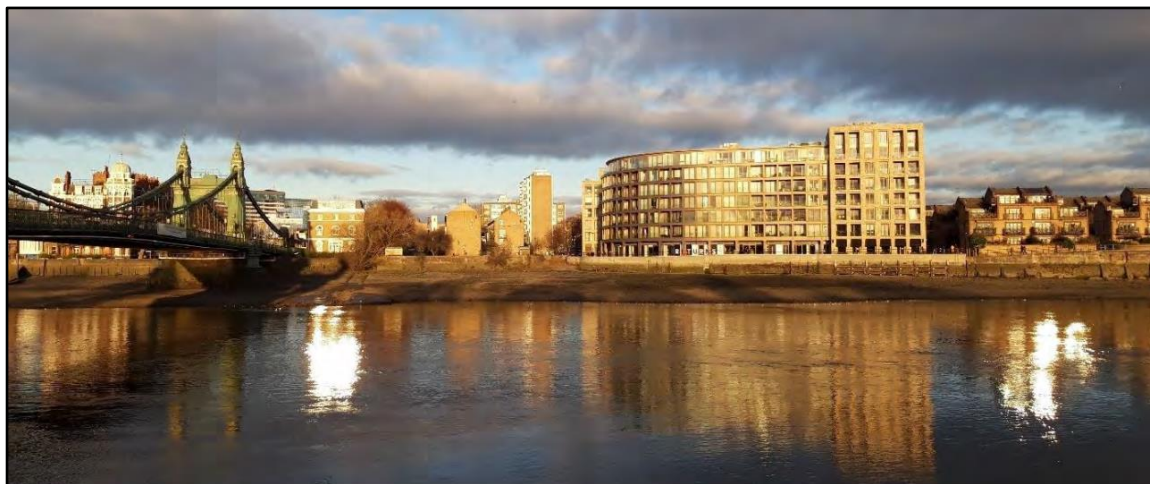
Figure 3.9: View to The Mall Conservation Area from Hammersmith Bridge

3.7.6 Protected views and landmarks have been identified within the Local Plan of Hammersmith and Fulham Policies Map, as shown in Figure 3.11. Policy DC7 Views and Landmarks states:

*'The council will protect the strategic view of St Paul's Cathedral and important local views shown on the Policies Map'. N.1 of Policy DC7 also states that applications within the Thames Policy Area will not be permitted if they would cause unacceptable harm to the view 'from Hammersmith Bridge, the view along the river, foreshore, and riverside development and landscape between Hammersmith Terrace to the west and Fulham Football Ground to the south.'*

3.7.7 Furthermore, N.2. of Policy DC7 notes that applications will also not be permitted if it would cause unacceptable harm to the view 'from within the Thames Policy Area of any important local landmarks, or their settings, including the Upper and Lower Mall, and Hammersmith Bridge'.

3.7.8 Adjacent to the Hammersmith Pier landing site, is a new high-quality residential redevelopment (completed in 2019), which also includes the public space of The Riverside Studios. Although this is a heavily built-up environment, some trees and a small area of green space are directly west of the slipway where the Hammersmith Pier is to land (Figure 3.10).



**Figure 3.10: View to North Bank where Hammersmith Pier will Land**

- 3.7.9 On the southern riverbank, a towpath runs along the riverside where Barnes Pier will land, followed by a dense line of mature trees. To the southeast side of Hammersmith Bridge, there is an open green space used as St. Paul's School rugby pitches.
- 3.7.10 Metropolitan Open Land (MOL) has been identified on the southern side of the Temporary Ferry, formed of the southern extent of the river and a strip of land along to the rear of Riverview Gardens and St Pauls Playing Field. This is a designation within the London Plan, and it is intended to protect areas of landscape, recreation, nature conservation and scientific interest.
- 3.7.11 The LBRuT has included protected views within the Policies Map of the Local Plan (Figure 3.12). Under Policy LP5 'The Council will protect the quality of the views, vistas, gaps and the skyline, all of which contribute significantly to the character, distinctiveness and quality of the local and wider area'.

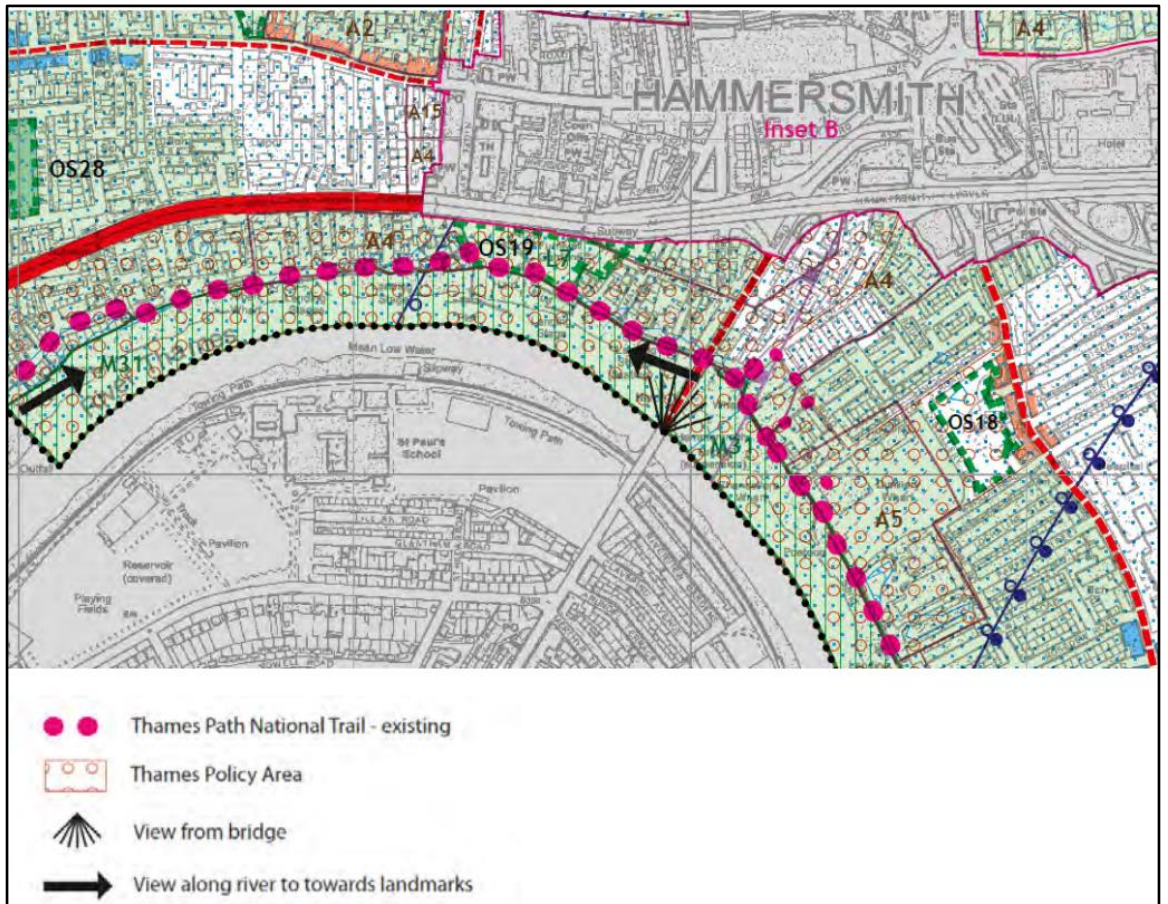


Figure 3.11: Excerpt from the LBHF Local Plan Policies Map



Figure 3.12: Excerpt from the LBRuT Local Plan Policies Map  
(Source: [Local Plan Proposals Map Adopted July 2015](http://cartogold.co.uk)" (cartogold.co.uk))

### 3.8 Air Quality and Climate Change

3.8.1 The northern extent of the proposed Hammersmith Pier falls with the LBHF Air Quality Management Plan (AQMA) and the southern end falls within the LBRuT AQMA. These AQMA (shown below in Figure 3.13) were declared by London Boroughs due to exceedances of NO<sub>2</sub> and PM<sub>10</sub>. The key sources of such pollutants are attributable to road traffic associated emissions.

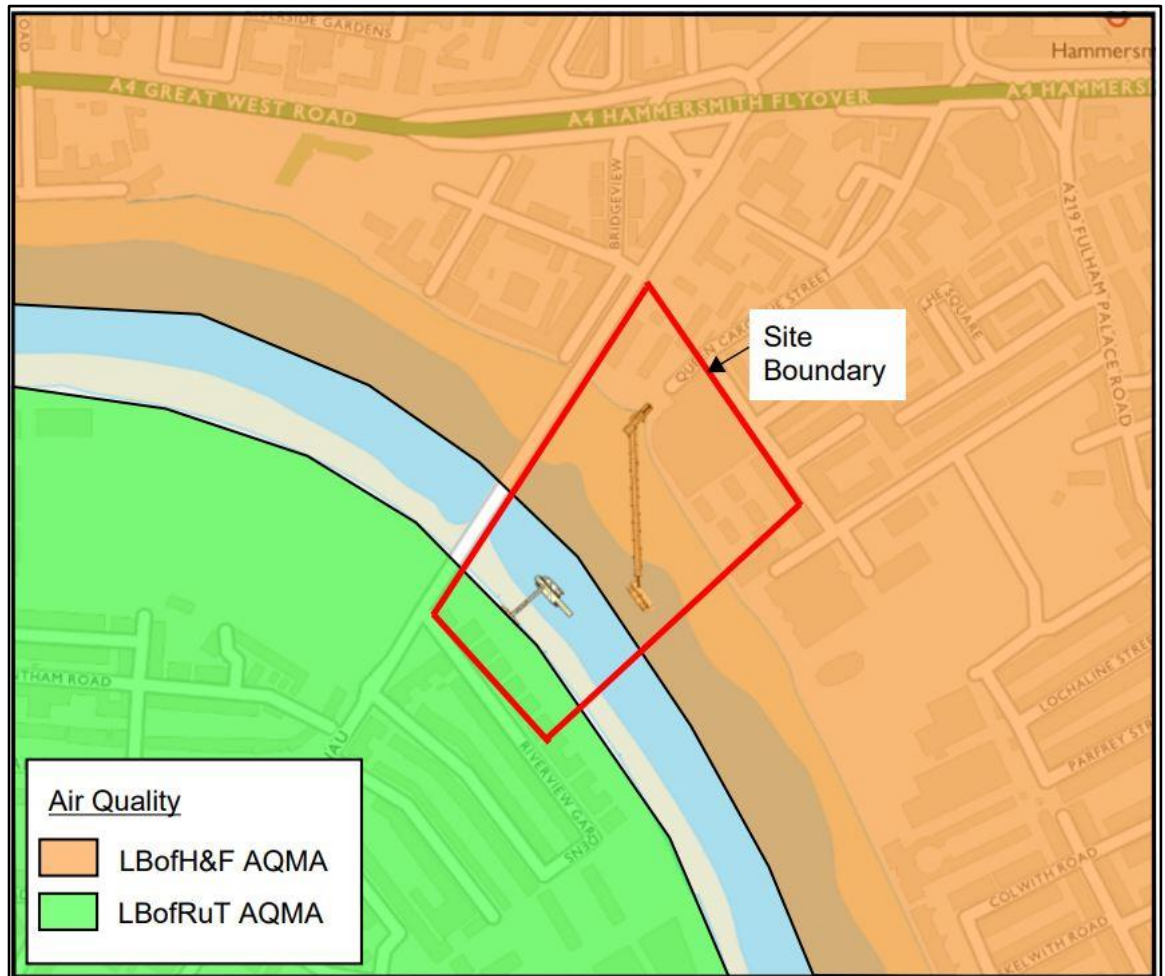


Figure 3.13: Air Quality Management Areas (AQMA)

3.8.2 In relation to climate change, in line with National Planning Policy Framework (2019) and the Climate Change Act (2008) as amended in 2019, the local planning authorities have included objectives within their planning policies to reduce carbon emissions. Improved cycling and walking opportunities are encouraged within the local plan policies of the LBHF and the LBRuT as measures to address climate change. Further information can be found in the Air Quality Assessment (ref. J10-12312A-10\_F1).

### 3.9 Noise and Vibration

3.9.1 The main sources of noise at the Site are likely to arise from road traffic, servicing of commercial areas and noise from air traffic associated with Heathrow Airport. No vibration sources of importance have been identified at the Site and its surroundings.

3.9.2 Sensitive receptors have been identified near the Site (as shown below in Figure 3.14). Residential receptors are located on the north of the River Thames to the west and to the east of the existing Hammersmith Bridge and Temporary Ferry. The Riverside Studios and residential blocks along Queen Caroline Street are residential receptors located adjacent to the Temporary Ferry. On the west side of the proposed bridge, at Lower Mall, several buildings with homes and restaurants and pubs are found.

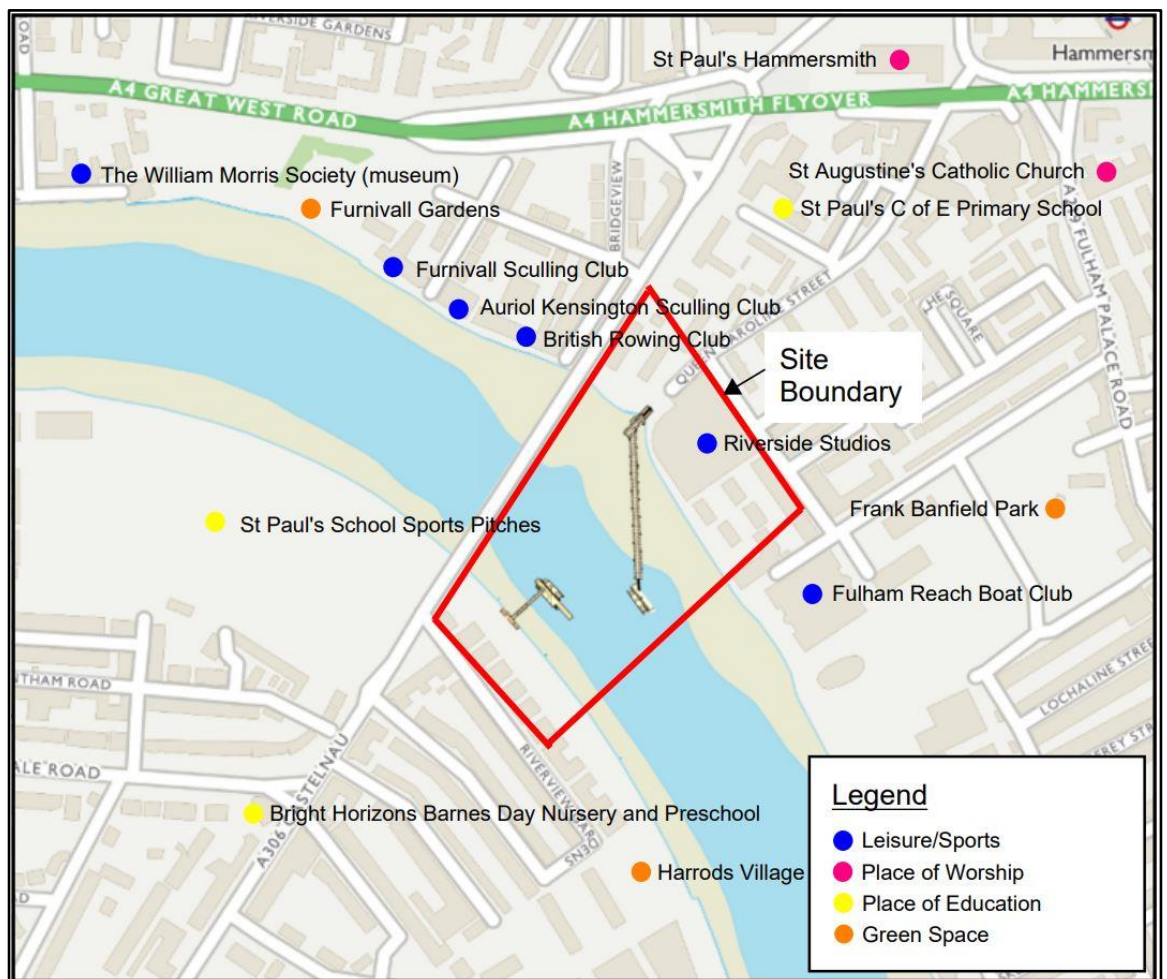


Figure 3.14: Sensitive Receptors near the Site



3.9.3 On the south of the River Thames, the closest residential receptors are found near the proposed Temporary Ferry along Riverview Gardens to the east and along Castelnau. St. Paul's School is located approximately 350m to the west of the proposed Temporary Ferry, with its rugby pitches located adjacent to the west side of Hammersmith Bridge.

### **3.10 Land Contamination**

3.10.1 The potential risks for land contamination within the Site are discussed in the Land Contamination Desk Study (ref. 102963-PEF-BAS-ZZZ-REP-EN-10010) produced by Pell Frischmann. This document is a critical review of their previous report (produced for the Temporary Bridge) and revises the conclusions made to account for the variation between the schemes. The document concludes that while the Hammersmith Temporary Ferry and Hammersmith Temporary Bridge schemes are similar, the current scheme has a much-reduced scale. Findings from the report are discussed below.

3.10.2 No registered radioactive substances, mining activities, natural activities or historic landfills were found. No active waste registered waste facilities are located within 1km of the site. However, the following land use types were identified:

- One historic waste treatment/disposal site, a former scrapyard located within 500m to the east of the site;
- Two fuel stations (within 500m);
- Four manufacturing/production sites (within 250m); and
- 67 industrial land use sites (within 500m).

3.10.3 There is one surface water discharge consent on-site and one within 15m, both licensed to Thames Water for Sewage Discharge – Storm Overflow. Both are located on the Thames' north bank. Thames Water hold a further 3 Discharge Consents within 1km of the site, all relate to Sewage Discharge to the River Thames. One further discharge consent held by The Hammersmith Business Park Unit Trust, exists 396m SE and downstream of the site.

3.10.4 From the identified potential contaminant sources and/or contaminative land uses identified on-site and/or in proximity to the Site, the following potential contaminants of concern have been identified:

- Made ground relating to the demolition of former on-site buildings and structures
- Made ground related to infilled basements of former properties on Queen Caroline Street
- Potential ground contamination related to the north banks use as a wharf (including potential for hydrocarbons).
- Waste formerly deposited on the Thames foreshore, also the potential presence of harmful microorganisms or pathogens associated with the proximity of the Thames Water storm sewage overflow immediately west of the site on the north shore.
- Fuel storage within former industrial buildings to the east of the site on the north bank (potential for the presence of hydrocarbons in soil and groundwater).
- Infilled reservoir 15m west of the site on the south bank (potential for ground gas generation dependent on infill material).

3.10.5 These potential contaminants may impact the River Thames, downstream users, ecosystems, the superficial secondary aquifer, and construction workers.

3.10.6 WW2 recorded bomb strikes are located within approximately 50m of the north shore landing area. Any risk of UXO is to be addressed by a pre-works UXO survey.

## **4 DESCRIPTION OF LIKELY ENVIRONMENTAL EFFECTS**

### **4.1 Land Use**

4.1.1 The required area for the landing of Hammersmith Pier is approximately 60m<sup>2</sup>, in addition to the used of the slipway. This area is adjacent to the greenspace and interfaces with the existing Queen Caroline Street.

4.1.2 The landside walkway at Barnes Pier is approximately 175m<sup>2</sup> along the towpath but will, by design, maintain access along the towpath.

4.1.3 Considering the minimal spatial extent of the area affected (less than 1 hectare) and land use, the impact is minor. Additionally, once the Temporary Hammersmith Ferry is no longer required, the structures will be fully removed, and all areas temporarily affected will be restored. Therefore, no significant effects on land use due to construction, operation and decommissioning are likely.

### **4.2 Socio-economic, Community and Transport**

#### **Effects on community, transport and connectivity**

4.2.1 The construction phase could affect members of the community using the Thames path for recreational purposes due to route diversions and interruption of activities. The impact on river users will be minimal given the bridge is not currently open to navigation and river use at the site is therefore minimal. The impact is temporary as it is limited to the time of construction works. This has been further reduced by design as structures will be fabricated offsite prior to installation. Suitable measures related to route diversion and communication with local community will be included within the Construction Environmental Management Plan (CEMP).

4.2.2 Users of the Riverside Studios and pubs and restaurants closer to the works on the north bank could also expect to experience minor nuisance due to route diversions and noise caused by the works. These minor short-term effects can be mitigated through suitable measures within the CEMP.

- 4.2.3 Taking into account all of the above no significant adverse effects upon the local community during the construction phase are likely to occur.
- 4.2.4 During the operational phase, the community will benefit considerably from the cross river connection provided by the Hammersmith Ferry. While there may be increased pedestrian & cyclist flow on the approaches to the piers this will be temporary only and limited to the operational phase. This increase in pedestrian and cycle flow will be offset by a reduction in vehicular traffic on alternative river crossings.
- 4.2.5 The Hammersmith Ferry scheme is aligned with the local policies of the LBHF and LBRuT encouraging cycling and walking opportunities as ways to benefit the health and wellbeing of the community.
- 4.2.6 The Temporary Hammersmith Ferry will have a beneficial effect on the community of both London Boroughs, benefitting people's health and wellbeing, through the cycling and walking opportunity created by the new Hammersmith Ferry, and the significant time saved in crossing the river.
- 4.2.7 During the decommissioning phase, the pedestrians and cyclists will return to the existing Hammersmith Bridge, as its refurbishment works will then be complete.

### **Effects on Navigation**

- 4.2.8 Hammersmith Bridge is closed to river navigation as such the impact of the construction is minimal. TfL and the design team have been engaging with the PLA since the early stages of the project to consider all aspects related to safety and river traffic navigation within the design and the construction. A full Navigation Risk Assessment (NRA) is being undertaken to ensure that the design and all works within the river will not impact on safe navigation. The preliminary Navigation Hazard Analysis (20-NASH-105-100-R02-00) has identified that there will be minor constraints to river traffic.
- 4.2.9 All requirements set out by the PLA related to navigation will be adhered to during the construction phase. Therefore, any likely effect on navigation resulting from

construction works is considered to be minor. During the operation phase, the bridge is expected to open to navigation. No significant adverse effects are expected on the navigation, as the Hammersmith Ferry has been designed, through engagement with the PLA to allow the safe movement of other vessels. Similar effects of the construction phase can arise during decommissioning; however, any likely effect will be of minor to negligible significance with adherence to the requirements set out by the PLA.

### **4.3 Geology and Hydromorphology**

4.3.1 The Site is not designated for any geological interest or importance and does not yield any significant geological resource. The expected small volume (~120m<sup>3</sup>) of bed levelling is of low significance. Accordingly, the construction of the Hammersmith Ferry is not considered to give rise to any significant effect upon geology or hydrogeology.

4.3.2 While there may be minor impact on the bed morphology because of the vessel operations, this will be negligible as they will be using very low engine revs for the 90 second crossing. Any changes to the bed morphology will be reinstated on removal of the piers. There will be no effects to geological resources during the operation of Hammersmith Ferry.

4.3.3 Decommissioning of the Hammersmith Ferry can give rise to similar effects as those identified for the construction phase, however it is unlikely that there will be any significant effects upon geology or hydrogeology.

### **4.4 Surface Water and Flooding**

#### **River Thames Water Body**

4.4.1 It is noted that the River Thames is a heavily modified river. A Hydrodynamic and Scour Assessment has been carried out by HR Wallingford (DER6480-RT001-R01-00) to oversee impacts within the river channel and its hydromorphology due to the presence of the proposed Hammersmith Ferry.

- 4.4.2 The assessment concludes that changes to the sediment regime will be minimal, and changes predicted in the main navigation channel and at river walls will also be negligible. Local scour may occur around some of the walkway piles; however, the overall conclusion is that changes resulting from the Hammersmith Ferry are expected to be localised with no significant effect on river flows.

### **Water Quality**

- 4.4.3 A Water Framework Directive (WFD) Assessment has been undertaken (DER6480-RT004-R01-00) to ensure that the structure will not jeopardise objectives of achieving 'good' status as set in the River Thames Basin Management Plan during construction, operation, and decommissioning phases. The outputs for the WFD Assessment are presented below.
- 4.4.4 Construction activities for the Hammersmith Ferry may give rise to adverse effects in water quality due to potential contamination, from inland activities and activities within the river. Piling has the potential for sediment disturbance, which could potentially contain contaminants that would be released into the water affecting its quality. The piling method that is being proposed, is to use a soft-start vibro-piling approach in water levels as low as safely possible. Nevertheless, there is the potential that a minor amount of disturbance is possible. Although there is typically some degree of chemical contamination in most Tidal Thames sediments, it is unlikely that the minor levels of disturbance to the sediments could cause significant effects to water quality (that could lead to adverse effects on ecological receptors).
- 4.4.5 In addition, as is the case for most construction works taking place in and near the river environment, there is the potential for accidental spillages or leakages of substances (e.g. fuels, oils, etc.) to occur from machinery, which has the potential to contaminate water through direct input to the estuary or via runoff. To minimise the risk of spillage or leakages from occurring, best practice techniques within the CEMP will be implemented throughout all construction and decommissioning activities. Moreover, all working practices will adhere to Guidance on Pollution Prevention (GPP) for works and maintenance in or near water (NetRegs, 2020) and all vessels would adhere to the requirements of the MARPOL Convention

Regulations. Once these measures are in place, significant effects on water quality due to construction are unlikely.

- 4.4.6 During operation, the assessment of scour due to the placement of small diameter piles in the Thames channel predicts only minor disturbance of sediments. As such this is unlikely to significantly effects on water quality. No other effects on water quality are expected during the time that the Hammersmith Ferry will be in use.
- 4.4.7 The decommissioning of the Hammersmith Ferry could give rise to changes in water quality when structures are being removed through sediment disturbance, or potential risk of spillage or leakages. Details of removal of piles from the riverbed are still under discussion, to choose the techniques with the least disturbance, however no significant effects to the water body from the decommissioning works are likely. The Ferry arrangement has been designed such that removal can be carried out as easily as possible.
- 4.4.8 The conclusion from the overall WFD Assessment is that the proposed Hammersmith Ferry is unlikely to give rise to significant adverse effects on the water quality of Thames Upper Water Body and will not jeopardise the water body status from improving.

### **Flood Risk**

- 4.4.9 A Flood Risk Assessment (FRA) for the Hammersmith Ferry has been undertaken (2048-BRL-02-XX-RP-C-1200). The document concludes that although the Site is situated within an area with a high probability of flooding from fluvial and/or tidal sources (Flood Zone 3a), the proposed Hammersmith Ferry will not give rise to significant adverse effects on flood risk. The Piers float, and all piles will be of suitable height to prevent the piers coming off the top of the piles. The development has minimal impact on the flood storage volume of the river.

## 4.5 Ecology

### Designated Sites

- 4.5.1 As described previously, no land-based or marine Statutory Sites have been identified near the Site, therefore there will be no effects on any Statutory Sites.
- 4.5.2 The Barn Elms Wetland Centre SSSI, is located approximately 650m to the south of the proposed Hammersmith Ferry. No effects on this SSSI are likely, but consultation with Natural England will be required because the Site is within its Impact Risk Zone.
- 4.5.3 Regarding non-statutory sites, the River Thames and Tidal Tributaries, there is the potential for effects upon this designation, as the proposed Hammersmith Ferry will be constructed within the River Thames. The likely significance of effects is considered for the ecological features of the River Thames and is included in the terrestrial and aquatic ecology sections.

### **Terrestrial Ecology**

#### Habitats

- 4.5.4 The new Temporary Ferry landings will be located at slipway front Queen Caroline Street (Hammersmith Pier) and the towpath connecting to existing highways (Barnes Pier). There will be minor impact on the intertidal foreshore from the spud leg piles restraining both Hammersmith and Barnes piers. Further there are a set of 12 piles restraining the modular walkway, which rests on the intertidal foreshore at low tide. The piles are designed such that they can be easily removed, and the construction methodology such that impact on the foreshore are kept to a minimum.
- 4.5.5 While some minor impact on the foreshore is inevitable, this has been minimised through design and methodology such that the risk is not considered significant. Impact of the foreshore will be assessed through the applications made to the MMO, PLA & EA such that there can be no significant impacts.



### Protected and Notable Species

- 4.5.6 As described in the PEA (VBRP115/002/001), trees near the Site are likely to support breeding birds. No trees are to be impacted by the works.
- 4.5.7 During operation, the lighting used on the Hammersmith Ferry should be carefully designed to ensure that light will not cause adverse effects on birds or bats. Once this measure is in place, no significant effects are likely to occur due to the operation of the Hammersmith Ferry.
- 4.5.8 Adverse significant effects on wintering birds, breeding birds and bats are unlikely.

### Invasive Species

- 4.5.9 Chinese mitten crab and zebra mussel are known to be present within the River Thames and a number of data records returned during the desk study have recorded their presence within 2km of the site. Construction works within the river have the potential to cause the spread of these invasive species to other parts of the river or other locations in the UK through contaminated aquatic construction equipment or boats.
- 4.5.10 The CEMP outlines specific methods to avoid the spread of any invasive species during construction (and also during decommissioning), and once they are implemented no significant effects in relation to invasive species are likely to occur.

### **Aquatic Ecology**

- 4.5.11 The Aquatic Ecology Desktop Study has been produced (DER6480-RT003-R01-00). This report follows the potential pathway of effects upon aquatic ecology, including groupings of fish, marine mammal and benthos, and for the three stages of the project (construction, operation and decommissioning).
- 4.5.12 During construction, effects on aquatic receptors such as fish, marine mammals and benthos can occur through the following impacts:

- Changes in water quality due to piling activity (construction) or due to scour that can affect ecological receptors;
- Physical loss and disturbance of habitats/species or due to piles (including the construction and scour after installed);
- Underwater noise and vibration due to piling activity (construction);
- Use of artificial lighting; and
- Introduction of invasive non-native species.

4.5.13 The construction of the Hammersmith ferry is unlikely give rise to significant effects on the water quality of the River Thames, and therefore, no significant effects on ecological receptors are likely due to changes in water quality.

4.5.14 As only a very small area of the riverbed is to be physically disturbed by the piling works, walkway grounding and scour effects, the impact on all groups (fish, mammals, and benthos) is likely to be of negligible significance, as concluded in the HR Wallingford Hydrodynamic and Scour Assessment (ref. DER6480-RT001-R01-00).

4.5.15 An underwater noise assessment has also been carried out by HR Wallingford (ref. DER6480-RT002-R01-00) to understand the impact of the construction activities. The installation methodology reduces the amount of noise to a minimum and therefore impact on benthos is expected to be minor, and impact on mammals negligible. To reduce impact of fish, i.e., spawning smelt, piling commissioning and decommissioning will avoid the smelt spawning period of March and April inclusive and restricted to daylight times only.

4.5.16 From the above, during construction phase no significant effects are likely upon aquatic ecological receptors.

4.5.17 During operation, the main effects likely to be noted are upon fish due to changes to water movement/scour from the structure in the river, use of artificial lighting, and increased shading. The conclusion is that no significant effects are likely, however.

- 4.5.18 The decommission phase can give rise to similar effects as the construction phase (due to the disturbance in water environment to remove the structures), however no significant effects are likely.

## **4.6 Archaeology and Heritage**

- 4.6.1 A Heritage Statement (1817-125-05/21) has been undertaken by Baxters to inform on the Temporary Pier's impact on cultural heritage. An Archaeology Assessment has been carried out by Mills Whipp Projects to inform on the Temporary Pier's impact on the local archaeology. Each of these studies consider the associated potential impacts and effects of the Hammersmith Temporary Ferry.

### **Heritage**

- 4.6.2 In general, a development can impact on the significance of heritage assets indirectly (principally through changes to their settings) or directly (through physical changes to the asset itself).
- 4.6.3 The Heritage Statement concludes that Temporary Ferry Crossing will not impact the overall heritage significance of any nearby heritage asset. The Hammersmith Pier will land on the historic Hammersmith Drawdock, a Local Building of Merit. This will, temporarily, better reveal its significance as a river access point (it is currently only rarely used).
- 4.6.4 There is a potential for an indirect impact upon Conservation Areas due to the visual effect on the settings of the Mall Conservation Area, the Fulham Reach Conservation Area and Hammersmith Bridge. The Heritage Statement does not consider the Hammersmith Temporary Piers to be unduly prominent in such views as to detract from an appreciation of nearby heritage assets. Any effects would also be temporary and the Piers removal at the conclusion of the works would reverse these effects.

## **Archaeology**

- 4.6.5 Due to the presence of Archaeological Priority Areas, any ground disturbance on either of the foreshores, the riverbed or in the immediate areas of the north and south piles associated with the piers could have an adverse effect on unrecorded finds or features which may be present.
- 4.6.6 The baseline data indicates that there is a low potential for significant archaeology in the vicinity of the work sites. Further the design of the Piers has only a limited impact on potential archaeology. Given these circumstances it is suggested that archaeological mitigation could be administered by a planning condition attached to any permission granted.

## **4.7 Townscape and Landscape**

### **Visual effects due to construction**

- 4.7.1 The CEMP will set out a range of measures and good practices with the aim of reducing townscape and visual effects.
- 4.7.2 On completion of construction a Landscape Design Strategy should also be implemented to ensure that all areas affected will be reinstated once the piers are removed. The landscape design should also address ecological recommendations and opportunities for biodiversity enhancement and net gain and improvement in line with LBHF and LBRUP local plans and the new London Plan.
- 4.7.3 From the above, it is considered that no significant effects are likely to arise due to construction.

### **Visual effects upon protected views during operation**

- 4.7.4 During operation, the physical presence of the Hammersmith Ferry will affect the protected views to the historic Hammersmith Bridge (views along the river from east). However, this will be temporary and only occurring for a short timeframe before Hammersmith Bridge is enclosed in scaffolding for its refurbishment works

which will substantially impact the view. The same can be said for views from the west.

- 4.7.5 Considering all the above it is not expected that the presence of structure will cause any harm to protected views and it is not likely to give rise to significant visual effects.

#### **Visual effects with decommissioning of the ferry service**

- 4.7.6 The decommissioning phase will return the site to its existing condition and will be of short duration. As such it is considered that the decommissioning phase is unlikely to give rise to significant adverse effects on landscape or townscape.

### **4.8 Air Quality and Climate Change**

- 4.8.1 While construction works have the potential to give rise to air quality effects, the on-site works have been reduced through the design, as most of the components of the Hammersmith Ferry will be premanufactured and then towed to site for quick installation.
- 4.8.2 The temporary increase in traffic associated with the construction of the Hammersmith Temporary Ferry Piers is not envisaged to be significant since the great majority of the pier components and construction plant will arrive by river. Mitigation measures included within the CEMP will ensure that no significant effects on local air quality, climate change or nuisance are likely to give rise from the construction of the Temporary Piers.
- 4.8.3 Operation of the Hammersmith Ferry will not result in any adverse effects on air quality, and a beneficial effect is expected as it will avoid people having to make much longer trips by road vehicle. In addition, there is potentially a beneficial effect on local air quality, as well as tackling climate change, through improving cycling and walking opportunities.

4.8.4 The decommissioning of the proposed Temporary Piers may give rise to similar effects as the construction phase, however the significance of these effects are also considered insignificant.

4.8.5 As the temporary piers are largely constructed from second-hand materials, carbon emissions associated with embedded carbon have been reduced to a minimum through the design. On decommissioning the piers virtually all the components will be available for re-use at other sites.

#### **4.9 Noise and Vibration**

4.9.1 A temporary increase in noise and vibration has the potential to arise in the surrounding area of the Site due to the use of machinery, construction plant and traffic. The majority of works will be carried out by river, as such there will be minimal noise and vibration effects on sensitive receptors near the works. The greatest noise will be from the installation of the 12 piles restraining the walkway. It is proposed to install one pile per day, and they will be vibrated in, not impact driven. The vibro-installation is not expected to exceed one hour per pile.

4.9.2 Minor effects are likely due to the operation of the Hammersmith Ferry. This is in comparison to the last year where there has been limited traffic on the river due to the bridge's closure. The noise and vibration caused by the ferry will be less than that caused when the bridge was in operation carrying road vehicles.

4.9.3 The decommissioning stage can be expected to give rise to similar effects as the construction phase.

#### **4.10 Land Contamination**

4.10.1 Due to the very low permeability of the London Clay the risk of contaminants, such as heavy metals and organic contaminants permeating into the riverbed strata, is considered to be low. The risks to the release of potential contamination will be managed through the adoption of appropriate construction techniques. It is concluded that likely adverse effects of contamination due to the piling works within riverbed are not to be significant.

## **4.11 Waste**

- 4.11.1 The design of Hammersmith Ferry is avoiding the potential for large waste production on site and the majority of components are to be manufactured off site (piles, barge conversions, brow etc). Minor waste such as scraps of steel and wood may arise from the works.
- 4.11.2 A Site Waste Management Plan (SWMP) for the construction is being prepared to ensure an efficient use of resources, and to minimise waste through design. The SWMP will also outlined good practice and management measures for the waste generated during construction, addressing opportunities for recycling and reuse and preventing spillages / harmful emissions.
- 4.11.3 In view of the above, the construction of the proposed Hammersmith Ferry is unlikely to give rise to significant impacts related to waste.

## **4.12 The risk of major accidents and /or disaster**

- 4.12.1 The following risks of major accidents and/ or disaster have been considered in the construction of the Temporary Hammersmith Ferry:
- Risk of flooding: an FRA has been undertaken for the Hammersmith Ferry. The structure has been designed such that it does not comprise the existing flood defence and causes only a minor reduction in the Thames' flood storage volume.
  - Extreme weather conditions: these events were considered in the design to make structures resilient to extreme weather conditions;
  - Risk of Unexploded Ordnance (UXO): a detailed UXO Risk Assessment was carried out by Pell Frischmann for the Site (102963-PEL-GEN-ZZZ-SUR-RM-00002). The Site has a low to medium risk for the presence of UXO: the north and south of the River Thames present a low risk however the river itself presents a medium risk. Recommendations from the UXO assessment will be adhered to for all works.

- Risk of navigation accidents: a full navigation risk assessment is being undertaken and guidance taken from the PLA to inform the design to ensure safety navigation during the works and or due to the presence of the Hammersmith Ferry. Preliminary findings can be found in 20-NASH-105-100-R02-00; and
- Risk of marine pollution disaster: it is not possible to assess the significance of a particular pollution incident as this is dependent on the nature of the incident (e.g. location, scale, type of pollutant). However, the risk associated with the impact of accidental pollution events is considered low. All vessels would adhere to the requirements of the MARPOL Convention Regulations.

#### **4.13 Risk to human health and safety**

- 4.13.1 Assuming standard health and safety procedures will be adopted, implemented and complied with the risk of accidents is low.
- 4.13.2 Potential risks to human health due to air pollution and increase in noise arising from construction works are considered negligible.
- 4.13.3 The Ferry Piers will be staffed and monitored such that the risk of suicide is low.
- 4.13.4 The Hammersmith Ferry will include suitable lighting to ensure safe conditions for its users at night.
- 4.13.5 Lifesaving equipment will be provided meeting the PLA's guidance on waterfront safety.
- 4.13.6 No other risks to human health and safety have been identified.

#### **4.14 Cumulative impact with other proposed development**

- 4.14.1 The local planning portals were accessed for information on other proposed or permitted developments that could act in-combination with the proposed Temporary Ferry Piers. The Riverside Studios and Queens Wharf (2013) has been the only urban development found in the immediate vicinity of the Site. The



development finished in 2018, therefore cumulative inter-project effects with the proposed Temporary Ferry Piers are unlikely.

- 4.14.2 In addition, major infrastructure works were also searched for in the Planning Inspectorate Portal. The Thames Tideway Tunnel project involves constructing a 25km tunnel under the River Thames to expand London's sewer network. Two sites of this project are near the Site:
- 4.14.3 Hammersmith Pumping Station, which is an existing Thames Water pumping station situated approximately 350m to the east of the Site. The Hammersmith Pumping Station works are planned to be completed by 2020 and construction of the connection tunnel was completed in April 2019; and
- 4.14.4 Barn Elms Site located approximately 1.5km south of the proposed Temporary Ferry. Construction works began in 2019 and are ongoing, with the tunnelling of the connection tunnel to be completed by 2022.
- 4.14.5 The majority of work to be completed for Thames Tideway Tunnel is taking place below ground (about 30m depth) and, considering the scale of works for the Temporary Ferry Piers, including the small scale of piling and time duration of works, it is unlikely that these works could give rise to any significant cumulative environmental effects within the area of the Thames Tideway project.
- 4.14.6 The Hammersmith Bridge refurbishment was also considered regarding cumulative impacts. It is noted that the refurbishment works are envisaged to commence in 2021, and only after the proposed Temporary Ferry Piers are operational. Cumulative effects of noise, air quality and water quality are unlikely considering that both works will be occurring at different times and as previously noted, the Temporary Ferry Piers will not give rise to any significant effects on those environmental factors.
- 4.14.7 With regards to the potential for any combined intra-project effects, it is considered that no significant effects are likely due to the implementation of the CEMP during construction and decommission. In addition, from the information presented

above, no significant combined intra-project effects are anticipated during operation of the Temporary Ferry Piers.

## **5 RECOMMENDATIONS**

### **5.1 Construction Phase**

5.1.1 A Construction Environment Management Plan (CEMP) is required to set out the overarching construction principles. The CEMP will include best practice environment management control during the works and measures to reduce noise, dust emissions, light emissions, and avoid the incident of contaminated run-off and risk of potential river water contamination due to accidental spills and leakages. Specific measures for some environmental factors have been included in the sections below.

#### **Socio-economic, Community and Transport**

5.1.2 Prior notice of the works will be given to the local community, including any groups who use the River Thames as a recreational resource, for example, rowing clubs.

#### **Surface Water and Flooding**

5.1.3 An application to the EA for an Flood Risk Activity Permit will be completed prior to any construction works.

#### **Ecology**

5.1.4 The CEMP will be produced to ensure considerations regarding protected species, habitats and wildlife conservation are taken into account during construction works to minimise impacts. Specific recommendations are below:

- Wherever possible, construction and decommissioning should be carefully planned to avoid key ecological events such as fish spawning, fish aggregation and fish migration;
- Other than the selection of low-noise/vibration piling techniques, due to the potential to have a moderate adverse effect upon smelt during times of spawning, mitigation measures will be applied to avoid in-river works during smelt spawning times (March to April inclusive). As smelt spawn during a

short period (typically one week), it is highly likely that that this period will encompass both spawning and the development and hatching of eggs; and

- Eel migration generally occurs at night-time. Mitigation will include limiting piling during night-time hours, for example no activity between 19:00 and 06:00 so the risk of noise impacts upon this activity will be further reduced.

### **Ecological Enhancement and Biodiversity**

5.1.5 In line with National Planning Policy Framework (2019), London Biodiversity Action Plan, London Plan, TfL Mayor's Transport Strategy and Local Plan Policies, the ecological value of the Site will be maintained or enhanced where possible across the operational life of the piers. The ferry services will have key biodiversity benefits including:

- Removal of litter from the river – pollution is a key issue in the Thames. The Hammersmith Pier will act as a large litter catcher and allow for the removal of litter and debris from the river, thus benefiting aquatic and benthic species.

### **Archaeology and Heritage**

5.1.6 The Archaeological Assessment has recommended that consultation with the LPA / GLAAS should be undertaken to ensure that any impact on previously unrecorded buried archaeological features or deposits is either defined in more detail by evaluation or mitigated by archaeological monitoring during construction and the use of protective measures during the works.

### **Townscape and Landscape**

5.1.7 The Piers are designed as simple, low key, utilitarian structures befitting their temporary function. Their aesthetic is compatible with the immediate area and the riverside character. They will sit comfortably within the wider historic context and will not compete aesthetically with the listed Hammersmith Bridge.

5.1.8 A Landscape and External Design & Arboricultural Assessment (2048-BRL-02-XX-RP-C-1700) has also be included within the Application. This document sets

out the landscape design strategy which ensures that the Pier landings respect the immediate context and minimises any visual effect caused by the Ferry Piers.

5.1.9 In addition, the CEMP will set out measures and good practices with the aim of reducing townscape and visual effects. These will include, but are not limited to:

- Tree protection measures and site clearance measures;
- The orderly segregation of particular construction site activities, for example, the clear delineation of construction site offices and staff facilities, material storage areas, plant and machinery storage areas; and
- The maintenance of adequate construction site hoarding (if required).

### **Air Quality and Climate Change**

5.1.10 Dust emissions and carbon emissions will be managed by standard construction environmental management measures. These will include but are not limited to:

- Adherence to reasonable construction site working hours which will avoid early mornings, night-time and Sunday working (unless required for an emergency situation);
- Damping down of dusty surfaces and processes where dust may be generated;
- Appropriate covering of potentially dust generating stockpiled materials on the construction site;
- Avoiding the occurrence of dust generating activities during dry and windy weather conditions;
- Dust monitoring to assess the effectiveness of dust management controls and to indicate if any when additional measures may be required; and
- Use of modern, low emission plant and machinery and turning plant and machinery off when not in use.

## **Noise and Vibration**

5.1.11 Standard construction management measures related to noise will be detailed in the CEMP and will include the following, but are not limited to:

- Adherence to reasonable construction site working hours which will avoid early mornings, night-time and Sunday working (unless required for an emergency situation);
- The use of construction techniques known to reduce the incidence of noise and vibration;
- The use of modern, low noise emission plant and machinery;
- Switching off plant and machinery when not in use; and
- Noise and vibration monitoring to assess the effectiveness of the management controls and to indicate if any when additional measures may be required.

## **5.2 Operation phase**

5.2.1 Standard management measures will be carried out as per UBTC's best practice on the river. This will include, but not be limited to:

- Vessel movement to be low powered and mainly driven by tidal stream to minimise noise, vibration, wash and emissions.
- Piers to be staffed during operation.
- Incorporation of the best practices in relation to safety and security of users.
- Lighting strategy to minimise light spillage and disturbance to aquatic life.

## **5.3 Decommissioning Phase**

5.3.1 The environmental effects during the decommissioning of the Hammersmith Ferry (e.g. noise, nuisance, dust emissions) are likely to be similar to those of the construction phase, thus a similar CEMP will be produced for decommissioning.

5.3.2 The implementation of the landscape design strategy (discussed within the Landscape and External Design and Arboricultural Assessment, ref 2048-BRL-02-XX-RP-C-1700), including planting and biodiversity improvements, will finish during this stage to recover the affected areas of decommissioning.

## 6 CONCLUSIONS

- 6.1.1 This report provides a brief description of the proposed Hammersmith Ferry and potential for likely significant effects on the environment in line with the requirements of EIA Regulations. The proposed Hammersmith Ferry will be located to the east side of Hammersmith Bridge and it is required as an alternative river crossing for pedestrians and cyclists whilst the existing Grade II\* listed Hammersmith Bridge is refurbished.
- 6.1.2 The proposed Hammersmith and Barnes Piers have a simple utilitarian design and modest scale. They are designed to be constructed quickly and to be removed easily and completely, maximising the opportunities for their re-use. The type of piling and Pier structures have been specifically chosen for minimal impact within the river and on the land.
- 6.1.3 Therefore, considering the environmental sensitivity of the Site and its surroundings and based on the screening review findings and information available it is concluded that the proposed Hammersmith Ferry is not likely to result in significant effects on the environment by virtue of factors such as its nature, size or location. As such, the proposed Hammersmith Ferry is not considered to constitute an EIA development.
- 6.1.4 Most of the likely effects will be temporary and reversible, and once the Piers are removed there will be opportunities for improvements to be made regarding townscape and landscape (including biodiversity enhancements).
- 6.1.5 While transboundary impacts may occur as a result of the Hammersmith Ferry scheme, this document concludes impacts will be limited to local area including Hammersmith, Fulham, Barnes and Richmond. This EIA screening opinion document is to be distributed to both LBHF and LBRuT to ensure the full extent of any impacts is considered.
- 6.1.6 The implementation of the Hammersmith Ferry will benefit the local community of Hammersmith, Fulham, Barnes and Richmond, as it will provide safe and suitable access to the thousands of pedestrians and cyclists that require transport between



both sides of the River Thames. There are no feasible alternatives available to pedestrians and cyclists to cross the river at this location. Without the proposed Hammersmith Ferry, the closure of Hammersmith Bridge has caused adverse effects upon communities, transport and connectivity, and adverse effects upon air quality, climate change, and noise as people needing to cross the river have been diverted to longer routes and the use of vehicular transport.

## **APPENDICES**

**APPENDIX A      KEY DRAWINGS**

**APPENDIX B      SUPPORTING STUDIES**

## **APPENDIX A            KEY DRAWINGS**

2048-BRL-2-XX-DR-C-3001 Key Plan  
2048-BRL-2-XX-DR-C-3012 Hammersmith Pier - Site Location Plan  
2048-BRL-2-XX-DR-C-3013 Hammersmith Pier - Proposed Block Plan  
2048-BRL-2-XX-DR-C-3022 Barnes Pier - Site Location Plan  
2048-BRL-2-XX-DR-C-3023 Barnes Pier - Proposed Block Plan  
2048-BRL-2-XX-DR-C-3100 Hammersmith Pier - Existing GA  
2048-BRL-2-XX-DR-C-3101 Hammersmith Pier - Proposed GA  
2048-BRL-2-XX-DR-C-3102 Hammersmith Pier - Existing Elevation  
2048-BRL-2-XX-DR-C-3103 Hammersmith Pier - Proposed Elevation  
2048-BRL-2-XX-DR-C-3104 Hammersmith Pier - Existing River Section  
2048-BRL-2-XX-DR-C-3105 Hammersmith Pier - Proposed River Section MHWS  
2048-BRL-2-XX-DR-C-3106 Hammersmith Pier - Proposed River Section MLWS  
2048-BRL-2-XX-DR-C-3107 Hammersmith Pier - Proposed Landside Section  
2048-BRL-2-XX-DR-C-3120 Hammersmith Pier - Pontoon Layout  
2048-BRL-2-XX-DR-C-3140 Hammersmith Pier - Finishes  
2048-BRL-2-XX-DR-C-3200 Barnes Pier - Existing GA  
2048-BRL-2-XX-DR-C-3201 Barnes Pier - Proposed GA  
2048-BRL-2-XX-DR-C-3202 Barnes Pier - Existing Elevation  
2048-BRL-2-XX-DR-C-3203 Barnes Pier - Proposed Elevation  
2048-BRL-2-XX-DR-C-3204 Barnes Pier - Existing River Section  
2048-BRL-2-XX-DR-C-3205 Barnes Pier - Proposed River Section  
2048-BRL-2-XX-DR-C-3206 Barnes Pier - Existing Tow Path Section  
2048-BRL-2-XX-DR-C-3207 Barnes Pier - Proposed Tow Path Section  
2048-BRL-2-XX-DR-C-3208 Barnes Pier - Existing Highway Access Section  
2048-BRL-2-XX-DR-C-3209 Barnes Pier - Proposed Highway Access Section  
2048-BRL-2-XX-DR-C-3220 Barnes Pier - Pontoon Layout  
2048-BRL-2-XX-DR-C-3240 Barnes Pier - Finishes

## **APPENDIX B            SUPPORTING STUDIES**

Air Quality Assessment (J10-12312A-10\_FI)  
Aquatic Ecology Desktop Study (DER6480-RT003-R01-00)  
Archaeology Assessment – Hammersmith Ferry – Mills Whipp Projects  
Contamination Report (102963-PEF-BAS-ZZZ-REP-EN-10010)  
Flood Risk Assessment (2048-BRL-02-XX-RP-C-1200)  
GI Report (102963-PEF-BAS-ZZZ-REP-GE-00002)  
Heritage Statement (1817-125-05/21)  
Hydrodynamic and Scour Assessment (DER6480-RT001-R01-00)  
Landscape and External Design & Arboricultural Assessment (2048-BRL-02-XX-RP-C-1700)  
Preliminary Ecological Appraisal (VBRP115/002/001)  
Preliminary Navigation Hazard Analysis (20-NASH-105-100-R02-00)  
Underwater Noise Assessment (DER6480-RT002-R01-00)  
UXO Risk Assessment (102963-PEL-GEN-ZZZ-SUR-RM-00002)  
Water Framework Directive Assessment Report (DER6480-RT004-R01-00)