7 Hammersmith Pumping Station

7.1 Introduction

7.1.1 This section of the non-technical summary presents the preliminary environmental assessment for the Thames Tunnel project at Hammersmith Pumping Station (Figure 7.1).

7.1.2 At this site it is proposed that flows from the existing Hammersmith Pumping Station combined sewer overflow would be linked to the proposed Thames Tunnel through a shaft and an underground connection tunnel. Currently, the existing combined sewer overflow discharges approximately 50 times a year. The total volume of discharge is approximately 2,208,000 m\(^3\) each year.

7.1.3 In the following section a description of the existing site is given. This is followed by a description of the development proposed at this site.

7.1.4 The environmental topics which have been assessed for this site are listed in the ‘Assessment’ section (7.4). Preliminary assessment findings are then presented topic by topic.

7.2 Site context

7.2.1 The site is shown as site number 2 on Figure 28.1.

7.2.2 The site is located within the London Borough of Hammersmith and Fulham (Figure 7.1).

Figure 7.1 Hammersmith Pumping Station site location
7.2.3 The site is located partly within the existing Thames Water pumping station and partly within an area of land, currently vacant, but to be redeveloped for mainly residential use as part of the Fulham Reach development.

7.2.4 The Hammersmith Pumping Station site is bounded to the north by Chancellor’s Road, to the east by Distillery Road and to the south, beyond the remainder of the cleared site, by Winslow Road. The cleared site also forms the western boundary of the site. Approximately 0.6 hectares would be required for construction works. The area of land required for the permanent works would be substantially smaller than that required for construction. The site is entirely inland and no works in the foreshore would be required.

7.2.5 Existing road access is via Chancellor’s Road, with a section of the access route narrowed and traffic calmed.

7.2.6 This is indicated by the red line shown on Figure 7.2.

Figure 7.2 Aerial photograph of Hammersmith Pumping Station*

*Note: The red line boundary is approximate in this image
7.3 Proposed development

7.3.1 The proposal is to intercept the existing combined sewer overflow. With the Thames Tunnel in place, instead of untreated sewage discharging at current volumes into the River Thames, flows would be diverted into the proposed Thames Tunnel. This would reduce flows from the combined sewer overflow at this site to an average of approximately 103,600m$^3$ up to three times for a typical year.

7.3.2 In order for this interception to be achieved, construction works at this site would take approximately three years. A shaft with an internal diameter of approximately 11 metres and approximately 33 metres deep would be constructed. From the base of the shaft there would be an underground connection tunnel which would join up with the main tunnel. Through an interception chamber, flows from the existing Hammersmith Pumping Station overflow would be diverted into the connection tunnel and into the main tunnel, located deep underneath the River Thames.

7.3.3 The site would be serviced via a temporary access from Distillery Road. Most of the construction work would take place between 8am and 6pm, Monday to Friday. Limited works may be required beyond these hours.

7.3.4 In order to manage and mitigate effects on the environment during construction, a Code of Construction Practice has been drafted. This sets out measures to be adhered to during the construction phase.

7.3.5 Figure 7.3 shows an indicative plan of the construction works.

Figure 7.3 Indicative plan of construction works for Hammersmith Pumping Station
7.3.6 Once the works at this site have been built, a number of permanent features would remain (Figure 7.4). The shaft, which would not project above ground level, would be surrounded by an area of hardstanding to allow ease of access for maintenance purposes. Only exposed covers of openings to allow maintenance and inspection would be visible. In terms of above ground structures, there would be a four metre high ventilation structure. Each site along the route of tunnel has a facility to draw air out of the tunnel. This ensures that air is continuously circulated and is not allowed to become stale. From time to time when the tunnel is filling up, air may be expelled out via filters through the ventilation structure.

7.3.7 Access to the site for routine maintenance would be required every three to six months. Once every ten years, more significant maintenance work would be carried out and would require access to the shaft.

**Figure 7.4 Hammersmith Pumping Station indicative plan of built development**

### 7.4 Assessment

#### 7.4.1 Based on the existing site and the works proposed, the following environmental topics have been included in the scope of this preliminary environmental assessment:

a. Air quality and odour
b. Ecology – aquatic and terrestrial
c. Historic environment
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7.4.2 In the following sections, information about the preliminary assessment of each of these topics is presented.

7.4.3 As part of the assessment process, consideration has been given to known major developments that may change future environmental conditions. The assessment assumes that in 2015 a significant proportion of the Fulham Reach development (750 homes) would be complete.

7.4.4 Further information on the topic specific methodology for conducting the assessment is given in section 4 of this non-technical summary.

7.5 Air quality and odour

7.5.1 The Hammersmith Pumping Station site is located within the London Borough of Hammersmith and Fulham Air Quality Management Area. Local monitoring data indicates that there are currently exceedences of the air quality standard for nitrogen dioxide in the vicinity of the site. The nearest people who may be sensitive to the development are occupiers of nearby residential dwellings on Chancellor’s Road (Figure 7.5) and Fulham Palace Road as well as the future occupiers of the new Fulham Reach development to be located directly adjacent to the site. There is also Charing Cross Hospital, the occupants of commercial premises on Fulham Palace Road and the users of Frank Banfield Park which contains a playground and children’s centre.

Figure 7.5 Houses on Chancellor’s Road adjacent to existing Thames Water site
7.5.2 Based on preliminary findings, it is considered that the overall effect on local air quality from construction road traffic and construction plant is likely to be minor adverse at the residential properties and the Charing Cross Hospital and negligible at the commercial properties and the park (including playground and children’s centre). In terms of construction dust, this is likely to be a minor adverse effect at the residential properties within 10 metres of the site boundary and a negligible effect elsewhere, taking account of the dust control measures in the Code of Construction Practice.

7.5.3 Preliminary assessment findings indicate that the effects of odours released from the ventilation structure is likely to be negligible.

7.5.4 Based on this assessment, it is considered that mitigation measures are not required.

7.6 Ecology – aquatic

7.6.1 The sewage outfall that would be intercepted by the works currently discharges into the freshwater reaches of the designated River Thames and Tidal Tributaries Site of Metropolitan Importance. The in-river habitat at the site comprises a large area of gravel foreshore, which is exposed at low tide, and underlain by pebbles and shingle (Figure 7.6). The vertical river wall is vegetated. A range of important freshwater fish species are present, but invertebrate diversity is limited.

7.6.2 There would be no in-river works associated with this site and no significant effects on aquatic ecology are anticipated. No further consideration of the impacts associated with construction has been undertaken for aquatic ecology.

7.6.3 It is anticipated that the effect of operational improvements in water quality on aquatic ecology in the Thames Tideway as a result of the combined sewer overflow interception has been considered. The reduction in fish mortality that would result from improved oxygenation of the water is a moderate beneficial effect. Once the tunnel has been operational for six years, there would be minor beneficial effects from increased distribution of rare and/or pollution sensitive invertebrate and fish species as well as local improvements in invertebrate diversity and abundance. The effects on mammals are negligible during operation.

7.6.4 No mitigation is required at this site because no adverse effects are anticipated.
Figure 7.6 Hammersmith Pumping Station aquatic ecology survey site on the River Thames near the combined sewer overflow outlet

7.7 Ecology – terrestrial

7.7.1 The site currently comprises buildings, hardstanding and gravel with trees and scattered scrub, and tall vegetation on the boundary and adjacent to the site. These habitats are likely to provide a foraging resource for a small number of common bats and nesting habitat for a small number of common birds. As noted in section 7.4.3, the site is to be redeveloped for the Fulham Reach scheme.

7.7.2 No significant effects on designated sites are anticipated (aquatic ecology effects are considered in section 7.6). Based on preliminary assessment findings, the loss of trees on site would have a site level adverse effect. This would also result in local level adverse effect on the bat foraging resource and site level adverse effect on the bird nesting resource. Displacement of a small number of bats from the site because of disturbance from lighting would have a site level adverse effect. Disturbance to birds adjacent to the site because of lighting, noise and vibration from construction activities is likely to be negligible.

7.7.3 It is anticipated that operational activity would be limited to occasional maintenance works, which would not give rise to significant effects on terrestrial ecology.

7.7.4 In addition to measures in the Code of Construction Practice, measures to address adverse effects during construction may include reinstatement and replacement of trees and planting. This will be reported and assessed in the Environmental Statement.
7.8 Historic environment

7.8.1 There are no nationally designated heritage assets within the site, nor are there any within the immediate vicinity. The nearest listed building is a Grade II listed nurse’s home 160m to the southeast. The site includes currently undeveloped land around the 1960s Hammersmith Pumping Station which is of low heritage asset significance. The site is located within the Fulham Reach Conservation Area (of high heritage asset significance).

7.8.2 Part of the site lies within a locally designated Archaeological Priority Area, and the main potential in terms of buried heritage is for localised survival of early medieval (Saxon) settlement remains. This would be of high heritage asset significance if present. There is also potential for remains of post-medieval 19th century house footings and for 17th century remains of glass-bead manufacturing and brick manufacturing.

7.8.3 Construction works would entail deep excavations. This would entirely remove the assets within the footprint of each area of construction. For any surviving Saxon settlement remains there would be a major adverse effect (if present) and a minor adverse effect for post-medieval building remains. There would be moderate and major adverse effects, respectively, on remains of brick and glass-bead manufacturing, if found to be present. Operational activities at the site would not give rise to any effects on buried heritage assets.

7.8.4 The desk-based study of the site suggests that no heritage assets of very high significance are anticipated that might merit a mitigation strategy of permanent preservation in situ. The adverse effects could be successfully mitigated by a suitable programme of archaeological investigation before and/or during construction, drawing on a range of techniques. This would include subsequent dissemination of the results and so achieve preservation by record.

7.8.5 Effects on the historic environment arising from the operation of the Thames Tunnel infrastructure at Hammersmith Pumping Station, on the setting of historic assets such as the Fulham Reach Conservation Area and Hammersmith Bridge (Figure 7.7), will be assessed and presented in the Environmental Statement. Any mitigation requirements will also be presented.

Figure 7.7 Hammersmith Bridge
7.9 **Land quality**

7.9.1 A review of maps from the late 19th century indicate that the site and surrounding vacant plot area were the location of a large distillery, which included various process buildings, chimneys and tanks. Housing formerly occupied the northern tip of the site in the late 19th Century. To the north-west, two wharfs fronting the River Thames were also present. The surrounding area was a mix of residential properties and open land although this had become almost entirely developed by the early 20th century into residential properties (Figure 7.8).

7.9.2 Previous ground investigations of the site have recorded significant soil or groundwater contamination. It is understood that removal of contaminated soil from the surrounding area may have taken place. Desk based surveys have identified a low/medium risk from unexploded ordnance.

7.9.3 Based on preliminary assessment findings, there may be a slight adverse effect on construction workers due to the potential for exposure to contaminated soils or other materials if they are present, although any exposure risk would be short-term. There would be a negligible effect on the built environment as it is considered unlikely that contaminants contained in subsurface materials would affect buried structures. The preliminary assessment therefore has identified no need for mitigation during the construction phase.

7.9.4 During operation there would be a negligible effect on future users and the built environment. The assessment has identified no need for mitigation during the operational phase.

*Figure 7.8 Ordnance Survey OS 3rd edition 25” scale map of 1909 – proposed site location indicated*
7.10 Noise and vibration

7.10.1 The nearest locations to the site which are sensitive to noise and vibration are the residential dwellings on Chancellor’s Road. These are located north of the site. Some of these dwellings would be screened from the construction works by the existing pumping station building.

7.10.2 Based on this preliminary assessment, significant noise effects arising from construction activities are predicted at residential properties on Chancellor’s Road and at Fulham Reach development (proposed development). Significant vibration effects arising from construction activities are predicted at residential properties at Fulham Reach (proposed development). No significant effects as a result of the operation of the site are predicted.

7.10.3 During construction activities, the contractor would be required to follow best practice (as described in the Code of Construction Practice) at all times to reduce the noise and vibration effects upon the local community for example through suitable siting of equipment on site.

7.10.4 Beyond best practice measures it is anticipated that additional mitigation would be required to address significant noise and vibration effects. This could include the use of localised screens and enclosures to reduce noise from particularly noisy, static operations.

7.10.5 The next stage of the assessment will profile the variation in construction noise levels across the programme of work with the aim of refining mitigation design and seeking to reduce the significant effects of construction noise and vibration. Further details of mitigation measures will be provided in the Environmental Statement including the significance of residual effects once mitigation has been taken into account.

7.11 Socio-economics

7.11.1 The site comprises currently vacant land subject to a proposal for a mainly residential development, as part of the Fulham Reach site and Thames Water’s Hammersmith Pumping Station. Frank Banfield Park and its playground, residential dwellings and the remainder of the vacant Fulham Reach site surround the site. Frank Banfield Park and its children’s playground are considered to be well used for active and passive recreation.

7.11.2 Based on the preliminary findings of the assessment, during construction there are considered to be moderate adverse effects on the amenity of nearby residents and minor adverse effects on the amenity of users of Frank Banfield Park and its children’s playground. There are not anticipated to be any operational socio-economic effects resulting from the use of the site.

7.11.3 In completing the assessment, there is scope for further construction phase mitigation measures to be incorporated in the design with the aim of seeking to reduce significant adverse amenity effects which have been identified in this preliminary assessment.
7.12 **Townscape and visual**

7.12.1 The site is located within the existing Hammersmith Pumping Station and partially within a disused and cleared area of land in a fair to poor condition on the north bank of the river Thames.

7.12.2 The preliminary assessment indicates that during the construction phase, due to the presence of cranes and the intensity of construction activity there would be a moderate adverse effect on the townscape of Frank Banfield Park. There would be minor adverse effects on the site and Fulham Reach Conversation Area. Once operational, the preliminary assessment indicates that due to the low height and positioning of the components adjacent to existing infrastructure, it is judged that there would be a negligible effect on all townscape character areas.

7.12.3 In terms of visual amenity, preliminary assessment findings indicate that during the construction phase there would be a moderate adverse effect on the viewpoint looking south west from 24-26 Chancellors Road, the viewpoint looking north-west from residences in the Fulham Reach development and the viewpoint looking south west from Frank Banfield Park. This is due to the visibility of cranes, site hoardings and construction activity. There would be a minor adverse effect on the viewpoint looking east from residences at the southern end of Chancellors Road and the viewpoint looking east from 48-60 Chancellors Road (Figure 7.9), due to the visibility of cranes and road transport. Once operational, due to the barely perceptible change in views towards the site, it is considered there would be negligible effects on visual amenity from these viewpoints.

*Figure 7.9 View east from residential terrace 48-60 Chancellors Road*

7.12.4 Mitigation measures to be employed during the construction phase are being incorporated into the proposals, for example, through use of capped and directional lighting when required and the presence of hoarding. In terms of operation, a process of design and assessment is being employed to reduce adverse effects. It is likely that there would be no
significant adverse effects during operation and therefore no further mitigation is proposed.

7.13  **Transport**

7.13.1 The Hammersmith Pumping Station site has excellent public transport accessibility being located within close proximity of Hammersmith Underground and bus stations. The site is on the western side of Distillery Road and construction vehicle access is proposed via the A4, Fulham Palace Road and along Chancellor’s Road before accessing Distillery Road.

7.13.2 During construction, the number of heavy goods vehicle movements would be comparatively low. The nature of the construction site layout at this location is considered likely to result in a minor adverse effect on road network operation and delay due to the required changes to highway layout including junction modifications and removal of traffic calming features along Chancellor’s Road (Figure 7.10).

*Figure 7.10 Traffic calming along Chancellor's Road*

7.13.3 Effects on pedestrian and cyclist amenity and safety are expected to be minor adverse. A negligible effect is expected on public transport services. During the operational phase there would be very occasional vehicle trips to and from the site for maintenance activities but these would have a negligible effect on the surrounding transport networks.

7.13.4 The project is being designed to limit the effects on the transport networks as far as possible. At this location, mitigation measures during the construction phase are likely to be required and would involve the provision of safe crossing points for pedestrians, signage at the site access to warn of the potential conflicting vehicle/pedestrian/cycle movements and a safety audit at the site access. Mitigation is not required for the operational phase.
7.14  **Water resources - ground water**

7.14.1 The proposed shaft would pass through the upper aquifer and into the underlying non aquifer (London Clay). Neither the shaft nor the connection tunnel penetrates the lower aquifer beneath (Chalk). Associated interception infrastructure would sit in the upper aquifer. The main receptor is the upper aquifer and is defined as being of medium value.

7.14.2 Construction and operational effects on the upper aquifer would be limited to physical obstruction to groundwater flow. This is anticipated to have a negligible effect.

7.14.3 No soil or groundwater contamination has been identified on site to date but should any be encountered, this would be dealt with using a risk based approach and appropriate remediation ahead of construction. The effect on groundwater quality is considered to be negligible at this stage.

7.14.4 Groundwater monitoring of water levels and water quality carried out for the baseline would continue during construction.

7.15 **Water resources – surface water**

7.15.1 The site is located 100 metres from the River Thames (Figure 7.11). The section of the River Thames closest to the site lies within Thames Upper waterbody, as classified under the Thames River Basin Management Plan. There is also the possibility for effects on the downstream Thames Middle waterbody. The Thames Upper and Middle waterbodies are currently classified under the Water Framework Directive as being at moderate potential status, with a status objective of ‘good potential’ by 2027. There are a number of nationally and locally designated water-dependent conservation sites within 2 kilometres of the site.

*Figure 7.11 Location of submerged discharge point for Hammersmith Pumping Station combined sewer overflow*
7.15.2 There is the potential for effects on surface water resources from the proposed construction works through surface water runoff and exposure of the drainage system to contaminants. After taking into account the measures incorporated into the design and Code of Construction Practice, such effects are expected to be manageable and not significant. No mitigation would therefore be required.

7.15.3 Once operational, the scheme would reduce the number of spills to a predicted maximum level of three spills per year once the tunnel is in place. This reduction would have a beneficial effect on water quality.

7.15.4 The number of risk days for river users being exposed to pathogens would be reduced by up to 188 days of risk of exposure. In addition, the tonnage of sewage derived litter can be expected to be reduced from approximately 600 tonnes to 24 tonnes per year.

7.16 Flood risk

7.16.1 The main source of flood risk to the site is the tidal River Thames. The site is located within the ‘high probability’ flood zone, although it is protected by flood defences which run along the river bank.

7.16.2 The site may be at risk of localised surface water flooding due to runoff generated by the surrounding land. The work required to construct the connecting tunnel beneath the site has the potential to affect the local flood defences, and further studies are being completed to assess potential impacts.

7.16.3 The current level of protection afforded by existing defences would be maintained on the site. No changes are proposed to the percentage of hard standing on the site and this area would continue to be served by the local drainage system.

7.17 Further information

7.17.1 Further information regarding preliminary assessment findings for Hammersmith Pumping Station can be found in Volume 8 of the Preliminary Environmental Information Report.