

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Planning Statement

Doc Ref: **7.01**

Appendix B

APFP Regulations 2009: Regulation **5(2)(q)**

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**Thames
Tideway Tunnel**



Creating a cleaner, healthier River Thames

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Thames Tideway Tunnel

Planning Statement

Appendix B: Hammersmith Pumping Station

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Appendix B: Hammersmith Pumping Station

B.1 Introduction

- B.1.1 In an average year, the Hammersmith Pumping Station combined sewer overflow (CSO) discharges 51 times in a typical year discharging 2,210,000m³ of untreated sewage into the River Thames in the London Borough of Hammersmith and Fulham. On the basis that litter tonnages are proportional to discharge volumes, approximately 557 tonnes of sewage derived litter is also discharged from this CSO in a typical year. A worksite is required to connect the Hammersmith Pumping Station CSO to the main tunnel. The proposed development site is known as Hammersmith Pumping Station.
- B.1.2 The Environment Agency identifies the Hammersmith Pumping Station CSO as requiring control and Thames Water's solution is full interception. The CSO discharges have multiple impacts on water quality at the outfall location. This includes a localised effect of rapidly dropping dissolved oxygen levels, the release of pollutants and the discharge of sewage litter and effluent.
- B.1.3 If the project is constructed as proposed, the annual discharge of untreated sewage into the tidal Thames would be reduced to 104,000m³, and that the number of CSO discharges would be reduced to between one and three spill events per year. Sewage derived litter from the CSO can be expected to reduce by approximately 96 per cent to approximately 26 tonnes in a typical year. The frequency, duration and volume of spills at Hammersmith Pumping Station CSO would therefore be reduced by approximately 96 per cent as a result of the operation of the project. The location of the site is illustrated in Annex B.
- B.1.4 This assessment is structured as follows:
- a. Section B.2 provides a brief description of the Hammersmith Pumping Station site.
 - b. Section B.3 sets out the planning context for works in this location.
 - c. Section B.4 describes the site-specific development for which consent is sought and the way in which the proposals evolved in response to consultation.
 - d. Section B.5 provides an analysis of the principal site-specific planning considerations and how the proposals comply with relevant planning policy.
 - e. Section B.6 provides an overall conclusion of the site-specific assessment.

B.2 Site description

- B.2.1 The site comprises part of the Thames Water operational Hammersmith Pumping Station; an area of a cleared industrial site formerly known as Hammersmith Embankment and now as 'Fulham Reach'; and two small highway worksites: one in Chancellor's Road (for construction of a rising main) and the other in Chancellor's Road/Distillery Road (for a kerb realignment). An aerial photo of the site is provided in Figure B.1 below.

Figure B.1 Aerial photograph of Hammersmith Pumping Station



- B.2.2 The site is primarily structures and hardstanding associated with the pumping station, and hardstanding with a few small patches of vegetation associated with the Fulham Reach site.
- B.2.3 The site is defined by the limits of land to be acquired or used and covers an area of approximately 0.6 hectares for the main site and 0.01 hectares for the highway works site.
- B.2.4 The site is bounded to the northwest by Chancellor's Road, to the northeast by Distillery Road, and to the southeast and southwest by the Fulham Reach development (currently under construction). The surrounding area is largely residential with some modern office developments close to the river. Distillery Road separates the site from Frank Banfield Park to the northeast, which includes a children's play area. Further to the northeast lie residential properties and the Charing Cross Hospital.
- B.2.5 Existing access to the site is from Chancellor's Road and from Distillery Road. Hammersmith Underground stations (two stations) are located

approximately 550m northeast. Kensington Olympia railway station is approximately 1.7km to the northeast. The Thames Path runs along Chancellor's Road and south along the river adjacent to the south western boundary of the Fulham Reach development. The existing site features are identified in Annex B.

B.3 Planning context

- B.3.1 In developing the proposals and mitigation measures for the development at Hammersmith Pumping Station Thames Water¹ had regard to the policies set out in the NPS, and to local development plan designations where these are relevant to the application.
- B.3.2 In this case the local development plan comprises the *London Plan* (2011) (*Examination in Public on proposed minor alterations commenced 19 November 2012*), the London Borough of Hammersmith and Fulham's *Core Strategy* (October 2011), and the council's saved *Unitary Development Plan Policies* (as amended in September 2007). The Examination in Public of the Borough Council's submission version *Development Management Plan Document* commenced in October 2012. Once adopted this document will replace policies in the *Unitary Development Plan*.
- B.3.3 The site is identified in the Strategic Site and Housing Estate Regeneration Area – HTC 3 in the *Core Strategy* and *Proposals Map*. Policy HTC 3 seeks comprehensive residential redevelopment of the 'Hammersmith Embankment former office site', which includes the proposed site.
- B.3.4 Policy HTC 3 states that the site "*should be developed for housing together with small scale leisure uses (e.g. riverside restaurants) and local facilities for residents. There should be a small riverside open space and access to the river for rowing*". The *Core Strategy* states that: "*part of this site may be required to accommodate within the scheme layout and programme, permanent and construction works required for the construction of the Thames Tunnel²*" (para. 7.9.2).
- B.3.5 The entire site falls within the Fulham Reach Conservation Area and the south western part of the site falls within the Winslow Road Archaeological Priority Area. There are no listed buildings on the site or in the vicinity.
- B.3.6 There are no designated nature conservation areas within the boundary of the site. The site is located approximately 200m from the River Thames which, along with its tidal tributaries, is designated a Site of Importance for Nature Conservation (Metropolitan importance).
- B.3.7 Frank Banfield Park is located to the northeast covers approximately 1.25ha and is classified as a 'small open space' under the Greater London Authority's *Open Space Hierarchy*.

¹ Thames Water Utilities Ltd (TWUL). The Draft Development Consent Order (DCO) contains an ability for TWUL to transfer powers to an Infrastructure Provider (as defined in article 2(1) of the DCO) and/or, with the consent of the Secretary of State, another body

² The project changed its name from the Thames Tunnel project to the Thames Tideway Tunnel project in July 2012.

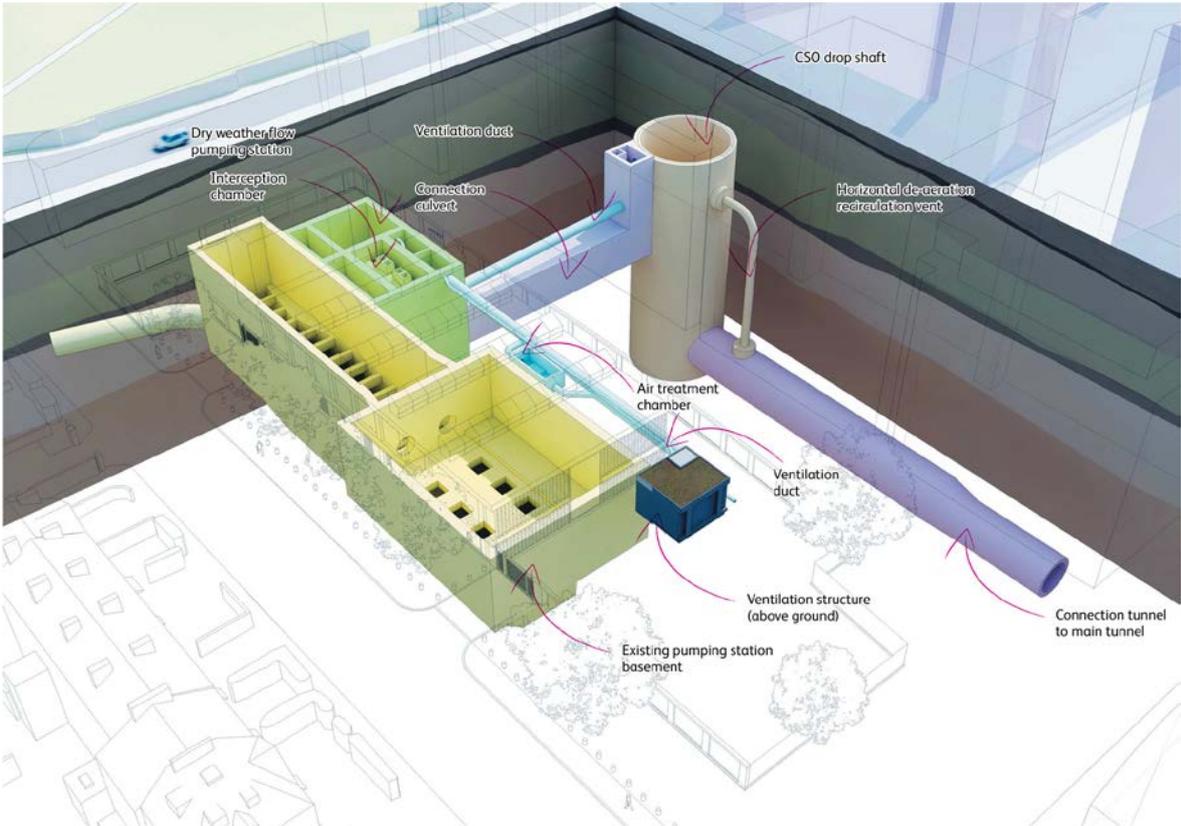
- B.3.8 The majority of the site is located within the Hammersmith Pumping Station. The historic land uses of the Fulham Reach part of the site include a number of potentially contaminative activities including a distillery, a chemical manufacturing and storage plant.
- B.3.9 The Fulham Reach site is subject to a hybrid planning permission granted 23 December 2011 (part outline/part detailed, ref: 2011/00407/COMB) for the mixed use development of the site to provide; 744 residential units, ancillary residents' gym and pool; 3,823 m³ of commercial floor space; 440m³ boat storage facility and ancillary boat club facilities; comprising eight blocks (ranging from three to nine storeys high); basement level parking; a pontoon extending into the River Thames; landscaped open space; works to the Thames Path; new site access arrangements; alterations to the public highway and realignment of access routes through Frank Banfield Park and Park boundary treatment. The applicant and owner of the Fulham Reach site is St George Central London Limited ('St George').

B.4 Site-specific description of development

Overview

- B.4.1 The proposed development at Hammersmith Pumping Station would intercept the Hammersmith Pumping Station CSO. The works would convey flows from the inlet of the existing pumping station to the main tunnel.
- B.4.2 The work would require the construction of a combined CSO interception and valve chamber, hydraulic structures (including culverts and pipes), ventilation structures and electrical and control equipment within the existing pumping station building. Flows would be transferred from the relatively shallow depth of the existing pipework to the deeper level of the main tunnel via a CSO drop shaft and associated connection tunnel. The CSO shaft would be approximately 33m deep.
- B.4.3 All permanent works would be surrounded by an operational maintenance hardstanding area. The area surrounding the CSO drop shaft would be accessible to the general public and form part of a boulevard within the proposed Fulham Reach development. The area adjacent to the combined interception and valve chamber would be within the existing external compound of the pumping station.
- B.4.4 The ventilation structures and electrical control equipment would be located within the perimeter of the pumping station facility. This would minimise any visual intrusion of the works.
- B.4.5 All works would be contained within the relevant zones as indicated on the Hammersmith Pumping Station Site works parameter plan. The functional components of the proposed works are illustrated in the diagram below.

Figure B.2 Functional components diagram



Application for development consent

B.4.6 The geographic extent of the proposals for which development consent is sought, is defined by the limits of land to be acquired or used and the drawings listed in Table B.1

Table B.1 Hammersmith Pumping Station: Drawings that define the proposed development

Drawing title	Status	Location
Proposed schedule of works	For approval	Schedule 1 to the <i>Draft Thames Water Utilities Limited (Thames Tideway Tunnel) Development Consent Order</i>
Access plan	For approval	<i>Book of Plans</i> , Vol 3, Section 6
Demolition and site clearance plan	For approval	<i>Book of Plans</i> , Vol 3, Section 6
Site works parameter plan	For approval	<i>Book of Plans</i> , Vol 3, Section 6
Permanent works layout	Illustrative	<i>Book of Plans</i> , Vol 3, Section 6
Proposed site features plan	Illustrative except the ventilation structure, which is indicative	<i>Book of Plans</i> , Vol 3, Section 6
Section AA	Illustrative	<i>Book of Plans</i> , Vol 3, Section 6
As existing and proposed (various)	Illustrative	<i>Book of Plans</i> , Vol 3, Section 6

Drawing title	Status	Location
Ventilation structure design intent	Illustrative except the ventilation structure, which is indicative	<i>Book of Plans</i> , Vol 3, Section 6
Construction phases plans (various)	Illustrative	<i>Book of Plans</i> , Vol 3, Section 6
Highway layout during construction (phases)	Illustrative	7.10.2 <i>Transport Assessment</i> Hammersmith Figures

B.4.7 The Nationally Significant Infrastructure Project (NSIP) works (Work No. 3a) comprise the construction of a CSO drop shaft with an internal diameter of approximately 11m and depth of 33m and (Work no. 3b) the Hammersmith connection tunnel works between Hammersmith Pumping Station CSO drop shaft (Work No. 3a) and the main tunnel (Work No. 1a). Associated development includes demolition or modification of existing screen house, construction of an interception chamber, CSO overflow structures, chambers with access covers and other structures, construction of structures for air management plant and equipment, including filters and ventilation columns, construction of a temporary access from Distillery Road and subsequent reinstatement to original layout, and the construction of a permanent vehicle access off Distillery Road. The full description of the proposed development can be found in Schedule 1 to the DCO and further details of the temporary construction works and permanent operational structures are explained below.

B.4.8 At this site, approval is sought for the works shown on the Works plan showing Work no. 3a and Work No. 3b, and the Site works parameter plan, which shows the relevant zones and limits of land to be acquired or used within which the associated development works would be undertaken. The plans for approval are contained in the *Book of Plans* along with other plans showing the construction phasing and permanent works plans relevant to this site. These other plans are marked either for approval, for information, indicative or illustrative depending on the level of detail they are providing. Section 2 of the *Planning Statement* explains in more detail the overall approach to the level of detail and how the plans for approval were developed. The Good design subsection of this appendix explains the level of detail with regard to the proposed above-ground structures at this site and the need to obtain further approvals.

Construction

B.4.9 The construction is programmed to take approximately three years and would involve the following main activities:

- a. site preparation (approximately two months)
- b. shaft construction (approximately four months)
- c. tunnelling and secondary lining (approximately nine months)
- d. construction of other structures (approximately 12 months)
- e. completion of works and site restoration (approximately eight months).

Figure B.3 Construction timeline



- B.4.10 The majority of the construction works would occur from 8am to 6pm Monday to Friday and 8am to 1pm Saturdays. Construction works may occasionally be required outside of these hours during key activities.
- B.4.11 A period of 24-hour working would be required for the connection tunnel and secondary lining. During this period of continuous working, activities would be predominately below ground, with support activities occurring at ground level. Heavy goods vehicle (HGV) movements however, would be limited to daytime hours. Further information about working hours and site-specific restrictions are contained within the *Code of Construction Practice (CoCP)* Parts A and B, which accompany the application.
- B.4.12 All vehicles would access/exit the site from Fulham Palace Road (A219) and Chancellor’s Road and turn into the site at the new entrance on Distillery Road. A temporary construction vehicle access is proposed off Distillery Road to serve the site using a right turn in, left turn out arrangement. Vehicles arriving at, and exiting the site would do so via Chancellor’s Road. Two-way operation of Chancellor’s Road would be maintained during short term lane closure to connect utilities.
- B.4.13 Minor kerb modification would be necessary at the junction of Chancellor’s Road and Distillery Road to enable HGVs to negotiate the turn without encroaching on the opposite carriageway or mounting the kerb.
- B.4.14 It is anticipated that an average of eight HGVs would access the site per day for the majority of the construction period. This would rise to approximately 21 HGVs per day over an estimated three-month period during the construction of the connection tunnel. There may be additional periods during key construction activities when these HGV numbers would need to be exceeded. Further details regarding the number and breakdown of anticipated heavy goods vehicles accessing the site per day is contained within the *Transport Assessment*, which accompanies the application.
- B.4.15 Potential layouts of the construction site are shown on the Construction phasing plan included in Annex B. It should be noted that these layouts are for guidance only. The contractor may arrange the site in a different way, depending on the chosen construction method, provided that any

environmental effects are appropriately managed and that main construction activities are contained within the appropriate zones.

Site preparation

- B.4.16 Three trees would be removed within the construction site as shown on the Demolition and site clearance plan.
- B.4.17 The site boundary would be established via the erection of timber hoarding and welfare and office facilities provided using stacked portable cabin style units. The height of the hoarding would be up to 3.6m.
- B.4.18 The temporary vehicle access off Distillery Road would then be constructed. This access would only be used for the construction phase. The creation of the construction access would require associated traffic management and utility diversions.
- B.4.19 Mechanical plant, storage facilities and other construction equipment would then be delivered to site off Distillery Road.
- B.4.20 The screening chamber building and sections of the pumping station compound wall would then be demolished. These structures would be removed using mechanical plant with associated arising being removed off site by lorry. The extent of demolition works is illustrated on the Demolition and site clearance plan.
- B.4.21 Temporary and permanent utility supplies would also be provided to the site at this stage.

Shaft construction

- B.4.22 An 11m internal diameter CSO drop shaft would be constructed. This would comprise excavating in approximately 1m increments and then using a sprayed concrete lining to form the shaft walls. This process would be repeated until the required depth of shaft is reached.
- B.4.23 Excavated material from the shaft would be lifted to ground level using a mobile crane prior to being deposited in a material handling area within the site. Excavated material would then be removed from site by HGVs.
- B.4.24 The concrete required on the site may either be batched on site, or delivered ready mixed as required.

Tunnelling

- B.4.25 The connection tunnel between the CSO drop shaft and the main tunnel would then be constructed. This would vary between 5m and 4m internal diameter. The tunnel would be constructed either using a tunnel boring machine or by sprayed concrete lining.
- B.4.26 If the connection tunnel is excavated using a tunnel boring machine, it would be formed of precast concrete segments installed to create the tunnel walls. Should sprayed concrete lining be selected, then the tunnel would be excavated in approximately 1m increments before a sprayed concrete lining is applied to form the tunnel walls.
- B.4.27 Excavated material from the tunnel would be removed via the drop shaft and again be lifted to surface level using a mobile crane. The excavated

material would be transferred within the site in the same manner as that from the drop shaft before being transported off site by HGVs.

Secondary lining of the connection tunnel and shaft

- B.4.28 A secondary concrete lining would then be applied to the drop shaft and connection tunnel. This is required to improve their durability, water tightness and structural integrity.
- B.4.29 The process would involve casting an *in situ* concrete lining using a curved mould, or shutter, to form the internal face of the tunnel and the drop shaft. The secondary lining would be progressed by continuously pouring concrete to the shutter as it is advanced either horizontally along the length of the tunnel or vertically up the wall of the shaft.
- B.4.30 The concrete for the secondary lining may either be batched on site, or delivered ready mixed to site. It would be pumped from surface level to the connection tunnel or drop shaft.

Construction of other structures

- B.4.31 The combined interception and valve chamber would then be constructed. The depth of this structure may require the walls to be constructed by drilling circular piled excavations which would be subsequently filled with concrete. These are known as secant piles. Drilling of secant piles would be conducted using mechanical plant, with concrete being pumped into the excavations.
- B.4.32 The connection culvert between the interception chamber and CSO drop shaft would then be constructed using secant piles to create a deep trench. The internal layout of the CSO drop shaft, including concrete access platforms and the concrete vortex generator would also be constructed.
- B.4.33 Other below ground hydraulic structures would then be constructed from *in situ* concrete. Concrete would be poured into shuttered excavations to provide the structure's shape.
- B.4.34 The above ground ventilation structure would then be constructed and formed from *in situ* concrete, again using shutters to provide the structure's shape. A planted brown roof on the structure would promote local biodiversity. The structure would be approximately 4m in height to match the adjacent structure.
- B.4.35 Ventilation columns that provide a means of air release from the new interception chamber and the existing pumping station inlet would be constructed within Thames Water's compound. The electrical and control kiosk would then be located within the building of the existing pumping station. Further details of the permanent works layout are illustrated on the Permanent works layout.

Completion of works and site restoration

- B.4.36 On completion of the permanent structures, site clearance and reinstatement would commence.
- B.4.37 The perimeter brick wall of the pumping station compound would be reconstructed along the boundary of Thames Water's land. The

compound area within the pumping station perimeter would be reinstated with concrete to provide an operational working area.

- B.4.38 The area outside the perimeter of the pumping station would be landscaped by St George. Areas adjacent to the CSO drop shaft would also be landscaped by St George with hard surfacing to provide operational vehicle access, with areas of soft landscaping for planting positioned to enable operational access in the future.
- B.4.39 The temporary construction vehicle access points off Distillery Road would then be removed and reinstated the new permanent access off Distillery Road formed. The hoarding around the construction site would be removed and the land handed over for further development by St George.
- B.4.40 The system would then be commissioned. Temporary weld mesh fencing would surround the vehicles and equipment to provide a segregated safe working area. Once all work is finished, any temporary fencing would be removed from site along with all vehicles and equipment.

Operation

- B.4.41 For the purposes of the application, each of the main operational structures is shown as being located within a defined zone in which the structure would be located. The operational structures detailed in the Good design subsection of this appendix along with the relevant plans, form part of the proposed application for development consent. The defined zones for the structures are shown on the Site works parameter plan.

CSO drop shaft

- B.4.42 The Hammersmith Pumping Station CSO drop shaft would be constructed within the future public realm boulevard area of the Fulham Reach development approximately 45m to the southeast of the pumping station. The drop shaft would have an approximate internal diameter of 11m. Combined sewage flows diverted from the pumping station inlet would be conveyed to the drop shaft via an underground connection culvert and from there into the main tunnel via the connection tunnel.
- B.4.43 The access cover to the drop shaft would be finished at a suitable level to accommodate any final finishes that would be installed by St George.

Interception chamber and culvert

- B.4.44 A connection culvert, approximately 15m deep, would convey flows between the interception chamber and drop shaft. Access covers would be incorporated into the chambers for inspection and maintenance purposes.
- B.4.45 The secondary pumping station would handle small flows entering the existing Hammersmith Pumping Station. It would be approximately 18m deep and be located adjacent to the interception chamber.

Ventilation structures

- B.4.46 The ventilation structure would sit within the Thames Water compound at the south western end of the pumping station building. It would stand approximately 4.5m high.
- B.4.47 There would be six ventilation columns to serve the interception chamber along the southern façade of the pumping station building. The minimum height would be 8.5m and the maximum height 9m.

Electrical and control kiosk

- B.4.48 The electrical and control equipment would be housed within the existing pumping station building. The works also include various modifications within the pumping station building and a small penstock control panel would be mounted on the external wall.

Permanent restoration and landscaping

- B.4.49 The temporary construction areas within the pumping station would be returned to hardstanding to provide operational access within the pumping station. The project structures within the Fulham Reach development would be designed to be incorporated into the public realm of the residential development. Therefore large hatches would have temporary infill or be paved with materials provided by St George. The final design on the landscape and restoration proposals is subject to both the generic and site-specific design principles.

Access

- B.4.50 Vehicle access to the site would be from Fulham Palace Road and Chancellor's Road. Permanent access to the operational infrastructure within the pumping station compound would be via two sets of existing gates on Chancellor's Road.
- B.4.51 In agreement with St George, periodic maintenance access to the access covers within the Fulham Reach development site would be from the new access via the future central boulevard off Distillery Road.

Typical maintenance regime

- B.4.52 Once the project is operational, it is anticipated that Thames Water personnel would visit the site approximately every three to six months to inspect and carry out maintenance of the electrical and control, ventilation and below-ground equipment. This would likely involve a visit by personnel in a small van during normal working hours and may take several hours.
- B.4.53 It is anticipated that a major internal inspection of the tunnel system and underground structures would be required once every ten years. This process would likely involve a small team of inspection staff and support crew and two mobile cranes to lower the team into the CSO drop shaft. The inspection would be carried out during normal working hours and would likely take several weeks.
- B.4.54 Thames Water may also need to visit the site for unplanned maintenance or repairs, for example, in the event of a blockage or an equipment failure. Such a visit may require the use of mobile cranes and vans.

Scheme development

- B.4.55 The proposed interception of the Hammersmith Pumping Station CSO was subject to over two years of extensive consultation and engagement. Throughout this period, the scheme evolved in response to consultation, through engagement with key stakeholders, and through on-going design development. The *Consultation Report*, which accompanies the application, contains detailed information on the consultation process.
- B.4.56 The preferred worksite at Hammersmith Pumping Station presented at phase one consultation was for the interception of the CSO, reception of the main tunnel proposed to be driven from Barn Elms, and to drive a connection tunnel to Acton Storm Tanks. The size of the site proposed at phase one was approximately 8,500m².
- B.4.57 Thames Water developed the proposed scheme following phase one consultation to take into account, where possible and appropriate, further engineering work indicating different technical requirements, new information and changes in circumstances for sites and the tunnel route, and the comments and suggestions received from the consultation process. The technical requirements and changes in circumstance that arose following Phase one consultation were:
- a. Further work found that the tunnel diameter to Acton Storm Tanks needed to be increased in order to meet the flow and storage requirements of the main tunnel.
 - b. The 'Fulham Reach' site was reallocated in the London Borough of Hammersmith and Fulham Core Strategy from office to residential use.
 - c. Plans for the redevelopment of the 'Fulham Reach' part of the site began to emerge, discussions were held with the landowner and the CSO interception site area required by the project was included in the planning application for the site.
- B.4.58 It was acknowledged by Thames Water that use of the site as a main tunnel and CSO site was high risk if the status of the site changed (ie, if proposals for the redevelopment of the site were brought forward). As a result of the advanced stage of the redevelopment proposal for the site it was concluded that the larger site required for a main tunnel reception site would not be available. Furthermore, discussions with St George established that they were amenable to working with Thames Water to accommodate a smaller CSO interception site within their development plans.
- B.4.59 Due to the evolving engineering design, new planning designation and new planning application for the site, Thames Water proposed to extend the main tunnel to Acton Storm Tanks. A back-check of suitable sites for the interception of the Hammersmith Pumping Station CSO was then undertaken. Alternative sites considered included the foreshore adjacent to Chancellors Wharf, Frank Banfield Park and the Thames Water Depot off Chancellor's Road.
- B.4.60 All potential sites were assessed having regard to engineering, planning, environment, community and property considerations set out in the Site

Selection Methodology as explained further in Section 4 of the *Planning Statement*. The alternative sites were considered as less suitable due to their associated greater impacts on public open space, closer proximity to existing residential properties, greater impacts on residential amenity and poorer road access. In addition, foreshore sites were not preferred where viable land-based alternatives exist due to increased health and safety risks, construction costs associated with working in the river and impact to foreshore habitats.

- B.4.61 Based on the back-check assessment the Hammersmith Pumping Station was considered more suitable for the proposed works for the following reasons:
- a. The site utilises some land within the existing Thames Water Pumping Station, allows works to be directly connected with the Pumping Station and the siting of permanent above structures within operational land.
 - b. The location of the CSO is compatible with St George's proposed redevelopment of the site and work programmes can be coordinated.
 - c. The site falls within the 'Hammersmith Embankment former office' site in Core Strategy Policy HTC3. The policy recognises that part of this site would also be required to accommodate construction and permanent works for the project within the redevelopment scheme layout and programme.
 - d. There would be less impact on existing residential dwellings than the other shortlisted sites.
 - e. The site has direct access to the public highway.
- B.4.62 Further details of the technical work which led to the comprehensive review of the preferred sites at phase one consultation and the tunnelling strategy are contained in Section 4 of the *Planning Statement*.
- B.4.63 As a result of the change of use to a CSO only interception site following phase one consultation, there were a number of scheme design changes which included:
- a. reducing the diameter of the CSO drop shaft
 - b. optimising the location of the site in relation to the Fulham Reach development and integrating some of the permanent works into the development
 - c. removing the proposed ventilation building and reducing the height of the single ventilation column in response to the change of use of the site and modifications to the project-wide air management strategy
 - d. reducing the size of the above-ground structures as far as possible
 - e. enhancing the appearance of the existing Venturi building within the pumping station compound.
- B.4.64 Thames Water held a sketch review and presented the CSO interception site to Design Council CABE in May 2011. The proposed permanent infrastructure included a connection tunnel from the CSO to the main

tunnel, various ventilation structures, an electrical and control kiosk within the pumping station compound and a CSO drop shaft finished at the same level as the surrounding areas of public realm within the Fulham Reach development. The Design Council CABE panel welcomed the proposals and advised that close dialogue with the developer of Fulham Reach *“should ensure that this phase development successfully incorporates these works within the detailed design of the public realm to the benefit of both parties”*.

- B.4.65 The Design Council CABE also suggested enhancing the profile of the pumping station; however, such works fall outside of the scope of the project.
- B.4.66 Following the sketch review, regular meetings were held with St George in order to optimise the layout and design of the project construction works and permanent structures alongside their Fulham Reach redevelopment proposals. Regular meetings were also held with the London Borough of Hammersmith and Fulham prior to phase two consultation in 2011 in relation to developing the design and construction logistics at the site.
- B.4.67 Phase two consultation ran from November 2011 to February 2012 and the preferred site was Hammersmith Pumping Station. Thames Water considered the feedback received and determined that no new information was raised that would fundamentally change the proposals for the site. The detailed proposals continued to be refined in order to improve the design and reduce the potential construction impacts on the environment and the local community. The London Borough of Hammersmith and Fulham welcomed the change in use of the site from phase one consultation and that the proposed works should co-exist with the St George’s proposal. The council also commented on the potential construction effects of the project including:
- a. Every opportunity to maximise the use of the river for construction should be explored.
 - b. The potential suspension of residents parking bays in Chancellor’s Road without any identified alternative parking provision is a major problem for any construction proposals for this site.
- B.4.68 Following phase two consultation, the engineering proposals were modified slightly to respond to refined system-wide requirements. These modifications included:
- a. introduction of a dry weather flow pumping station at the northeastern end of the compound, to prevent base seepage flows from Hammersmith Pumping Station entering the main tunnel in dry weather.
 - b. demolition of the existing screen housing building in order to construct the dry weather flow pumping station and improve long-term access; this building would be replaced with a similar structure no larger than the existing.

- c. additional small diameter ventilation columns adjacent to the northeastern corner of the pumping station in order to replace the ventilation function of the screen house building.
- B.4.69 Thames Water has continued to engage with St George to ensure that the works could be accommodated within the proposals and programme for the Fulham Reach development. The modified Hammersmith Pumping Station proposals were published at Section 48 publicity and no significant design developments took place after this stage.
- B.4.70 The principal issues that arose from consultation and Section 48 publicity are identified below. These are subsequently addressed in the planning assessment which follows:
 - a. Compatibility with existing planning permission adjacent to/in the vicinity of the site: This issue is addressed in the Design, Landscape and visual subsections.
 - b. Suitability of local roads for use by construction vehicles: This issue is addressed in the Transport subsection.
 - c. Impact of construction traffic on Fulham Palace Road (A219) and Hammersmith Gyratory: This issue is addressed in the Transport subsection.
 - d. Use the river rather than road to transport construction materials and spoil: This issue is addressed in the Transport subsection.
- B.4.71 All the issues raised throughout consultation and discussions with stakeholders were taken into account in developing the proposals. Further information on the consultation process is set out in the *Consultation Report*. Relevant planning issues are covered below in the site-specific planning considerations.

B.5 Site-specific planning considerations

- B.5.1 This section provides an analysis of the key planning considerations associated with the proposed works at Hammersmith Pumping Station. It considers the issues and factors identified in the NPS, and other issues that are relevant to the site as set out in para. B.4.70 above.

Meeting the need

- B.5.2 The proposed works at Hammersmith Pumping Station would be successful in meeting the need to intercept the Hammersmith Pumping Station CSO, and would make an important contribution to meeting the wider need for the project identified in the NPS.
- B.5.3 Currently, in an average year, the Hammersmith Pumping Station CSO discharges approximately 2,210,000m³ of untreated sewage into the River Thames close to Hammersmith Bridge in the London Borough of Hammersmith and Fulham. The CSO discharges approximately 51 times a year, and releases approximately 557 tonnes of sewage derived litter.
- B.5.4 The CSO was identified by the Environment Agency as a requiring control, and Thames Water's solution for dealing with this CSO is full interception.

The CSO discharges have multiple impacts on water quality in this location, including a localised effect of rapidly dropping dissolved oxygen levels, the release of pollutants and the discharge of sewage derived litter and effluent.

- B.5.5 Each discharge increases the risk of exposure to harmful microscopic organisms within the untreated sewage for river users who come into contact with water. An assessment of health impacts upon recreational users of the River Thames concluded that the risk of infection can remain for two to four days following a spill as the water containing the sewage moves backward and forward with the tide.
- B.5.6 Assuming the average 50 spills per annum from the Hammersmith Pumping Station CSO occur on separate days, there could be up to a maximum of 200 days per year when recreational users are at risk of exposure to untreated sewage in the vicinity of the outfall as a result of the Hammersmith Pumping Station CSO spills alone
- B.5.7 It is predicted that the CSO discharges will continue to worsen both in terms of volume, frequency and content. By the time the proposed works at Hammersmith Pumping Station are ready to become operational the CSO is predicted to discharge, in an average year, approximately 2,350,000m³ of untreated sewage, discharging approximately 54 times a year, releasing approximately 595 tonnes of sewage derived litter.
- B.5.8 Modelling suggests with the project in operation the discharges of untreated sewage in an average year would be reduced to 104,000m³, to a predicted level of between one and three spills per year, with less than approximately 26 tonnes of sewage derived litter. This reduction would have a direct beneficial effect on water quality by reducing the frequency, duration and volume of spills from the Hammersmith Pumping Station CSO by approximately 96 per cent. The benefit to river users is particularly significant at this location due to the high level of recreational river use in the surrounding area, volume of daily river users and association with nationally significant river events such as the Oxford and Cambridge University Boat Race, which routes past the existing Hammersmith Pumping Station CSO.
- B.5.9 There are numerous rowing clubs located to the northwest and south of the site. Sailing activities take place on most days, and race programmes are scheduled most weekends during the summer and winter, and on some evenings in summer, depending on the tide and weather conditions. The reduction in CSO spills would significantly reduce health risks to recreational river users.
- B.5.10 Overall, the specific need for the works proposed at Hammersmith Pumping Station is considered justified, the site selected is well suited to meet that need and is consistent with the NPS and *London Plan* Policy 5.14.

Good design

- B.5.11 The proposals for Hammersmith Pumping Station were carefully developed through a collaborative process of design review and extensive consultations. The amount, layout and scale of the proposed structures

are primarily dictated by the function they need to perform in transferring flows from the Hammersmith Pumping Station CSO and directing flows into the main tunnel.

B.5.12 Early site analysis and subsequent engagement identified that it was important for the design to respond to the following key opportunities and constraints.

B.5.13 The site-specific design opportunities included:

- a. coordinating the works to tie in with the Fulham Reach development
- b. positioning the permanent above-ground works within the existing Thames Water pumping station or its compound
- c. the potential to improve the biodiversity and habitat value of the site.

B.5.14 The site-specific design constraints included:

- a. The site is in close proximity to sensitive receptors including residents and Frank Banfield Park.
- b. The adjacent Fulham Reach development would be partly complete and partly under construction during construction of the project.
- c. The layout of the buildings on the site constrains the location of the below-ground structures.
- d. The location of existing underground infrastructure within the Hammersmith Pumping Station building and compound.

Figure B.4 Illustrative aerial view of the completed site



- B.5.15 The design life of the major civil engineering components of the project is 120 years, including buildings. The details of the external finishes of the ventilation columns and kiosks are not specified in the application, but are to be submitted for the subsequent approval of the local planning authorities. These details must be in accordance with the *Design Principles* document, which accompanies the application. These principles require materials to be high quality and long lasting. The project was designed to be durable and resilient to change.
- B.5.16 As part of the design process Thames Water undertook a series of design reviews, hosted and chaired by the Design Council CABE. The review for the Hammersmith Pumping Station site was attended by pan-London strategic stakeholders. The comments which were received are reflected in the final proposed aesthetic designs for the site.
- B.5.17 The Design Council CABE commented that it understood that the works needed to respect the approved Fulham Reach development; however, close dialogue with the St George should ensure that this phased development successfully incorporates these works within the detailed design of the public realm to the benefit of both parties.
- B.5.18 The comments received from the Design Council CABE design review are reflected in the final proposed aesthetic designs for the site. The detail of the consultation process for the site is reported the *Consultation Report* and the *Design and Access Statement*, which accompany the application.
- B.5.19 The majority of infrastructure is sited below ground at this site. It was therefore important that the few above-ground structures, successfully integrate with the existing Thames Water pumping station and the adjacent Fulham Reach development as discreetly as possible. With this in mind, the principal objectives that influenced the design from the analysis of the opportunities and constraints are as follows:
- a. minimising the impact of the permanent structures
 - b. integrating the design with the Fulham Reach development.
- Minimising the impact of the permanent structures**
- B.5.20 The following permanent structures would be visible on the site:
- a. a ventilation structure
 - b. six ventilation columns
 - c. a penstock control panel
 - d. ventilation column(s) or structure(s) serving the inlet of the pumping station, which may be incorporated into any potential replacement screen house structure
 - e. any potential replacement screen house structure.
- B.5.21 In order to minimise the impact of permanent above-ground structures, the site-specific design principle (HAMPS.02) requires all above-ground structures to be located within the Thames Water operational pumping station site. The location of the permanent above-ground works is shown on the Site works parameter plan.

- B.5.22 In the event the screen house is removed, it would be replaced with a similar structure that would not exceed the height or footprint of the existing screen house.
- B.5.23 The number and size of the ventilation columns is determined by the air management requirements for the site. Six small diameter ventilation columns are proposed to serve the CSO interception chamber along the south eastern façade of the pumping station building. The minimum height would be 8.5m and the maximum height 9m to enable them to discharge above the roof of the pumping station building.
- B.5.24 The ventilation structure would sit within the pumping station compound at the south western end of the pumping station building. The height (approximately 4.5m) and massing of the structure were designed to align with the existing infrastructure in order to reduce its visual impact. It would be constructed with high quality precast concrete panels with a planted brown roof. The external finish material would be hardwearing, durable and long-lasting in accordance with the NPS para. 3.5.2.
- B.5.25 The pumping station compound wall facing Chancellor's Road and Distillery Road would be rebuilt and extended, and would match the existing precast concrete wall construction (design principle HAMPS.03).

Integration of design with the Fulham Reach development

- B.5.26 The location and layout of the permanent works were influenced by negotiations with St George, detailed consideration of their development proposals, and the proximity of various sensitive receptors, both existing and proposed (ie, the future residents of the Fulham Reach development).
- B.5.27 The design principle HAMPS.04 requires that the works outside the Thames Water compound are designed to be incorporated into the public realm of the Fulham Reach residential development. Following the grant of planning permission for the Fulham Reach development, the location of the drop shaft and connection tunnel were redesigned to maintain the potential for redevelopment as proposed by St George. The drop shaft is located in an area to be landscaped as part of the Fulham Reach scheme and would be finished to allow St George to appropriately landscape it.
- B.5.28 The proposal was designed to ensure that the CSO can be intercepted and accessed for maintenance as required, whilst ensuring the viability of the adjacent site to be developed for residential development and the permanent above-ground structures are screened by locating them within the existing Hammersmith Pumping Station compound. The walls and fencing to the south and west would be sympathetic to the new residential development.
- B.5.29 The landscape works over the CSO drop shaft would be completed by St George as part of the Fulham Reach development; therefore Thames Waters' proposals do not include any landscaping materials. Any planting would be limited to a planted brown roof on the new ventilation structure. The functional and aesthetic elements of the above-ground structures were combined to reduce their prominence and help them blend into their surroundings, in accordance with paras. 3.5.1 to 3.5.3 of the NPS.

Managing construction impacts

- B.5.30 Throughout the consultation period and through numerous design developments Thames Water sought to limit construction impacts. Thames Water held detailed discussions with St George to understand work programmes and phasing proposals of the Fulham Reach development in order to identify suitable mitigation measures and construction practices which meet the requirements of both parties. Measures within the *CoCP* Part A and site-specific measures within *CoCP* Part B seek to minimise adverse construction impacts where practicable. Key scheme development changes to limit construction impacts at this site include:
- a. As much of the permanent works as possible would be sited within the existing Hammersmith Pumping Station site.
 - b. The site offices would be arranged along the northern boundary of the site in order to act as a screen from the construction activities for the residents on Chancellor's Road.
 - c. During connection tunnel works outside of standard working hours, the use of surface cranes would be minimised. This would involve the stockpiling of materials/ equipment at the bottom of the shaft for use during the evening and night, and for removal during standard working hours.
- B.5.31 The proposed construction layout at Hammersmith Pumping Station is illustrated in the Construction layout plan in Annex B.

Conclusion

- B.5.32 The proposed design of the Hammersmith Pumping Station site was significantly influenced by stakeholder engagement, design review and various pre-application meetings with St George. This is detailed further in the accompanying *Design and Access Statement*.
- B.5.33 The design life of the major civil engineering components of the project is 120 years, including buildings. The details of the external finishes of the ventilation columns and kiosks are not specified in the application, but are to be submitted for the subsequent approval of the local planning authorities. These details must be in accordance with the design principles, which require materials to be high quality and long lasting. The project was designed to be durable and resilient to change.
- B.5.34 The proposed development takes into account both aesthetics and functionality through good design, sensitive materials and appropriate siting amongst existing Thames Water infrastructure within the grounds of the existing pumping station. The proposed layout and site-specific design principles ensure that the proposal would have minimal visual impact on the surrounding area, and would be sustainable, usable and durable in accordance with paras. 3.5.1 to 3.5.3 of the NPS.

Water quality and resources

- B.5.35 There are no significant groundwater issues for construction or operational development at the site. There are no licensed or known unlicensed groundwater abstractions located within 1km of the site.
- B.5.36 Measures to protect water quality and resources during construction are detailed in Section 8 of the *CoCP Part A*, and referred to in the Section 8 of the *Planning Statement*. These measures are designed to ensure good pollution control practice and to minimise and manage potential impacts on surface water resources, river flows and groundwater resources. Measures incorporated into *CoCP Part A* include:
- a. Avoidance of substances that could result in direct or indirect discharge to groundwater, wherever possible
 - b. appropriate storage and containment of substances.
- B.5.37 Measures incorporated into the *CoCP Part B* include:
- a. All hardstanding (as far as reasonably practicable) on non-foreshore sites would incorporate permeable surfacing.
- B.5.38 Each discharge increases the risk of exposure to harmful microscopic organisms within the untreated sewage for river users who come into contact with water. An assessment of health impacts upon recreational users of the River Thames concluded that the risk of infection can remain for two to four days following a spill as the water containing the sewage moves backward and forward with the tide.
- B.5.39 Assuming the average 50 spills per annum from the Hammersmith Pumping Station CSO occur on separate days, there could be up to a maximum of 200 days per year when recreational users are at risk of exposure to untreated sewage in the vicinity of the outfall as a result of the Hammersmith Pumping Station CSO spills alone
- B.5.40 Once operational, the project would have a direct beneficial effect on water quality in the River Thames at this location by significantly reducing the release of pollutants and the discharge of sewage litter and effluent. This would have a direct positive impact on the recreational use of the river and would contribute to the protection and enhancement of biodiversity by reducing localised effects of rapidly dropping dissolved oxygen levels.
- B.5.41 The Hammersmith Pumping Station site is located in Flood Zone 3a associated with the tidal Thames. The site is protected from flooding by the presence of flood defences.
- B.5.42 A Flood Risk Assessment undertaken in accordance with Section 4.4 of the NPS is included within the *Environmental Statement*. This shows that the proposed development would be appropriate for the area as flood risk to the development would remain unchanged. Flood risk would be managed through appropriate design measures and the development would not lead to an increase in flood risk on the surrounding areas. Therefore, no significant flood risk effects are likely.

- B.5.43 In accordance with the *CoCP* (Section 8) all site drainage during construction would be drained and discharged to mains foul or combined sewers and where this is not practicable, the site would be drained such that accumulating surface water would be directed to holding or settling tanks, separators and other measures prior to discharge to the combined or surface water drains. Foul drainage from the site welfare facilities would be connected to the mains foul or combined sewer. This design measure would help manage the risk from this source during construction but would not reduce the level of risk associated with this flood source.
- B.5.44 The development is at residual risk of tidal flooding in the event of a breach in the local flood defence wall along the edge of the tidal Thames or overtopping of the defence wall as a result of a failure of the Thames Barrier. In the very unlikely event of a mechanical failure at the pumping station, there is potential for sewage to back up within the system and surcharge through manholes and gullies. The consequence of a breach or failure of flood defences or a failure of the pumping station, would not compromise the long term operational function of the main tunnel and therefore no additional measures above those outlined in the *CoCP* are proposed.
- B.5.45 Flood risk from all sources has been managed as far as possible through design and the measures incorporated in the *CoCP*, so the criteria in NPS para. 4.10 would be satisfied. No significant flood effects are likely from the proposed development.
- B.5.46 Site drainage is addressed as part of the design principles which require that on-site drainage be designed in accordance with relevant National Standards and in accordance with the Water Management Act 2010. The application includes a Requirement for surface water drainage details to be submitted and approved in writing by the local planning authority prior to the commencement of development of the ventilation columns and structures.
- B.5.47 The site would therefore meet the decision making criteria set out in the NPS in relation to water resources and flood risk, and the Environment Agency has no outstanding concerns.

Air quality, emissions, dust and odour

- B.5.48 The London Borough of Hammersmith and Fulham has declared the whole borough an Air Quality Management Area.
- B.5.49 The nearest receptors which may be sensitive to air quality impacts are Frank Banfield Park to the east of the site, occupiers of nearby residential dwellings to the north of the site on Chancellor's Road and future occupiers of the new Fulham Reach residential development to the south of the site. Other sensitive receptors include Charing Cross Hospital, the Guinness Trust Building, and Frank Banfield Community Centre.
- B.5.50 Through the measures included within the *CoCP* all reasonable steps have been taken, and would be taken, to minimise detrimental impacts on amenity resulting from air quality, emissions and dust. Measures incorporated into the *CoCP* Part A include:

- a. preparation of air quality management plans
 - b. emergency control arrangements.
- B.5.51 No site-specific air quality measures are proposed in the *CoCP Part B*.
- B.5.52 The consideration of operational air quality impacts including odour is set out in Section 8 of the *Planning Statement*. The project-wide *Air Management Plan*, which accompanies the application, is designed to ensure that the air in the tunnels is kept fresh, that a low pressure is maintained within the tunnels to prevent unwanted releases and that when air is released it is treated. This would be achieved by a combination of forced or active ventilation and treatment and passive air treatment. In addition, at all sites there are to be ventilation structures which would allow air to enter and leave the tunnel system.
- B.5.53 When the tunnels are empty, clean air would be drawn into the tunnels at specific sites by the extraction of air at other specific sites so as to keep the air in the tunnels fresh. This means that odours would not build up while the tunnels are empty. As the tunnels fill, air displaced from the tunnels would initially be extracted and treated at the active ventilation sites before being released and later, depending of the level of filling, would pass through the passive carbon filters. These filters clean the air and remove any odours before it is released.
- B.5.54 Hammersmith Pumping Station is proposed as a passive ventilation site. A ventilation structure of approximately 4.5m high would be located within the Thames Water compound at the south western end of the pumping station building. A below ground air treatment chamber would be installed with a passive filter to treat released air. Six ventilation columns are proposed to serve the interception chamber and would be positioned along the southern façade of the pumping station building. The minimum height of the ventilation columns would be 8.5m and the maximum height 9m. During a typical year this treats all the air displaced from the particular shaft which would occur only when the shaft is drowned by the rising wastewater in the tunnel. During infrequent, extreme storm events (approximately once in 15 years), the air that is pushed out of the shaft could exceed the capacity of the passive filter and would be released untreated through a pressure relief structure to prevent damage to the passive filter. For 100 per cent of the time during a typical year, all air released would be treated, which means that all regulatory requirements would be met and there would be no nuisance odours or loss of amenity due to odours.
- B.5.55 The construction and operational effects of air quality and odour would be consistent with the NPS decision making criteria to minimise detrimental impacts on amenity and the likelihood of nuisance (paras. 4.12.3, 4.11.4 and 4.11.5). Appropriate measures are proposed to ensure that the proposals would not lead to any substantial changes in air quality, emissions, dust or odour, or a significant loss of amenity during construction or operation.

Biodiversity and geological conservation

- B.5.56 The site is not designated for its geology or geomorphological importance, and there are no internationally (Special Protection Areas, Ramsar sites) or nationally designated ecological sites (Sites of Special Scientific Interest, Marine Conservation Zones) in the vicinity of the site.
- B.5.57 The Hammersmith Pumping Station CSO discharges directly into the designated River Thames and Tidal Tributaries Site of Metropolitan Importance.
- B.5.58 There would be no 'in-river' construction works associated with this site therefore no significant construction effects are considered likely in relation to aquatic ecology.
- B.5.59 By intercepting the CSO, the project would have a number of significant beneficial ecological effects in this location namely the reduction in the occurrence of dissolved oxygen related fish mortalities, an increase in the distribution of pollution sensitive fish species and an improved foraging habitat for fish.
- B.5.60 There are no ecologically designated sites of relevance to terrestrial ecology within 500m of the site. The site comprises buildings and hardstanding, and there are several trees within and on the boundary to the site. Surveys indicate that the site and surrounding area are used by common pipistrelle bats for foraging. Frank Banfield Park is approximately 5m from the eastern boundary of the site.
- B.5.61 Through the measures included within the *CoCP* all reasonable steps have been taken, and would be taken, to minimise detrimental impacts on biodiversity during construction. No significant adverse construction impacts are anticipated on terrestrial ecology.
- B.5.62 In accordance with NPS policy, the project proposals for this location seek to maximise opportunities to conserve and enhance biodiversity. The site-specific design principles (HAMPS.08) require bat roosts to be mounted within mature trees along the northern boundary of the site and a brown roof is proposed on the ventilation structure to promote local biodiversity (design principle FNCC.09).
- B.5.63 Given the limited extent of the permanent works, the existing context of the environment on this brownfield site and the operational activities proposed on site, no significant effects on terrestrial habitats or species are expected. As required by the NPS (para. 4.5.17), the footprint of the proposals is no greater than it needs to be. The proposals sought to conserve and enhance biodiversity and to minimise any negative impacts in accordance with para. 4.5.6 of the NPS.

Landscape and visual impacts

- B.5.64 The site does not lie within or in close proximity to any nationally designated landscapes. The local townscape was considered during the design development and evolution of the proposed works in this location. Accordingly, the townscape and visual assessment took into account the *Core Strategy* and the *Fulham Reach Conservation Area Character Profiles (1997)*, produced by the London Borough of Hammersmith and

Fulham and Atkins' *Thames Strategy: Kew to Chelsea* (2002) in accordance with para. 4.7.2 of the NPS.

- B.5.65 Through robust site selection, extensive consultation, significant design developments and mitigation, the proposed scheme was refined to minimise its impact on the surrounding townscape and views during construction and operation by integrating the works with the existing Thames Water site and the proposed Fulham Reach development.
- B.5.66 The northern part of the site comprises an operational pumping station and infrastructure associated with wastewater. The adjacent areas of the site are under construction as part of the mixed use Fulham Reach development. The surrounding townscape is predominately residential with some office uses. The townscape and visual assessment considered the condition of the townscape within the site as fair to poor.
- B.5.67 Measures are incorporated in the *CoCP* to minimise potential effects associated with the construction activities on the site. Despite this, the construction works would be a prominent feature of the local townscape and views due to the visibility of construction activity, plant and equipment, and road transport. Particularly affected are views southwest from 24 to 26 Chancellor's Road, northwest from newly built residences within the Fulham Reach redevelopment, and southwest from Frank Banfield Park.
- B.5.68 The visibility of construction is an unavoidable consequence of the scale of works required to intercept the CSO. The NPS recognises in para. 1.4.4 that NSIPs are likely to take place in mature urban environments and result in adverse townscape and visual effects, with many possible receptors. The type and scale of construction activities proposed is not uncharacteristic of construction projects undertaken at constrained sites throughout London, and particularly in this locality where the adjacent Fulham Reach development would be partly under construction at the same time as the proposed development.
- B.5.69 Site-specific measures in the *CoCP* Part B include:
- a. Hoarding would be at a height of 3.6m and would incorporate suitable art work on public facing sections.
 - b. The site offices would be arranged along the northern boundary of the site to screen the construction activities from Chancellor's Road.
- B.5.70 There would not be any significant operational townscape or visual effects due to the low height of the above-ground structures and their location within the Hammersmith Pumping Station operational compound.
- B.5.71 The construction works would be a prominent, albeit temporary, feature of the local townscape and views. The effects of construction would be minimised as far as possible through the measures proposed in the *CoCP*.
- B.5.72 The scale of the permanent above-ground structures was minimised as far as practicable and the design sought to integrate the works as discreetly as possible alongside existing infrastructure within the Thames Water compound. The layout of the shaft was designed so it could be fully integrated within the Fulham Reach development in order to fit in with the changing local character and streetscape of the surrounding area. This

careful approach to the design and layout of the permanent structures taking into account the landscape characteristics of the area is consistent with the approach required in Section 4.7 of the NPS.

Land use including open space, green infrastructure and green belt

- B.5.73 A large proportion of the temporary and permanent works are sited within the Hammersmith Pumping Station compound which constitutes operational land, ie, land that is either specifically used or held for the purposes of carrying out Thames Water's statutory undertakings.
- B.5.74 The majority of the remaining temporary and permanent works would be located on adjacent land owned by St George, which is under development in association with planning application reference 2011/00407/COMB. The specific area required by Thames Water is the proposed location for part of building block B and surrounding areas of landscaping and public realm, programmed for the final stage of construction.
- B.5.75 Thames Water has worked closely with St George in order to reserve the area of the site required temporarily and permanently for the project works. As a result of negotiations, Thames Water and St George have entered into a legal agreement to agree the use, by way of licence, of the area of the site required for construction of the project, and the freehold interest to parts of the site including the CSO drop shaft and connection tunnel, subject to certain build-over rights by St George.
- B.5.76 The whole of the site involves the re-use of previously developed land. The NPS recognises that the re-use of previously developed land can make a major contribution to sustainable development (para. 4.8.3).
- B.5.77 The impact of the proposals on land uses and designations (as identified in the London Borough of Hammersmith and Fulham Core Strategy and retained policies) was a key consideration in the site selection process and design development. The land uses of the site and its surroundings are illustrated on the Land use plan in Annex B.
- B.5.78 The site is within the Hammersmith Town Centre and Riverside Regeneration Area as indicated in the *Core Strategy* and on the *Proposals Map*. Within this the site lies in the Strategic Site and Housing Estate Regeneration Area – HTC 3, which seeks comprehensive redevelopment of the area. The associated Policy HTC 3 states that the 'Hammersmith Embankment former office' site "*should be developed for housing together with small scale leisure uses (e.g. riverside restaurants) and local facilities for residents. There should be a small riverside open space and access to the river for rowing*". *Core Strategy* para. 7.9.2 advises that: "*part of this site may be required to accommodate within the scheme layout and programme, permanent and construction works required for the construction of the Thames Tunnel*". Use of the site for the project would therefore be consistent with para. 7.9.2 of the *Core Strategy*.
- B.5.79 The design of Thames Water's proposals would integrate within the Fulham Reach development and would not compromise the wider

redevelopment of the 'Hammersmith Embankment former office site' (Fulham Reach site) for mixed uses in accordance with the *Core Strategy* Policy HTC 3.

- B.5.80 There are no other extant planning permissions, committed developments or policy allocations relevant to use of this site for the proposed temporary and permanent works.
- B.5.81 Frank Banfield Park, across Distillery Lane to the northeast, is approximately 1.25ha and classified as a 'small open space' under the Greater London Authority's Open Space Hierarchy. The proposed works would not prevent the on-going use of the park during the construction works. The *Open Space Assessment*, which accompanies the application, identifies only indirect and no significant effects on the park arising from the temporary construction works, and no mitigation is required.
- B.5.82 The proposed works would be a further development of, and extension to, the existing use of the Thames Water pumping station and great care was taken to accommodate neighbouring land uses. No extant planning permissions, committed developments, or policy allocations for future development would be adversely impacted as a result of the works in this location.

Noise and vibration

- B.5.83 The assessment of potential noise impacts arising from the construction and operation works at the Hammersmith Pumping Station site are set out in the *Environmental Statement*. The noise assessment profiles 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 where possible.
- B.5.84 The noise environment in the vicinity of the site is dominated by road traffic noise. The nearest locations to the site which are sensitive to noise and vibration are existing residential dwellings at Chancellor's Road and the new proposed residential dwellings at Fulham Reach.
- B.5.85 A series of measures are detailed in the *CoCP* Part A and embedded within the project design to reduce noise and vibration effects. These measures include:
- a. careful selection of construction plant, construction methods and programming
 - b. suitable siting of equipment to minimise noise impacts on sensitive receptors
 - c. careful programming of activities.
- B.5.86 Site-specific measures in the *CoCP* Part B include:
- a. The hoarding would be 3.6m high.
 - b. Pressed in sheet piling methods would be used.
 - c. During connection tunnel works outside of standard working hours, the use of surface cranes would be minimised. This would involve stockpiling materials/equipment at the bottom of the shaft for use

during the evening and night, which would then be removed during standard working hours. In addition the work will utilise measures to reduce noise including the use of electric gantry cranes, gas/electric fork lift and measures to reduce noise from skip movements and unloading.

- B.5.87 The implementation of these measures would help to manage the effects from noise generation during construction. However, despite the measures identified in the *CoCP*, adverse noise effects are predicted at the proposed Fulham Reach Block B and Block F.
- B.5.88 The construction noise levels are estimated to exceed the potential noise significance criteria for Block B during the day for one month and during the evening and night for 13 months respectively. The construction noise levels are estimated to exceed the potential noise significance criteria for Block F during the evening and night for nine months. The construction of the connection tunnel is expected to cause the worst-case noise levels during the evening and night-time in both instances.
- B.5.89 The NPS recognises that NSIPs are likely to take place in mature urban environments, and in the short term, to lead to noise disturbance during construction. The Fulham Reach development is currently under construction and the current and future owners and occupants would be fully aware of the implications of living in close proximity to an operational pumping station, and the plans for its future development.
- B.5.90 The NPS advises that in situations where other forms of noise mitigation have been exhausted, noise insulation to dwellings or, in extreme cases, compulsory purchase of affected properties may be considered in order to gain consent for what might otherwise be an unacceptable development. In the case of the project, no extreme cases were identified at the date of the submission of the application for development consent which would necessitate the compulsory acquisition of properties due to significant adverse effects. The *Thames Tideway Tunnel noise insulation and temporary re-housing policy* and the *Thames Tideway Tunnel project compensation programme* (included within Schedule 2 to the *Statement of Reasons*, which accompanies the application) were developed to offset the effects arising from construction related disturbance. The noise insulation and temporary re-housing policy would be implemented where predicted or measured construction noise levels exceed published trigger levels. The compensation programme was established to address claims of exceptional hardship or disturbance. In relation to construction, eligible works would be directed towards mitigation or other required actions to reasonably reduce disturbance from noise or construction activities.
- B.5.91 The properties at Fulham Reach Block B and Block F may be eligible under the *Thames Tideway Tunnel noise insulation and temporary re-housing policy*. If the noise insulation package were installed as set out in the above policy, the internal daytime and night-time noise levels at Fulham Reach would be reduced and not significant. The inclusion of mechanical ventilation as part of the insulation package would ensure that windows could be closed at night-time to realise the full benefit of the noise insulated glazing.

- B.5.92 No significant vibration impacts are anticipated during construction. No significant noise or vibration effects as a result of the operation of the development are predicted.
- B.5.93 Thames Water has employed all possible measures to mitigate the effects of noise at the site. The project demonstrates good design and mitigates and minimises adverse impacts on health and quality of life in accordance with paras. 4.9.8 and 4.9.9 of the NPS. In the event that residual noise effects arise, these would be dealt with through the Thames Tideway Tunnel project compensation programme.

Historic environment

- B.5.94 The *Environmental Statement* and *Heritage Statement*, which accompanies the application, both describe the importance of the heritage assets that may be affected by the proposed development and the contribution of their setting to their significance.
- B.5.95 The site contains no nationally designated heritage assets and there are none in the immediate vicinity. The site includes no above-ground features of historic significance.
- B.5.96 The south western half of the site lies within an Archaeological Priority Area, covering an area of higher potential along the Thames riverside, including an area of Saxon settlement. The site lies within the Fulham Reach Conservation Area. There are no locally listed buildings within the site, although the Grade II* listed Hammersmith Bridge is approximately 100m to the west. This wrought iron suspension bridge was built in 1884/87 by Sir Joseph Bazalgette. It has a striking ornate design with gilded cupolas over its two towers, and forms a distinctive landmark in views from both banks of the River Thames. The river frontage of Fulham Reach forms a key part of the bridge's setting.
- B.5.97 The Fulham Reach Conservation Area extends from the Riverside Studios near Hammersmith Bridge south to Craven Cottage, encompassing the buildings and open spaces along the riverfront. The *Conservation Area Character Profile* states that the Conservation Area was designated in order to ensure that any development proposals recognise "*the sensitive nature of the riverside, in particular the long sweeping views northwards towards Hammersmith Bridge and views to and from Barnes and Putney bank*". The river forms the main element of the conservation area's character.
- B.5.98 The construction and permanent above ground works would largely be screened from the surrounding Fulham Reach Conservation Area by the existing pumping station buildings and the intervening presence of hoardings, walls, mature vegetation and the Fulham Reach development. This would not change any views or the setting of any heritage assets. The construction works and ventilation shafts would not be visible from the bridge.
- B.5.99 The potential effects upon any archaeology would be mitigated by a combination of approaches, to be agreed in advance with statutory consultees as set out in the *Overarching Archaeological Written Scheme of Investigation*, which accompanies the application. There would be a

watching brief during site preparation and construction to mitigate impacts upon potential remains of low significance such as 19th century foundations. There would also be targeted excavation of more significant remains in advance of construction, which would enable any such remains to be recorded as appropriate. However it should be borne in mind that previous excavations, and thorough works of mitigation including recording, were carried out in the southern part of the site outside the Pumping Station compound as part of the Fulham Reach scheme, thus covering most of the area which is now proposed for deep level excavation. As a result of this any new archaeological excavations required are unlikely to be extensive. Any remains discovered would be recorded as appropriate, followed by a suitable programme of publication, dissemination and interpretation of the results. This would ensure that they contribute to an improved public understanding and appreciation of the significance of these aspects of London's past, and mitigate any losses due to the proposed works.

B.5.100 Through the measures included within the *CoCP* all reasonable steps have been taken, and would be taken, to minimise any detrimental impact on the historic environment. Measures incorporated into the *CoCP* Part A to reduce any impact on the historic environment include:

- a. site-specific heritage management plans
- b. advanced assessment to inform the types of plant and working methods for use where heritage assets are close to worksites
- c. procedures in the event of the discovery of human remains.

B.5.101 No significant impacts are anticipated on heritage assets during operation.

B.5.102 In summary, no significant impacts are anticipated during construction or operation, and potential impacts would be minimised with the implementation of the mitigation measures detailed in the *CoCP* Part A and the *Overarching Archaeological Written Scheme of Investigation*.

Light

B.5.103 The *Daylight/Sunlight Assessment*, which accompanies the application, assessed the potential impact of the construction works and permanent structures on the daylight and sunlight amenity of surrounding properties. The screening assessment concluded that the permanent works would have no material impact. During the construction phases, there would be no material impact on existing residential properties as the tallest elements would be situated away from these properties and to the south of the site. However, it is possible that the tallest elements of the construction works may impact on the new Fulham Reach development which is under construction, but this potential impact would be dependent upon the progress and phasing of this new development.

B.5.104 The surrounding area is lit in the early evenings by street lighting and by light spill from surrounding buildings. During construction, artificial lighting of the site would be required for evening work during the winter months.

B.5.105 For practicality and safety reasons tunnel construction needs to take place over extended periods of time, including working on a 24-hour, seven days

a week basis. During this period, the working would mainly take place below ground but artificial lighting would be required for the supporting activity at ground level for extended periods at this site during the tunnel construction and secondary lining phases. Measures are included within the *CoCP* to ensure that all reasonable steps would be taken, to minimise detrimental impacts on amenity resulting from artificial light. For example, site lighting during construction would be capped and directional to ensure minimal light spill and lighting only used when necessary and as such there would be no unreasonable effect on residential properties during the construction period. Through the measures included within the *CoCP* all reasonable steps have been taken, and would be taken, to minimise detrimental impact on amenity resulting from artificial light as required by the NPS.

- B.5.106 There would only be limited effects from construction lighting on ecology with the implementation of the mitigation measures set out in the *CoCP*, as reported in the *Environmental Statement*.
- B.5.107 No lighting is proposed as part of the operational development at the site.
- B.5.108 All reasonable steps would be taken to minimise any detrimental effects arising from the use of artificial lighting at this site in accordance with the NPS (4.12.7).

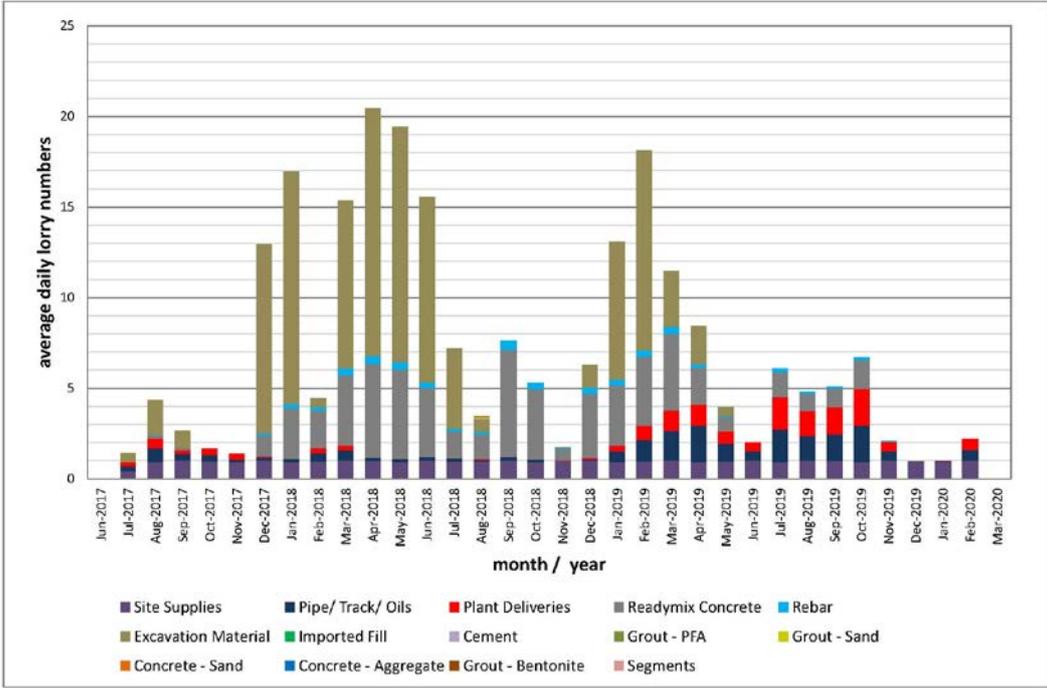
Traffic and transport

- B.5.109 The *Environmental Statement* and the *Transport Assessment* provide an assessment of the likely significant transport effects at this site in regards to the proposals during both construction and operational phases. The project-wide approach to managing transport is set out in the *Transport Strategy*, which accompanies the application.
- B.5.110 The Hammersmith Pumping Station site has ‘excellent’ public transport accessibility, with a Public Transport Accessibility Level of between 5 and 6b. The nearest section of the Transport for London Road Network is approximately 500m to the north at the Hammersmith Gyratory (A4) and 2km to the east on Warwick Road (A3220). Fulham Palace Road (A219) is part of the Strategic Road Network. At this site there would be no parking provided within the site boundary for workers.
- B.5.111 There are shared use parking bays consisting of permit holder parking and pay and display parking, operating at different times along Chancellor’s Road, Distillery Road and Winslow Road. These parking bays are within a Controlled Parking Zone. There is resident permit or pay-at-meter parking along the eastern side of Distillery Road, and further resident permit or pay-at-meter parking along both sides of Chancellor’s Road.
- B.5.112 It would not be necessary to remove on-street parking along Distillery Road or Chancellor’s Road or suspend existing parking bays during construction at the site. Construction vehicle movements would be managed along this route so that larger vehicles would not be required to pass each other at sections where on-street parking is located. However, it would be necessary to extend the restricted hours applying to single yellow lines to 7am to 7pm Monday to Saturday along Chancellor’s Road and Distillery Road to assist the passage of construction vehicles. The

extension to restricted hours of single yellow lines along Chancellor's Road and Distillery Road would not constitute a significant impact.

- B.5.113 During construction there would be approximately 45 construction workers employed at this site at any one time. At this site there would be no parking provided within the site boundary for workers. Since parking on surrounding streets is also restricted, measures to reduce car use would be incorporated into site-specific travel plan and secured by Requirement. Further information regarding the travel arrangements of staff working on the site is included in the *Construction Environmental Management Plan* and *Draft Project Framework Travel Plan*, which accompany the application.
- B.5.114 All materials would be transported by road during construction at the Hammersmith Pumping Station site. The Greater London Authority and the London Borough of Hammersmith and Fulham have both suggested in their consultation responses to use the river rather than road to transport construction materials and spoil to the site. However, transporting materials by barge would not be viable at this site because access to the river is prevented by the Fulham Reach development, which is currently under construction.
- B.5.115 Construction vehicles would access the site via the A4 and A3220 corridors and locally via the Hammersmith Gyratory system, Fulham Palace Road (A219), Chancellor's Road and Distillery Road. Access into the Hammersmith Pumping Station site would be via an access from Distillery Road with a right turn in and left turn out only arrangement.
- B.5.116 The average peak daily construction lorry vehicle movements (in the peak month of Site Year 1 of construction) would be 42 movements per day (21 two-way vehicle trips). A histogram of the average daily lorry numbers at Hammersmith Pumping Station is illustrated below. This assessment is based on the average day in the peak month and is a reasonable 'worst case' scenario. During many months vehicle numbers would be lower. Further detailed information on construction vehicle numbers and access can be found in the *Transport Assessment*.

Figure B.5 Estimated construction lorry profile



B.5.117 During construction vehicle movements would typically take place on weekdays between 8am to 6pm and on Saturdays from 8am to 1pm with up to one hour before and after these hours for mobilisation and de-mobilisation of staff. In exceptional circumstances HGV and abnormal load movements could occur up to 10pm for large concrete pours and later at night on agreement with the local authority.

B.5.118 Through the measures included within the CoCP all reasonable steps have been taken, and would be taken, to minimise detrimental impacts from traffic and transport as identified in the NPS. Site-specific measures incorporated into the CoCP Part B to reduce traffic and transport impacts are:

- a. The main site entrance would be from Distillery Road with a right turn in, left turn out.
- b. The contractor would manage arrivals and departures where possible to avoid conflicts with other road users along Chancellor’s Road
- c. All vehicles would access/exit the site from Fulham Palace Road (A219) and Chancellor’s Road and turning into the site at an entrance on Distillery Road.
- d. Two way operation of Chancellor’s Road to be maintained during short term lane closure to connect utilities.

B.5.119 Construction mitigation was designed to limit the impacts on transport networks as far as possible and many measures are embedded directly in the design of the project, such as:

- a. minor kerb widening at Chancellor’s Road/ Distillery Road junction to enable safe passage of construction vehicles

- b. maintaining existing parking bays and extending restricted hours of parking on existing single yellow lines Chancellor's Road and Distillery Road
 - c. Minor widening of crossing point on Chancellor's Road at the junction with Fulham Palace Road (A219) to enable safe access for construction vehicles.
- B.5.120 These embedded measures were taken into account in the *Transport Assessment*, which indicates that no significant changes are anticipated on the transport network and therefore no additional measures are required for the construction phase.
- B.5.121 The *Transport Assessment* indicates that the junction of Fulham Palace Road (A219) with Chancellor's Road would operate within capacity during the construction phase. The construction traffic generated by the project would produce a marginal increase in demand resulting in a maximum increase of three seconds delay per vehicle on Chancellor's Road for emerging traffic at the junction.
- B.5.122 Permanent site access would be provided from a new access point on Distillery Road and the existing access off Chancellor's Road. The transport demands in the operational phase would be extremely low. Access would be required for a light commercial vehicle on a three to six monthly maintenance schedule. Additionally there would be more significant maintenance visits every ten years which would require access to enable two cranes and a set of light goods vehicles, HGVs and supporting equipment to be brought to the site.
- B.5.123 No parking suspensions would be required for maintenance vehicle access. However, it would be necessary to temporarily extend the restricted hours applying to single yellow lines along Chancellor's Road and Distillery Road during the ten year major maintenance visit requiring access by cranes. On this basis, there would not be any significant transport effects during the operational phase and mitigation is therefore not required.
- B.5.124 The construction works in this location are not likely to result in any significant transport effects on road network operation or delays. No significant effects were identified on pedestrian and cyclist amenity, safety or on local public transport services. Thames Water is willing to enter into obligations and requirements to secure necessary highway improvements and to mitigate transport impacts as required by the NPS para. 4.13.7, and therefore, development consent should not be withheld, and limited weight should be applied to residual transport effects.

Waste management

- B.5.125 The Waste Strategy was developed to provide a framework for the management of materials and waste that would be produced throughout the construction and operational phases of the project. This ensures that the requirements set out in para. 4.14.6 of the NPS would be satisfied
- B.5.126 There are no particular site-specific waste issues associated with the use of this site.

Socio-economic

- B.5.127 The project wide socio-economic benefits of the project both during construction and operation are detailed in Section 8 of this *Planning Statement*.
- B.5.128 The immediate area (within 250m) surrounding the site is mostly residential, with other land uses including office development, public open space and recreational assets, a primary school and a hospital.
- B.5.129 The community profile for the site suggests that local residents are predominantly middle aged white or black adults, and experience moderately good health and moderately high life expectancy. Residents are not severely deprived on the whole but experience significantly higher than average levels of income deprivation within 250m of the site in comparison to Greater London.
- B.5.130 Construction is expected to require a maximum workforce of approximately 45 workers at any one time. This would not significantly alter the demand for services in the surrounding area. These jobs and training opportunities would provide a stimulus to the local economy.
- B.5.131 During construction, impacts on the amenity of users of Frank Banfield Park would not be significant. There is potential for adverse effects to the amenity of some nearby residents as a result of noise from the construction works at this site. However, no further practicable mitigation can be adopted above those methods identified in the *CoCP*.
- B.5.132 Adverse effects on residential amenity from noise are predicted to be significant at Blocks B and F of the future Fulham Reach development. However, if a noise insulation package were installed at these properties in accordance with the *Thames Tideway Tunnel noise insulation and temporary re-housing policy*, these effects could be reduced to within acceptable limits and would no longer be significant.
- B.5.133 In accordance with the NPS (para. 4.15.6), an *Equalities Impact Assessment* was undertaken. It describes the demographics of the surrounding area and assesses whether a disproportionate number of people from particular equalities groups would be affected by the generic impacts associated with the project, including air emissions, flood risk, noise and vibration. It also outlines the impact on people living, working or owning businesses that may be displaced as a result of the project.
- B.5.134 The *Equalities Impact Assessment* identified a potential differential impact on children and pregnancy/maternity groups using Frank Banfield Park, arising from construction traffic and perception of a less welcoming environment. The construction impact on the adjacent park and gardens would be minimised through a number of embedded design measures incorporated in the *CoCP*, including installation of site hoardings, appropriate lighting that provides a level of safety around site, use of wet sweep methods and enclosing work areas to minimise potential dust and air quality impacts. Site security guards and banksmen would also be used around site boundaries and access points to maintain the feeling of safety in the park and open spaces. All other identified potential impacts are not considered differential.

- B.5.135 Once operational, no socio-economic effects are expected that would require mitigation. This is on the basis that the design, size, and location of the operational structures would occupy a relatively restricted area within Hammersmith Pumping Station. The shaft is located within the Fulham Reach development area and was designed so as to be incorporated within the future development on the site. The operational structures are therefore not likely to result in any significant loss of amenity.
- B.5.136 In this location, the River Thames is widely used for recreational purposes and once operational, there would be substantial benefits to the recreational users of the river in this location due to the significant reduction in discharges from the Hammersmith Pumping Station CSO and associated health benefits.

B.6 Overall conclusions

- B.6.1 The Hammersmith Pumping Station CSO was identified by the Environment Agency as a requiring control, and Thames Water's solution for dealing with this CSO is full interception. In an average year, the CSO discharges approximately 2,210,000m³ of untreated sewage into the tidal River Thames. The number of CSO discharges would be reduced from 50 spill events a year to approximately between one and three spills per year with an average discharge of approximately 103,600m³. An overall reduction in CSO discharges by 96 per cent.
- B.6.2 Hammersmith Pumping Station was selected after extensive consideration and engagement as the most appropriate site on which to meet the identified need.
- B.6.3 Given the site location, close to existing and proposed residential dwellings, existing office premises and Frank Banfield Park, it is inevitable there would be some disturbance during the construction period. While Thames Water sought to minimise disturbance through sensitive design and mitigation, some temporary negative effects during construction are likely to remain. These comprise principally:
- a. townscape and visual impacts during construction on Frank Banfield Park and views southwest from 24 to 26 Chancellor's Road, northwest from newly built residences in the Fulham Reach redevelopment, and southwest from Frank Banfield Park
 - b. impacts from construction noise are predicted at proposed Fulham Reach Block B and Block F; however implementation of a noise insulation package would reduce these impacts
 - c. amenity impacts on nearby residential dwellings during construction.
- B.6.4 The assessment above explained that the proposals incorporate measures to limit the effect of each of these construction impacts. For each of these effects, the project design was refined and all practicable mitigation identified and committed to. The residual impacts are an unavoidable consequence of intercepting the Hammersmith Pumping

Station CSO which discharges into the River Thames, in a mature, built-up urban environment.

- B.6.5 The significant reduction of discharges from the Hammersmith Pumping Station CSO would improve the water quality in the tidal River Thames with associated benefits to water quality, ecology, and amenity. This would also help reduce the health risks to river users and reduce sewage derived litter, which is a direct benefit to recreational river users in the area. The proposals at this site would efficiently intercept the Hammersmith Pumping Station CSO, largely within the boundary of the existing pumping station, thereby avoiding the need for any more potentially intrusive works within the foreshore.
- B.6.6 In addition, significant benefits are anticipated on aquatic ecology through; a reduction in the occurrence of dissolved oxygen related fish mortalities; an increase in the distribution of pollution sensitive fish species; and an improvement in the quality of foraging habitat.
- B.6.7 The proposed works at the Hammersmith Pumping Station site, and the mitigation measures that were developed and advanced as part of the application for development consent, directly accord with the approach required by the NPS. Adverse effects have been minimised as far as possible and opportunities taken to enhance the local environment and to leave a positive legacy.
- B.6.8 Section 8 and 9 of the *Planning Statement* considers the implications of the local effects of the works at Hammersmith Pumping Station and the other sites, and describes the overall balance between impacts and benefits associated with the project as a whole, against the guidance in the NPS. It concludes that the works at Hammersmith Pumping Station, and the project as a whole, are compliant with the NPS and that development consent should be granted.

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Annex B: Drawings for Hammersmith Pumping Station

List of drawings

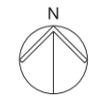
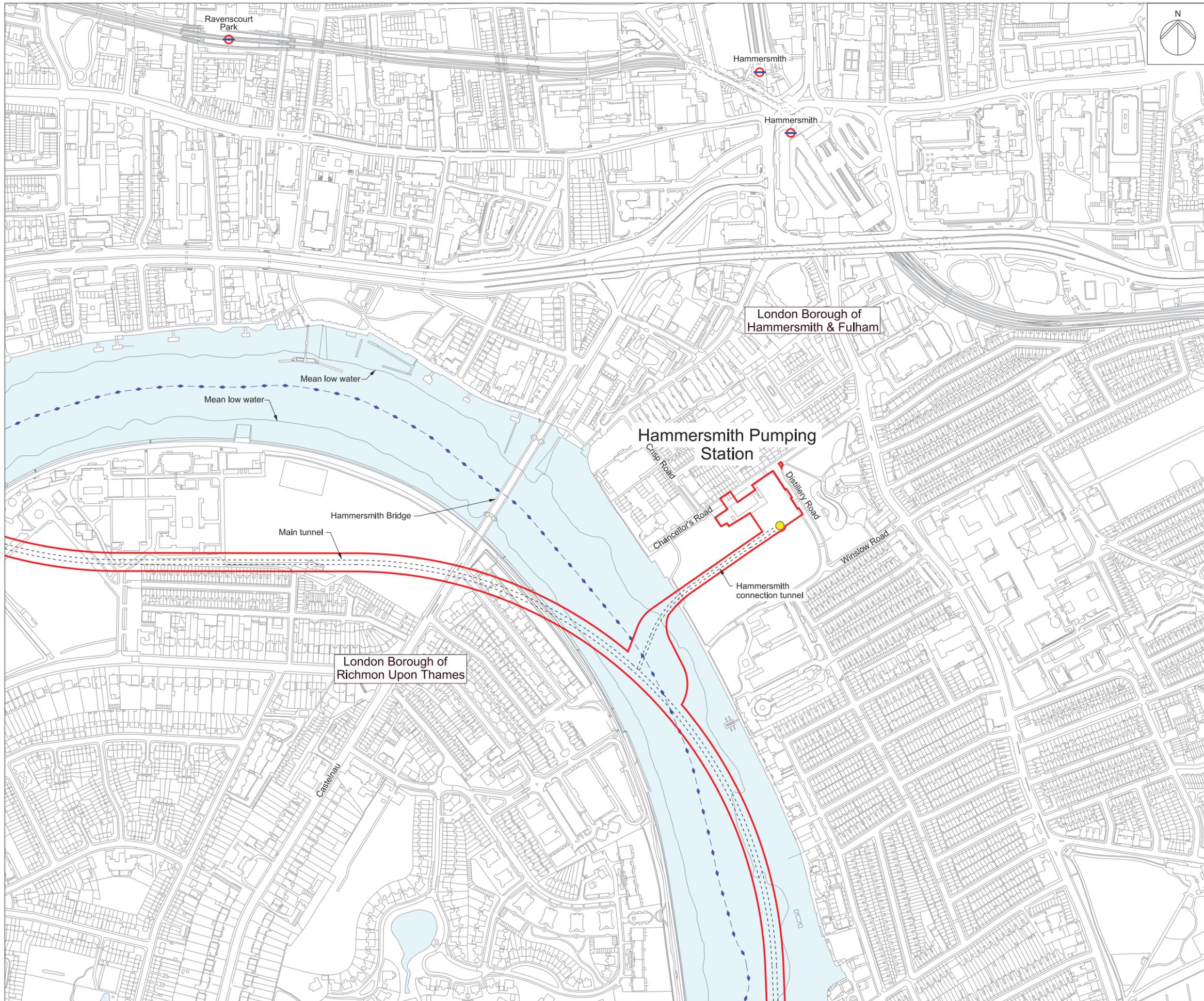
Hammersmith Pumping Station: Location plan

Hammersmith Pumping Station: As existing site features plan

Hammersmith Pumping Station: Construction phases plans

Hammersmith Pumping Station: Land use plan

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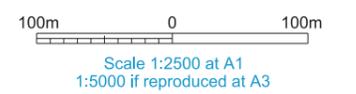


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Local authority boundary
 - Order limits
 - Tunnel
 - Shaft

Notes:

- The alignment of the tunnels are illustrative within limits of deviation.



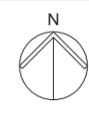
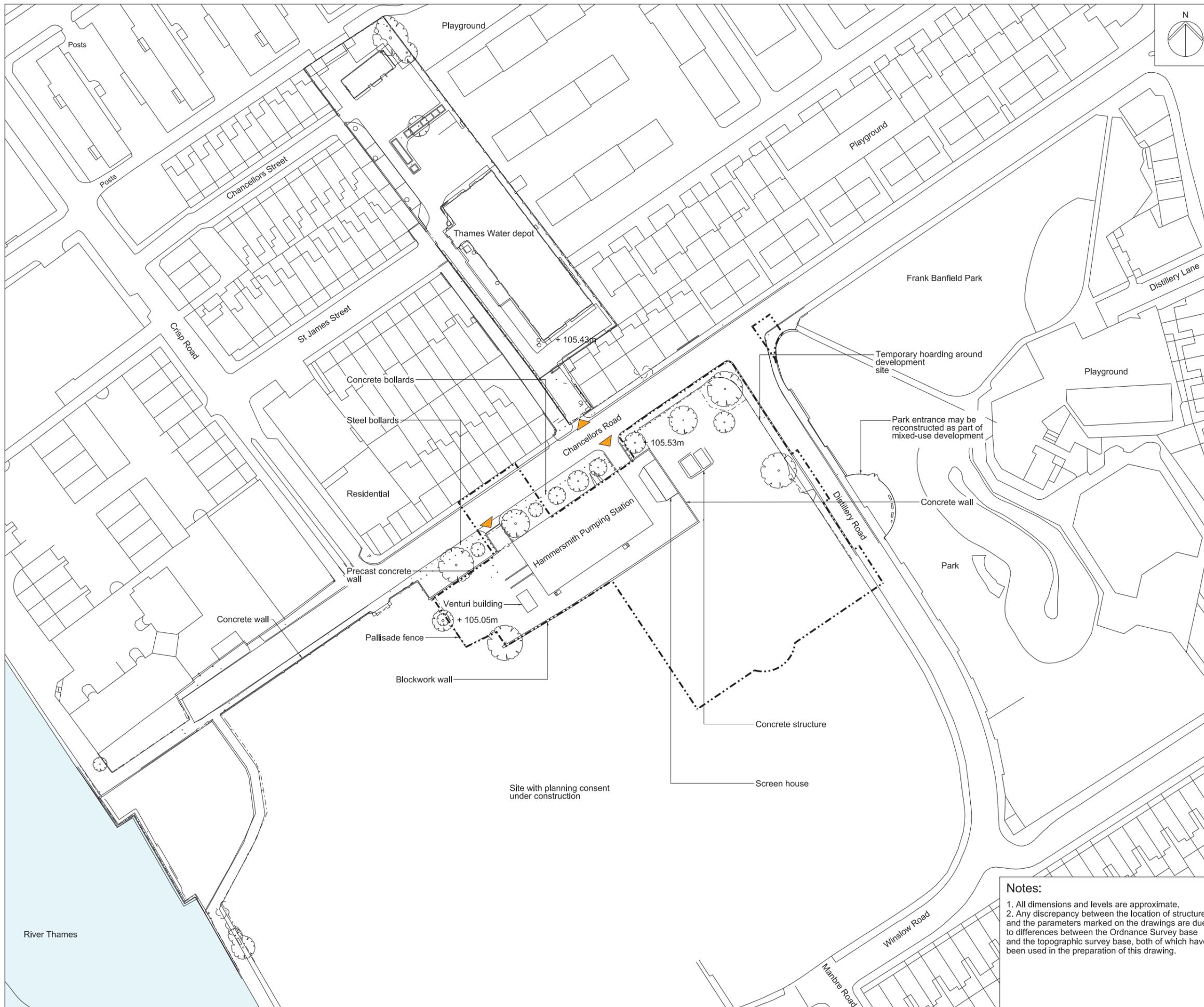
FOR INFORMATION

Location
Hammersmith Pumping Station
 London Borough of Hammersmith & Fulham

Document Information
Application for Development Consent
 Location plan

Book of plans - section 6
 DCO-PP-03X-HAMPS-060001
 January 2013





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Keyplan:

This drawing



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Key:

- Limits of land to be acquired or used (LLAU)
- + 105.40m Existing levels (shown in metres above tunnel datum)
- Existing trees within surveyed area (trunk sizes vary)
- Thames Water access



Scale 1:500 at A1
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FOR INFORMATION

Location
Hammersmith Pumping Station
London Borough of Hammersmith & Fulham

Document Information
Application for Development Consent

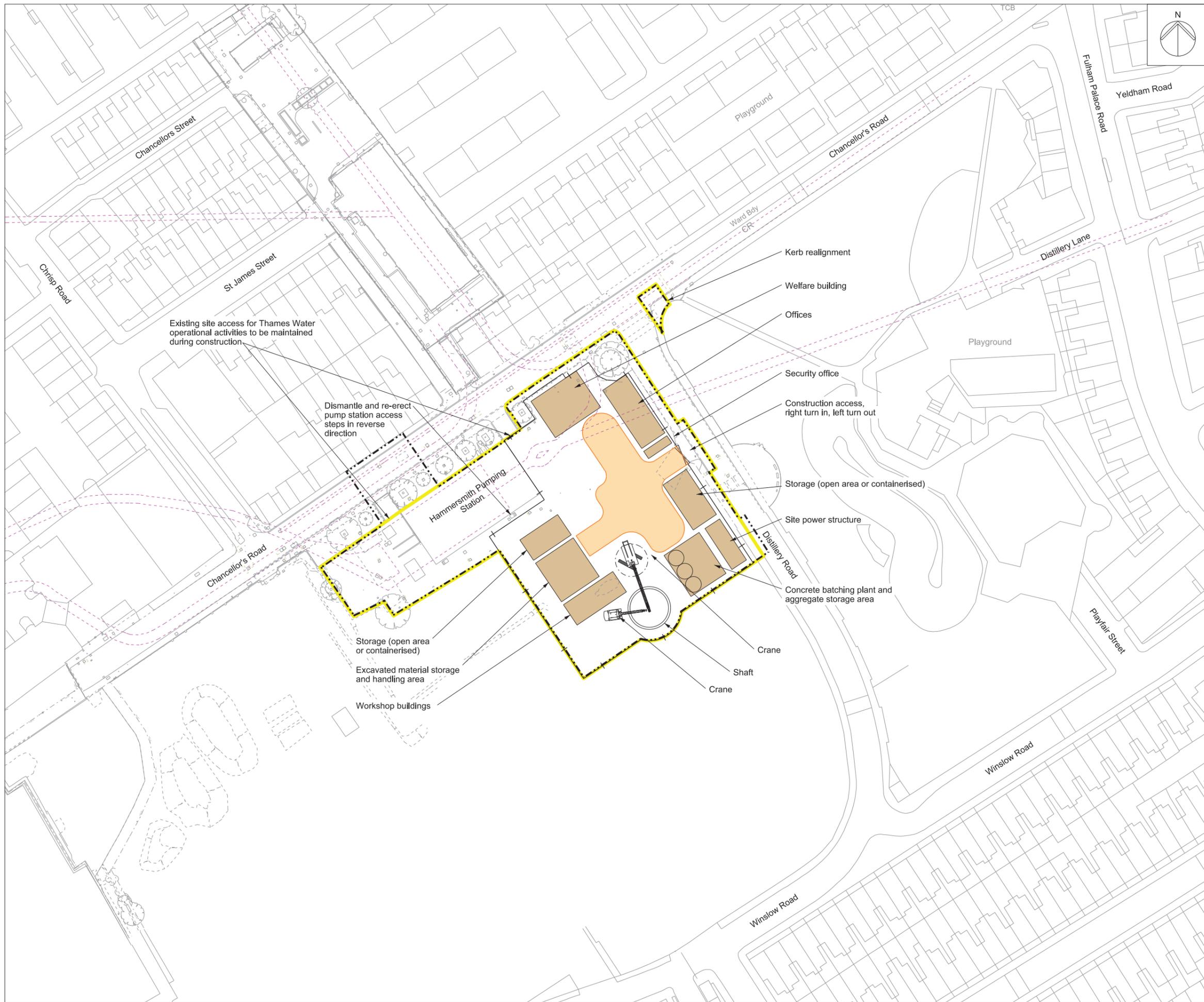
As existing
Site features plan
Book of plans - section 6
DCO-PP-03X-HAMPS-060002
January 2013

Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Site access
 - Access / haul route
 - Existing sewers

- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.

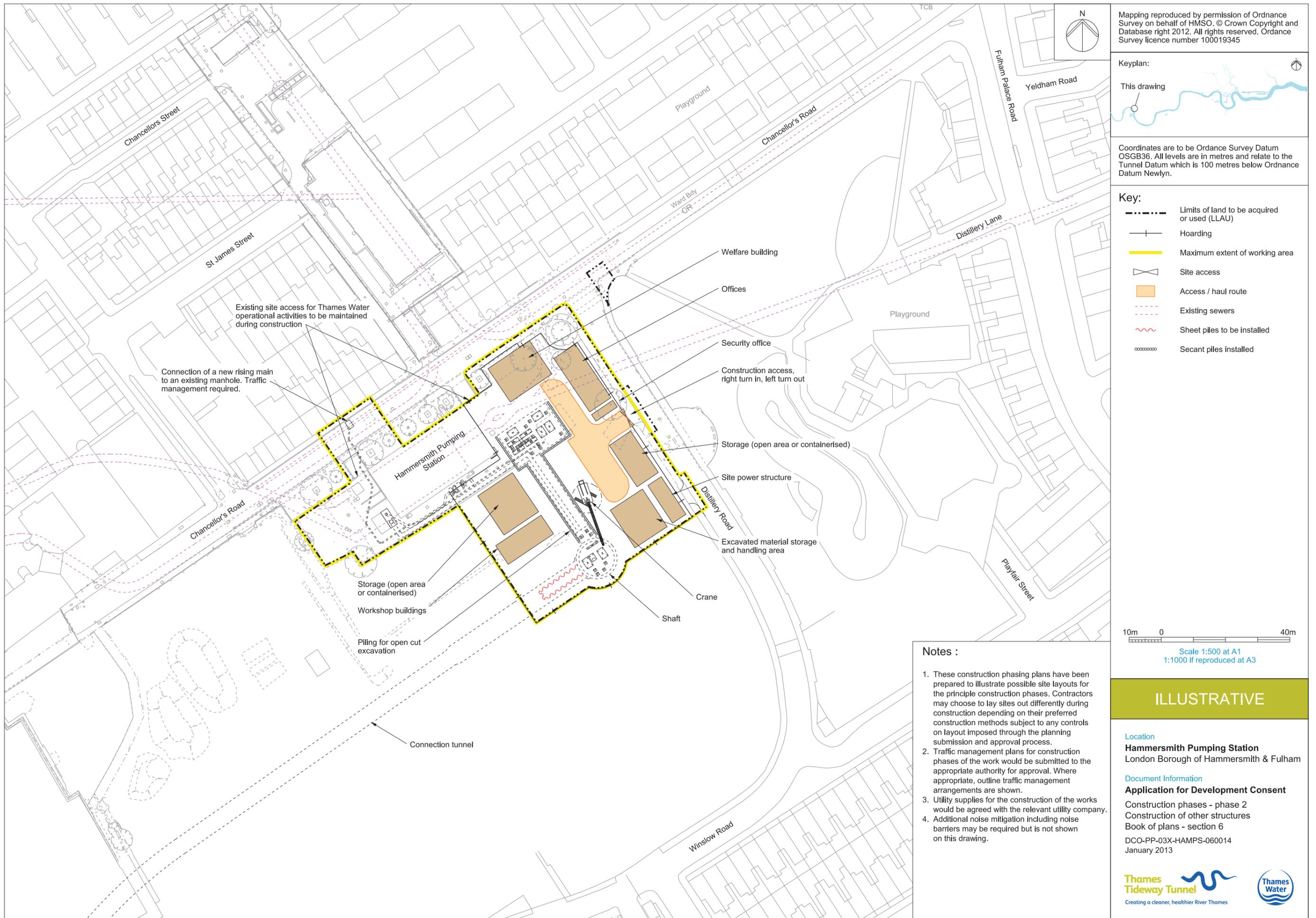


ILLUSTRATIVE

Location
Hammersmith Pumping Station
London Borough of Hammersmith & Fulham

Document Information
Application for Development Consent
Construction phases - phase 1
Site setup, shaft construction & tunnelling
Book of plans - section 6
DCO-PP-03X-HAMPS-060013
January 2013





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Key:

	Limits of land to be acquired or used (LLAU)
	Hoarding
	Maximum extent of working area
	Site access
	Access / haul route
	Existing sewers
	Sheet piles to be installed
	Secant piles installed

- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
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ILLUSTRATIVE

Location
Hammersmith Pumping Station
London Borough of Hammersmith & Fulham

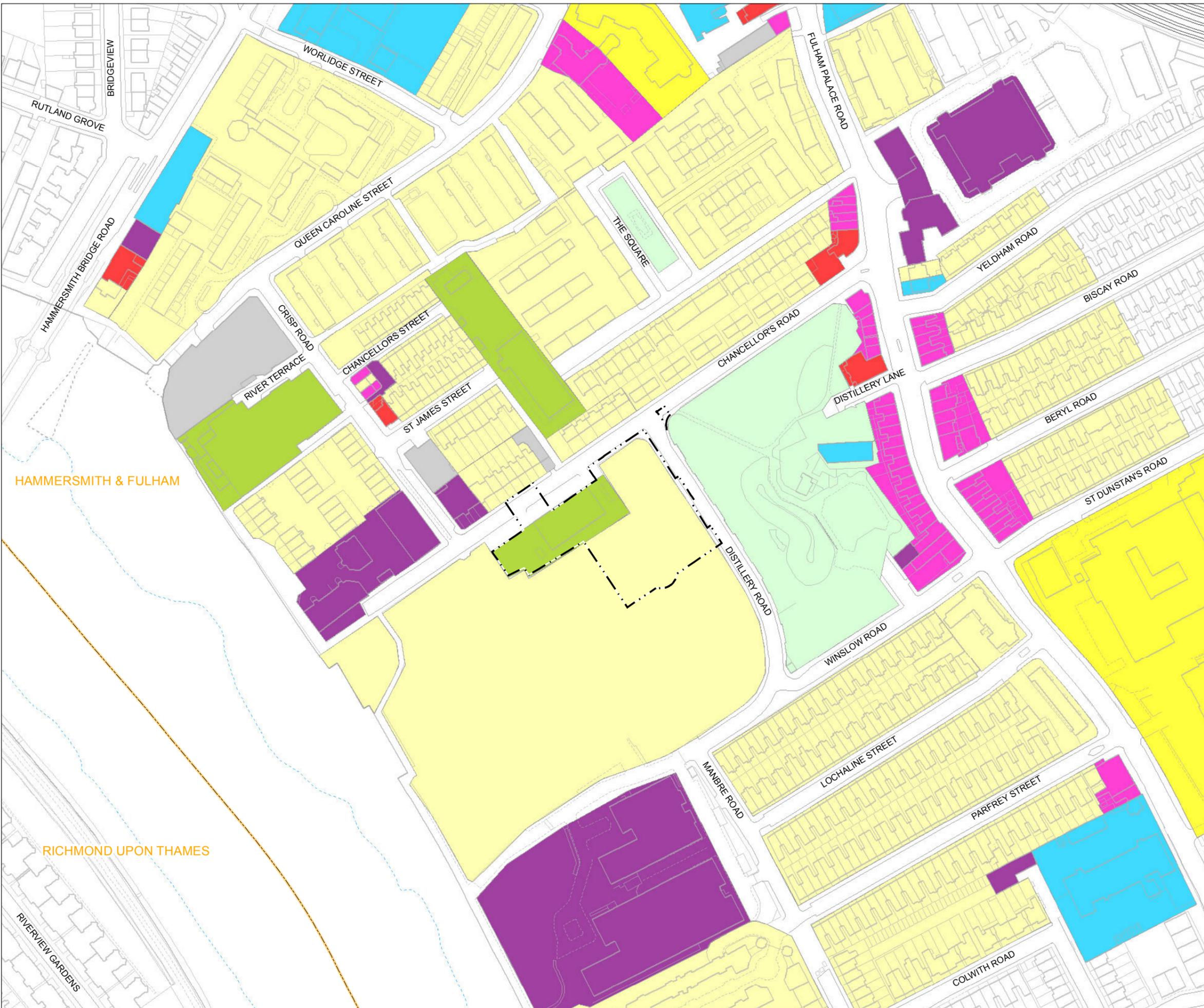
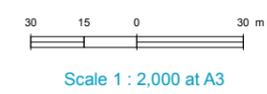
Document Information
Application for Development Consent
Construction phases - phase 2
Construction of other structures
Book of plans - section 6
DCO-PP-03X-HAMPS-060014
January 2013



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- Key**
- Limits of Land to be Acquired or Used
 - Local Authority Boundary
- Land Use**
- Class A1-A5 (Shops, Financial & Professional Services, Restaurants, Drinking Establishments and Hot Food Takeaways)
 - Class B1 (Business (Offices except A2) Research and Development, Light Industry)
 - Class B2-B8 (General Industrial / Storage or Distribution)
 - Class C1 (Hotels)
 - Class C2-C2A (Residential Institutions)
 - Class C3-C4 (Dwelling Houses)
 - Class D1-D2 (Non Residential Institutions (Community Facilities) and Assembly and Leisure)
 - Mixed Use
 - Other
 - Open Space



HAMMERSMITH & FULHAM

RICHMOND UPON THAMES

FOR INFORMATION

Location
Hammersmith Pumping Station
 London Borough of Hammersmith & Fulham

Document Information
Planning Statement
 Land use

1PL03-MG-00819
 January 2013



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