Spring 2010

Site Suitability Report C09XA

Foreshore, near London Heliport, Lombard Road
Please note:

After phase one consultation this site suitability report was reviewed as part of a ‘back-check’. This report was reviewed by each discipline (engineering, planning, environment, community and property), but the report was not updated as the general overall site conclusions remained valid. Further details are provided in the Final Report on Site Selection Process (doc ref: 7.05) that can be found on the Thames Tideway Tunnel section of the Planning Inspectorate’s web site.
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LIST OF ABBREVIATIONS

AOD above Ordnance Datum
BAP Biodiversity Action Plan
BT British Telecom
CPO compulsory purchase order
CSO combined sewer overflow
DLR Docklands Light Railway
EA Environment Agency
GLA Greater London Authority
HGV heavy goods vehicle
LNR local nature reserve
LPA local planning authority
LU London Underground
m metre/metres
MOL Metropolitan Open Land
ONS Office of National Statistics
ORN Olympic Route Network
PLA Port of London Authority
POS public open space
PTAL public transport accessibility level
SAM scheduled ancient monument
SINC site of importance for nature conservation
SNCI site(s) of nature conservation importance
SSR site suitability report
SSSI site(s) of special scientific interest
SuDS sustainable urban drainage systems
TfL Transport for London
TD tunnel datum
TLRN Transport for London Road Network
TPA Thames Policy Area
UDP unitary development plan
UXO unexploded ordnance
1 INTRODUCTION

1.1 Purpose and structure of the report

1.1.1 The Site Selection Methodology (May 2009) paper (paragraphs 2.3.29 - 2.3.34) outlines the process to be used to create the preferred list of shaft sites, and this process also applies to CSO sites. Paragraph 2.3.31 lists the type of general considerations that will be addressed in each site suitability report, but they depend on the relevance to the site and professional judgement made in the assessments.

1.1.2 This report was prepared through the assessment of information from the perspective of a number of technical disciplines: Engineering, Planning, Environment, Property and Community. The reports have been prepared on the basis of the information listed in Appendix 1 - Sources of Information, and this level of information is considered to be appropriate to the current stage.

1.1.3 The Background Technical Paper provides information on the requirements for different site types, their sizes and typical activities/facilities within the sites.

1.1.4 Each site suitability report considers a particular site on its own merits. In addition, an engineering options report was produced. Information from both of these reports will feed into the technical assessment of how well the site may fit in with tunnel design options, ensuring combinations of sites spread across the length of the tunnel route provide a reasonable spatial distribution of sites (that will best assist with the construction of the tunnel, operation and maintenance). This is considered in the Preferred Scheme Report.

1.2 Background

1.2.1 The process for selecting sites is set out in the Site Selection Methodology (May 2009) paper. All sites have previously passed through the following parts of Stage 1:

- Part 1A - Creation of the long list of potential shaft (and CSO) sites
- Part 1B - Creation of a short list of potential shaft (and CSO) sites
  - Table 2.2: Long list of shaft (and CSO) sites - an assessment against set considerations and values
  - Table 2.3: Draft short list of shaft (and CSO) sites - assessment against a list of detailed considerations
  - Workshops to consider each site to arrive at a short list of sites.

1.2.2 The final part of Stage 1 includes this report. The following is an overall summary of all elements that apply to all the sites on the final short list:

- Part 1C - Creation of the Preferred List of shaft (and CSO) sites - site data, site visits, site suitability reports, engineering options report and optioneering workshops that will result in the Preferred Scheme Report.

1.3 Consultation

1.3.1 The Thames Water project team held meetings with London local authorities, statutory and other stakeholders to review the provisional short list of shaft and CSO sites. All general and site specific comments can be found in a separate report titled Consultation on the Short List of Sites: Consultation Feedback Report. These comments were considered to help determine the final short list of sites, but they were also considered at the optioneering workshops.

1.3.2 Further meetings were held with London local authorities, statutory and other stakeholders between January and March 2010. Comments are included in this report.
2 SITE INFORMATION

2.1 Site and surroundings

2.1.1 This site is one of the shortlisted sites for Falconbrook Pumping Station CSO. This section provides an overview of all the site information that will be used by one or more disciplines to assess the site in sections 3 to 9 of this report.

2.1.2 Site C09XA is located in the River Thames foreshore at the end of Bridge Court, which links with York Way (A3205). It is within the London Borough of Wandsworth. A site location plan is attached as Appendix 2.

2.1.3 To the north of the site, there are mudflats, the River Thames and a helipad pier/wharf (approximately 80m to the north). The majority of the site is intertidal mudflats and the remainder of the site comprises an embankment wall and a small area of hard paving on the embankment, which is currently part of an access route to a new, six-storey, mixed-use development site known as Bridge Wharf, which is currently under construction and located to the east of the site. The top five storeys of Bridge Wharf are likely to be residential, while the ground floor is occupied by temporary offices affiliated with the development site. To the south of the site, there is a six-storey residential development and to the west, there are six- to seven-storey residential flats which overlook the site.

2.1.4 The site is within a number of Wandsworth Unitary Development Plan (2003) designated areas, including a Thames Policy Area and an archaeological priority area. All the mapped designations are shown on the planning and environment plans in Appendix 3.

2.1.5 Photographs of the site and surroundings, together with an aerial photograph of the site, are attached as Appendix 4.

2.1.6 The site is 150m from the TLRN (A3205). There is no road access to the site. The closest road to the site is Bridge Court, 75m from the site. There is no rail network local to the site. The nearest rail station is Clapham Junction, 0.9km from the site. There are no existing jetty/wharfage facilities at the site. A transport plan for the site is attached as Appendix 5.

2.1.7 Third-party assets and significant utilities are listed below and are shown on the services and geology plan in Appendix 6:

- Prices Court: Seven-storey residential buildings on the outside south-eastern part of the site (maximum clearance to proposed shaft location approximately 40m)
- New development of multi-storey buildings on the outside eastern part of the site (maximum clearance to proposed shaft location approximately 20m)
- Falconbrook 1.98m ID outlet sewer through the centre of the site – CSO connection is to this sewer
- London Battersea Heliport on the outside north-eastern part of the site. Maximum clearance to the proposed shaft location is approximately 70m
- River wall.

2.1.8 The locations of other third-party assets, such as BT and fibre optic communication cables, are to be confirmed by further studies and utility searches and may not be shown on the services and geology plan.

2.1.9 Information on the geology specific to this site can be found within the services and geology plan, which is in Appendix 6. This plan shows that the shaft would be founded in London Clay.

2.2 Type of site

2.2.1 The site C09XA is being considered as a CSO site to intercept the Falconbrook Pumping Station CSO (CS10X).
3 PROPOSED USE OF SITE – CONSTRUCTION PHASE

3.1.1 The proposed construction phase layouts for the CSO site are located in Appendix 7 – Construction Phase Layout, and are based on a preliminary assessment.

3.1.2 The construction phase layout drawings are illustrative and show:

- the layout as a CSO site
- potential access point.

3.1.3 These drawings provide initial preliminary schematic layouts that have not been optimised. If the site proceeds to the next stage as a preferred site, construction phase layouts would be optimised to minimise impacts.

3.1.4 Photographs of typical activities associated with the CSO site construction phase are provided in Appendix 7. Potential above ground construction features include:

- approximately 3m high hoarding around the site boundary
- welfare facilities, temporary structures, approximately 3m high
- grout plant, approximately 3m to 5m high, including silos
- mobile crane, approximately 30m high (maximum and not for full construction duration).

3.1.5 Foreshore working is required for this site and a cofferdam or similar construction works would be needed.

3.1.6 Preliminary data associated with the construction phase are provided in Table 3.1.

<table>
<thead>
<tr>
<th>Activity</th>
<th>CSO site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of construction period</td>
<td>0.5 to 2 years</td>
</tr>
<tr>
<td>Likely working hours, ie, (night/day/weekend)</td>
<td>12 hrs from 7am to 7pm</td>
</tr>
<tr>
<td>Working days</td>
<td>Mon to Sat</td>
</tr>
<tr>
<td>Primary means of transporting excavated material</td>
<td>Road*</td>
</tr>
<tr>
<td>away from site</td>
<td></td>
</tr>
<tr>
<td>Primary means of transporting materials to site</td>
<td>Road*</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*There may be feasible opportunities to use barge transport for this site.

4 PROPOSED USE OF SITE – OPERATIONAL PHASE

4.1 Introduction

4.1.1 The indicative operational phase layout for the CSO site is located in Appendix 8 – Operational Phase Layout, and is based on a preliminary assessment.

4.1.2 The generic elevations of structures shown on the operational phase layout are located in Appendix 8 and provide an illustration of typical examples of the permanent structures which are applicable to CSO sites.

4.1.3 The above ground infrastructure at this site is likely to comprise a ventilation column 10m\(^a\) high and 3m diameter, a ventilation building 5m x 15m x 5m high and a 20m x 10m top structure with openings. The top structure is to provide access and egress into the main shaft and flap valve chamber.

\(^a\) It was anticipated that the ventilation column at shaft sites would be 10m high when the assessment in this report was undertaken. Although this was subsequently changed to 15m high, the assessment was not revised as it was considered that the difference would not change any discipline’s conclusion on the suitability of the site.
4.1.4 The top structures are envisaged to be finished at a level of 107m\(^b\) tunnel datum (TD) (7mAOD), and since the ground level mean value at this site is 104mTD (4mAOD), the top structures would be raised to approximately 3m above the current ground level. For further information on the generic layout of this top structure, refer to Appendix 8.

4.1.5 A hardstanding would be provided to the top structures. The site would not be fenced.

4.1.6 Preliminary data associated with the operational phase are provided in Table 4.1.

### Table 4.1 Operational phase data

| Level of inspections and maintenance and likely working hours, ie, (night/day/weekend) - frequency of visits | 1 daytime visit every six months for electrical/instrument inspection. An additional 1 week maintenance period for tunnel/shaft inspection required per 10 years that could be night/day/weekend working. |
| No of traffic movements | 1 van visit every six months. An additional 1 week period of 2 to 10 movements per day (estimated several vans and 2 cranes) every 10 years. |

4.2 Restoration and after-use

4.2.1 The portion of the site not occupied by the permanent works would be restored to its original condition on completion of the construction works. If any buildings were demolished, these would not be reinstated unless required.

5 ENGINEERING ASSESSMENT

5.1 Access

5.1.1 This section should be read in conjunction with Section 7.2.

**Road**

5.1.2 A recent new development in the area has effectively blocked off direct access.

5.1.3 For both construction and operational phases, it might be possible for light vehicles to access via the river walkway. However, it is likely that main access would need to be river-based.

**Rail**

5.1.4 There is no rail network local to this site. The nearest rail station is Clapham Junction, 0.9km from the site. However, rail access is not considered to be a significant factor for CSO sites.

**River**

5.1.5 River access and jetty/wharfage facilities are not a requirement for CSO sites. However, as this site would be on the foreshore, there may be feasible opportunities to use barge transport. As there would only be very limited road access, river access would need to be considered. There is an existing jetty approximately 100m upstream of the site and the heliport jetty approximately 80m downstream. Neither of these should be affected by (b) It was anticipated that the elevation of top structures at both CSO and shaft sites would be finished at 107mTD when the assessment in this report was undertaken. Although this was subsequently changed to 104.5mTD, the assessment was not revised as it was considered that the difference would not change any discipline’s conclusion on the suitability of the site.
jetty/wharfage facilities at the site. It would be necessary for this to be examined in detail in the form of a specific risk assessment (including modelling of barge movements) which would require discussions with and approval of the PLA.

5.2 Construction works considerations
5.2.1 The site would be in the foreshore and its size and shape could be adjusted if necessary.
5.2.2 No demolition would be required.
5.2.3 As the site would be in the foreshore, a temporary cofferdam would be required and the contained area filled to provide a level site compound.
5.2.4 Foreshore sites carry with them a higher risk than inland sites in respect of unexploded ordnance, notably near bridges, and this would need to be investigated.
5.2.5 Foreshore sites carry with them a higher risk than inland sites of archaeological finds that might delay the construction programme.
5.2.6 Data available on third-party assets and significant utilities show that the main items in this area of concern are the neighbouring buildings, the river wall, the heliport and the Falconbrook 1.982m diameter outlet sewer through the centre of the site. Construction methods would be adopted, as appropriate, to mitigate potential settlement of these assets.
5.2.7 London Battersea Heliport is on the outside north-eastern part of the site. Maximum clearance to the proposed shaft location is approximately 70m. Consultation with the Civil Aviation Authority and the heliport operators would be required.
5.2.8 It is likely that the proposed works could be constructed within the overall construction programme.
5.2.9 The interception chamber and connection culvert to the drop shaft are both within the site and therefore require no additional consideration.

5.3 Permanent works considerations
5.3.1 The top structure to the interception chamber and drop shaft would be in the foreshore and a river wall matching and tied into the existing river wall would be provided around the permanent operational site. The site would be finished to the same level as the adjacent shore.
5.3.2 The feasibility of structures in the foreshore from a navigational aspect would need to be discussed with the PLA.
5.3.3 The top structures to the drop shaft and flap valve chamber would be 2m above shore ground level.

5.4 Health and safety
5.4.1 As the site is in the foreshore, measures would need to be taken to mitigate the risks of flooding and working over/near water.
5.4.2 Logistics planning would be required to provide safe cover during operational phase visits where access would be by river with tidal constraints.
5.4.3 There are no other unusual health and safety issues with this site.

6 PLANNING ASSESSMENT

6.1 Introduction
6.1.1 The planning assessment builds on the advantages and disadvantages reported in Table 2.3 and covers the following areas:
- Planning applications and permissions
6.2 Planning applications and permissions

6.2.1 An initial desktop search of the London Borough of Wandsworth online planning applications database did not identify any planning applications submitted within the last five years applicable to the site.

6.2.2 Search results returned for postcode SW11 3RD relate to redevelopment and variation of conditions for the former Price’s candle factory site located adjacent to York Place. No applicable applications for C09XA were found using this postcode.

6.3 Planning context

6.3.1 The following is a summary of the relevant local planning policies and designations affecting the site and are taken from the current statutory development plan for the borough. The development plan comprises the saved policies from the Wandsworth Unitary Development Plan, adopted August 2003, and the Consolidated London Plan, adopted February 2008.

6.3.2 The planning designations and policies that are applicable to the site are detailed below.

6.3.3 Policy R1, Thames Policy Area, states the development of sites of 0.5 hectare and over will only be permitted if it includes a mix of uses, including housing, business, industry, river-related activities and other employment generating activities; and leisure activities, pubs and restaurants, hotels, community, education, health, small-scale retail uses, visitor attractions and open space. Policy R2 requires provision to be made to incorporate a route through the site for walkers and cyclists.

6.3.4 Policy ON8, Nature Conservation, states that development which would harm a site of special scientific interest, local nature reserve, or any other site of nature conservation importance, or a protected species, will not be permitted unless it can be subject to conditions that will prevent damaging impacts, adequate mitigation measures are included or other material considerations are sufficient to override nature conservation considerations.

6.3.5 The site is entirely within an archaeological priority area.

6.3.6 Policy TBE14, Archaeological Priority Area, states that where development involving ground disturbance is proposed in archaeological priority areas, the council will require developers to make provision for archaeological investigation. Normally, the submission of an archaeological evaluation report will be requested prior to determination. Archaeological investigation may also be required elsewhere in sites of archaeological potential. In appropriate cases, under Policy TBE15, the council may require excavation or preservation in situ and the recording and publication of results.

6.3.7 The east side of the site is immediately adjacent to a Green Chain and Links designation, which runs along the river embankment.

6.3.8 Policy ON7, Green Chain and Links, seeks to resist development proposals which would harm the open nature of any open land which could contribute to a Green Chain or links between open spaces, especially between areas of Metropolitan Open Land and where they would form strategic links with adjoining boroughs.

6.3.9 The site is close to residential properties. Policy GEN12, Housing, states that in determining proposals for development, the council will seek to protect and enhance the character and amenity of residential areas.

6.4 Consultation comments

6.4.1 A series of consultations on the shortlisted sites were held with London local authorities, statutory and other pan-London stakeholders during July to September 2009 and January
to March 2010. This section summarises factual comments that have been made by consultees, and which have informed the SSR assessments.

**London Borough of Wandsworth**

6.4.2 No comment.

**English Heritage**

6.4.3 No comment.

**Environment Agency**

6.4.4 No comment.

**Port of London Authority**

6.4.5 No comment.

**Transport for London**

6.4.6 No comment.

**Other statutory consultees**

6.4.7 No comment.

### 6.5 Planning comments

6.5.1 A number of planning designations are applicable both on and adjacent to the site. These designations have been identified and described in Section 6.3. Those of most relevance to the proposed development relate to environmental quality, residential amenity and conservation.

6.5.2 The site is wholly located within the Thames Policy Area and is thus subject to several policies. Policy R1 lists a group of acceptable uses in Thames Policy areas for sites over 0.5 hectare. The worksite would be significantly less than this and so should not conflict with this policy. It is also envisaged that, with appropriate mitigation, the works should not have an unacceptable detrimental impact on the surroundings in terms of visual amenity, particularly due to the temporary nature of the works. However, the design of the after-use structures will need careful consideration to ensure they do not result in overly prominent development in this location or obstruct local views.

6.5.3 The proposal site is within the River Thames, a designated site of importance for nature conservation. This is a general designation covering the entire River Thames. The purpose of the Thames Tunnel Project is to improve the overall environmental condition of the river which, among other gains, will promote biodiversity. Construction activity within the river, with the appropriate level of mitigation, is considered unlikely to adversely impact upon or conflict with the aims of this designation. However, a fuller assessment of the likely impact on the immediate location is included in Section 7.

6.5.4 The site falls within a designated archaeology priority area. The appropriate level of site investigation should be agreed with the LPA in accordance with policies TBE14 and TBE15. Further appraisal of the archaeological potential on the site is provided in Section 7.

6.5.5 The site also abuts a Green Chain designation. The works could potentially conflict with Policy ON7, which seeks to resist development that would infringe on the openness of such spaces, however given the temporary nature of the works, and with suitable mitigation, the Green Chain should not be unacceptably impacted upon.

6.5.6 The proposal site is situated close to a new residential development and existing residential properties. The operation of the proposal site is likely to impact upon residential amenity
due to noise, dust, vibration and traffic movements. It may be difficult to provide adequate mitigation in accordance with policy GEN12 to remedy these potential impact, due to the close proximity of the works.

7 ENVIRONMENTAL APPRAISAL

7.1 Introduction
7.1.1 The following sections summarise specialist assessments which are provided in Appendix 9 – Environmental Appraisal Tables.

7.2 Transport
7.2.1 The site is less suitable as no direct vehicular access to the site would be available once construction of residential development is complete. Other access options, including demolition of new development or use of the river, need investigation. River access is possible as the site is located on the foreshore. There is an identified shortfall in relation to workforce parking as there is none available within the site or in private car parks surrounding the site. Access to rail has the same constraints as road access. However, rail transport is unlikely to be required due to the small volumes of excavated material produced by the site. There is reasonable potential for the workforce to use public transport to access the site.

7.3 Archaeology
7.3.1 Based on current information, this site is less suitable. Archaeological finds of potential high value have been recovered from the site and there is some potential for further finds/receptors of a similar value to be present within the site. With the currently available information, it is possible that archaeological receptors of high or medium value may be present within this site. While no direct evidence has been revealed, waterlogged remains and peat deposits containing archaeological material of high or medium value may also be present.

7.4 Built heritage and townscape
7.4.1 This site is suitable from a built heritage perspective because it would not result in any direct impacts upon the historic built environment. Potential indirect impacts would be limited to one conservation area and could be mitigated through the scheme design and/or screening of the site.
7.4.2 The site is less suitable from a townscape perspective because it could potentially result in direct adverse impacts on the character of the River Thames, public open space and some local views, both during construction and operation.

7.5 Water resources – hydrogeology and surface water
7.5.1 In terms of hydrogeology, this site is suitable because the drop shaft is to be constructed in London Clay (non-aquifer). The Chalk piezometric head is likely to be approximately 4.7m above the base of construction and should be taken into account in the engineering design. No impact on the Chalk aquifer is expected. The superficial deposits are alluvium, which is classified as a non-aquifer at the shaft site. Therefore, no impact is expected at shallow depth.
7.5.2 In terms of surface water resources, this site is less suitable because the work is to be undertaken within the channel of the River Thames. As such, specific mitigation will be required to prevent pollution.
7.6 Ecology
7.6.1 This site is less suitable. The site has heightened sensitivity due to the requirement for temporary and permanent land-take from the River Thames. The site is immediately upstream of the stretch known to be the only spawning habitat for smelt in the Tideway. There may also be a need for seasonal restrictions on working, offsite mitigation/compensation solutions, as well as potentially arduous post-works restoration requirements.

7.7 Flood risk
7.7.1 This site is less suitable because mitigation is required to protect it from flood levels, and this will cause displacement with respect to the working areas being in the river, which could increase flood risk elsewhere locally.

7.8 Air quality
7.8.1 This site is less suitable. There are residential properties in close proximity to the site, therefore there is potential for fugitive emissions of dust during construction to have a perceptible impact at these properties. These impacts can be minimised with standard dust control measures. There is potential for HGV movements on the local road network to cause localised air quality impacts in areas of already poor air quality. This can be partially mitigated by minimising the movement of HGVs during peak hours.

7.9 Noise
7.9.1 This site is less suitable due to the proximity of the residential properties to the south of the site. Any shielding afforded by the site perimeter barriers will be largely ineffectual, due to the height of some of the properties. In addition, the number of vehicles associated with the construction phase, and the proposed access route, are likely to cause an adverse noise impact on the residential properties on Bridges Court.

7.10 Land quality
7.10.1 The site is less suitable, based on the moderate potential for contamination to be present. The proposed location is in the near vicinity of the River Thames, where it may be expected that contaminants would be diluted. However, numerous historical operations undertaken nearby have resulted in contamination of mud and sediments at the site. This potentially poses a risk to construction workers and adjacent human receptors through direct contact and vapour inhalation. Additionally, the potential exists for contamination of the River Thames itself.

8 SOCIO-ECONOMIC AND COMMUNITY ASSESSMENT

8.1 Socio-economic profile
8.1.1 The site is within the St Mary’s Park ward of the London Borough of Wandsworth. Statistics from the Office of National Statistics (ONS) 2001 Census data show the following indicators for the ward, in comparison to the rest of Wandsworth, London and England as a whole:

- Higher rate of full-time employees and self-employed people.
- Higher rate of employment in professional occupations and a lower proportion of people working in more manual labour jobs.
- Substantially higher proportion of people educated to Level 4/5 (degree level).
- Fewer people aged 24 or under, or 45 and over, with comparably more people in their twenties and thirties.
- Approximately 77% people are white and around 72% of people were born in the UK.
- A higher proportion of residents consider themselves to have a ‘good’ state of health.
8.1.2 Overall, these statistics suggest that this is a population of mainly young professionals.

8.2 Issues and impacts

8.2.1 Due to the engineering requirements for a CSO site in this location, the greatest potential impact from a community perspective appears likely to be disturbance to residential properties overlooking the foreshore site.

8.2.2 There is likelihood that use of the site would affect uptake of new residences in Bridges Wharf, as well as residents living in properties in Price’s Court, which face the site.

9 PROPERTY ASSESSMENT

9.1 Introduction

9.1.1 The area identified for a CSO site is part of the foreshore immediately to the north of the Bridges Wharf residential development. The site is mud and shingle (when exposed at low tide) and does not appear to include any buildings or structures.

9.1.2 No inspection of the site has been undertaken. For the purpose of preparing this property assessment, maps, plans and aerial imagery have been relied upon.

9.2 Crown Land and Special Land comments

9.2.1 The referencing exercise has not established the ownership of the site but, as foreshore, it will be owned by the Port of London Authority (PLA) on behalf of the Crown. Under the provisions of Section 8(1) of the Acquisition of Land Act 1981, the PLA is a ‘statutory undertaker’ and Ministerial approval will be required for the acquisition of this land by another statutory undertaker, Thames Water, unless the acquisition is by agreement. There is a risk that, if terms cannot be agreed, Ministerial approval may delay the scheme or may not be forthcoming at all. Early discussions should be held with the PLA to establish whether acquisition is likely to be agreed.

9.2.2 There is no record of any leases or tenancies affecting the site.

9.3 Land to be acquired

9.3.1 Planning enquiries suggest there have been no planning applications on the site during the last five years.

9.3.2 The compensation assessment usually assumes that the working areas will be acquired temporarily, via the acquisition of new rights for the period of the works stated in the engineering section above. A smaller area will need to be acquired permanently to house the operational plant.

9.3.3 No rights of way or easements have been included in the assessment of the site acquisition cost.

9.4 Property valuation comments

9.4.1 Compensation for the acquisition of new rights is normally based on the diminution in value to the land caused by the acquisition. Compensation for the permanent acquisition of land is normally based on market value. However, compensation for the permanent acquisition of unusual types of property, where there is no general market, can be assessed on the basis of the cost of equivalent reinstatement at a new site, but there must be a genuine intention to reinstate.

9.4.2 If compensation is assessed on a diminution in value basis for the new rights (temporary occupation during works, access rights during works, access rights for operational purposes) and on a market value basis for the permanent acquisition, the costs are likely to be relatively low and therefore acceptable.
9.4.3 In the case of foreshore, there is, by its nature, an inability to acquire land elsewhere to reinstate the lost Special Land, so compensation has not been assessed on an equivalent reinstatement basis.

9.4.4 While it is understood that the land will be reinstated after the works are complete as a part of the engineering work and therefore reinstatement costs are not included in the compensation assessment, in the case of this site, a new river wall will be constructed and the bank will effectively be extended into the river for the permanent operational area. Reinstatement to the condition prior to the works will not be an option. The use and design of this new area should be included in discussions with the PLA.

9.4.5 It is assumed that, as the land will be altered permanently, temporary acquisition of rights will not be appropriate and compensation is therefore assessed on a market value basis, as far as is possible for Special Land.

9.5 Disturbance compensation comments
9.5.1 As there is no actual occupation of the affected land, disturbance compensation is not considered likely to be an issue.

9.6 Offsite statutory compensation comments
9.6.1 There should be limited potential for offsite statutory compensation under Section 10 of the Compulsory Purchase Act 1965, as there is unlikely to be any physical interference with public or private property rights.

9.6.2 There should also be limited potential for claims under Part 1 of the Land Compensation Act 1973, as the completed works are unlikely to emit ‘physical factors’ such as noise, vibration, smell, fumes, smoke, artificial lighting and discharge of solids or liquids, which may cause a diminution in value to property.

9.7 Site acquisition cost assessment
9.7.1 The overall site acquisition cost, assuming permanent acquisition of the land required for the operational phase, is considered to be acceptable.

10 SITE CONCLUSIONS BY DISCIPLINE

10.1 Introduction
10.1.1 The conclusions presented in this section are drawn from each discipline’s assessment, and are designed to inform the workshop where a final conclusion on whether the site moves forward as one of the preferred sites or not.

10.2 Engineering
10.2.1 This site is less suitable as a CSO site because of difficulties with access (both for construction and operation). River access would potentially be required in the operational phase, which would be logistically more difficult than had road access been possible. The site would be adequately sized (and could be increased as it would be in the foreshore).

10.3 Planning
10.3.1 On balance, the site is considered less suitable as a CSO site.

10.3.2 A number of planning and environmental designations are applicable to the site and mitigation would be required to avoid potential adverse impacts associated with the construction works. However, mitigation for the likely impact upon the residential amenity of adjoining occupiers may be difficult, due the close proximity of the proposed works.
10.4 **Environment**

10.4.1 Overall, the site is considered *less suitable*, given the substantial environmental constraints identified.

10.4.2 The site is *suitable* from the perspective of built heritage and water resources (hydrogeology).

10.4.3 However, the site is *less suitable* from the perspective of transport, archaeology, townscape, water resources (surface water), ecology, flood risk, air quality, noise and land quality. Further investigation would be required to determine whether these impacts could be adequately mitigated. Likely mitigation considerations would include the following:

- **Transport** – access options and the possible demolition of a new development would need further investigation. Adequate workforce parking would also need to be identified
- **Archaeology** – there is potential for high value archaeology within the site
- **Townscape** – a high quality scheme design and / or screening of the site would be required to minimise impacts on the character of the River Thames, public open space and local views
- **Flood Risk and Surface water** – specific mitigation to prevent pollution of the River Thames
- **Ecology** – a need for seasonal restrictions on working, offsite mitigation or compensation solutions, as well as potentially arduous post-works restoration requirements
- **Air quality** – standard dust control measures and minimisation of HGV movements during peak hours
- **Noise** – standard noise barriers are unlikely to be entirely effective and other techniques may be required to reduce construction noise to acceptable levels
- **Land quality** – historical land uses in close proximity to the site suggest the risk of contamination to mud and sediments at the site, and the potential exists for contamination of the River Thames.

10.5 **Socio-economic and community**

10.5.1 From a community impacts perspective, this site appears *suitable* for use as a CSO site. Use of the site appears likely to cause some visual and noise disturbance to the local residents overlooking and adjacent to the site. During the works, mitigation measures against noise and visual disturbance are likely to be required. However, the presence of the London Heliport in close proximity to the site indicates there may already be a level of disturbance in proximity to the site at present.

10.6 **Property**

10.6.1 The site should be considered as *suitable* as a CSO site on cost grounds but the potential for delay should be borne in mind.

10.6.2 The advantage of this site is that it is an undeveloped area of foreshore and the acquisition cost should be acceptable. The disadvantage is that a special Ministerial procedure may be needed to acquire it, which could cause delays to the project. Early discussions should be held with the PLA to establish if it will agree to the acquisition.
APPENDIX 1 – SOURCES OF INFORMATION

Engineering
- Traffic Management and Access Roads/Rail – Scott Wilson
- Access River – BMT
- Third Parties (Shafts/CSOs) – Mott MacDonald and AECOM
- Geology – Thames Water
- Utilities – Thames Water and AECOM
- Construction and Operational Layout Template – London Tideway Tunnels
- Background Technical Paper – London Tideway Tunnels

Planning
- London Borough of Wandsworth online planning applications database

Environment

Transport
- Map of Transport for London Road Network (TLRN) - www.tfl.gov.uk
- Bus Route Maps: North-east, north-west, south-west, south-east - www.tfl.gov.uk
- Crossrail Plans - www.crossrail.co.uk/crossrail-bill-documents
- PTAL scores - Obtained from Table 2.3 information
- Thames Path map - www.walklondon.org.uk
- Capital Ring - www.walklondon.org.uk
- Cycle Routes - www.sustrans.org.uk and Local Cycling Guides, 1-14
- Design Manual for Roads and Bridge TD 42/95, Highways Agency

Built heritage and townscape
- Wandsworth List of Locally Listed Buildings
- National Monuments Record - for some additional information regarding registered historic parks and gardens
- Unitary development plans
- Local authority websites
- Bing maps

Water resources – hydrogeology and surface water
- Environment Agency abstraction licence details
- Environment Agency groundwater levels
- Local authority details of unlicensed abstractors
- Envirocheck

Ecology
- Multi-Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk - statutory designated sites
- London Wildweb - http://wildweb.london.gov.uk - non-statutory site of importance for nature conservation
- National Biodiversity Network - http://searchnbn.net - distribution of protected species
- Google Maps - aerial views of habitat features
- BAP habitats - www.natureonthemap.org.uk
- Priority habitats and species on national and local scales - www.ukbap.org.uk

Flood risk
- Envirocheck

Air quality
- Local authority websites
  - www.londonair.org.uk/london/asp/default.asp?la_id=&showbulletins=&width=1680
  - www.airquality.co.uk

Noise
- Envirocheck - Identification of receptors
- Promap - Calculation of distances between site and receptors
- Multimap - Aerial photography – www.multimap.co.uk
- Defra noise maps - Identification of existing noise levels

Land quality
- Google Maps/Earth
- Site walkover information

Socio-economic and community
- Statistics from the Office of National Statistics (ONS) 2001 Census data
- Bridges Wharf Hotel - www.bridgeswharfhotel.co.uk
- Bridges Wharf Dwellings - www.bridges-wharf.com/specifications.htm
- Weston Homes plc - www.weston-homes.co.uk/BridgesWharf
Property

- Multimap
- VOA website
APPENDIX 2 – SITE LOCATION PLAN
APPENDIX 3 – PLANNING AND ENVIRONMENT PLANS
APPENDIX 4 – PHOTOGRAPHS OF THE SITE AND SURROUNDINGS
APPENDIX 4
C09XA SITE
AERIAL PLAN
View of the site within the foreshore of the River Thames looking northeast along the Thames Path and towards the London Heliport jetty.

View east of the site showing the Thames Path, new mixed-use development and temporary offices affiliated with the development site.
View south of the site showing occupied residential development and offices.
APPENDIX 5 – TRANSPORT PLAN
Access to road network restricted by new residential development.
APPENDIX 6 – SERVICES AND GEOLOGY PLAN
APPENDIX 7 – CONSTRUCTION PHASE LAYOUT
APPENDIX 8 – OPERATIONAL PHASE LAYOUT
VENTILATION COLUMN (CSO)

ELECTRICAL CONTROL KIOSK (CSO)

NOTE:
1. Structure to be protected by removable handrails in the temporary case.
2. Position of covers are variable within 10m from the edge of the structure, and the location is based on site specific requirement.
3. Cladding of ventilation building to suit location and aesthetics.
4. All top structures to have:
   - Access stairs/ladder
   - Temporary or permanent hand railing
5. All dimensions in millimetres unless otherwise stated.
### APPENDIX 9 – ENVIRONMENTAL APPRAISAL TABLES

<table>
<thead>
<tr>
<th>Transport</th>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to road network</td>
<td>Currently vehicular access to site possible via building site, however once construction complete it appears that access will not be possible. Access to TLRN strategic highway network does not appear possible due to new riverside development. Opportunity to access site via the river due to foreshore locations. See Transport Access Plan in Appendix 5.</td>
<td>Site least suitable as vehicular access not possible once construction complete. Opportunity to access site via the river.</td>
<td></td>
</tr>
<tr>
<td>Access to river</td>
<td>River access possible as site located in the river, although not required for CSO site.</td>
<td>River access not required despite the site being located in the river, as excavated material to be transported by road.</td>
<td></td>
</tr>
<tr>
<td>Access to rail</td>
<td>Access to rail unlikely to be feasible due to small volumes of excavated material produced by the site. Possible use of existing rail connections to the sidings at Clapham Junction Traincare Depot. Rail link only 1.6km from site. However access to rail (and TLRN strategic highway network) obstructed by new riverside development.</td>
<td>Possible rail connection at Clapham Junction, however access to rail and TLRN strategic highway network obstructed by new riverside development.</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>No parking currently onsite due to foreshore location. All other parking provision within the vicinity of the site is privately owned – residential and commercial and hence not suitable for workforce.</td>
<td>Onsite parking not possible due to foreshore location. Parking within the vicinity of the site not suitable for workforce parking.</td>
<td></td>
</tr>
<tr>
<td>Public transport accessibility</td>
<td>PTAL 3-4 (Medium) as identified within Table 2.3.</td>
<td>Reasonable potential for workforce to utilise public transport.</td>
<td></td>
</tr>
<tr>
<td>Traffic Management</td>
<td>Other access options need consideration; alternatively demolition of part of new riverside development needed.</td>
<td>Need to consider other access options or demolish property to provide access.</td>
<td></td>
</tr>
</tbody>
</table>
## Transport

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>

**Summary:** The site is less suitable as no direct vehicular access to the site would be available once construction of residential development is complete. Other access options to provide access, including demolition of new development or use of the river, need investigation. River access is possible as the site is located on the foreshore. There is an identified shortfall in relation to workforce parking as there is none available within the site or in private car parks surrounding the site. Access to rail has same constraints as road access; however rail transport is unlikely to be required due to the small volumes of excavated material produced by the site. There is reasonable potential for the workforce to use public transport to access the site.
Archaeology

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designations, including Archaeological Priority Areas</td>
<td>The site is partly within the Wandsworth Archaeological Priority Area.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Summary of historical uses</td>
<td>The site occupies an area of river foreshore including a watercourse which may have been used for transporting material to the adjacent ‘Belmont Works’.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Potential receptors of very high or high value with the potential to be directly affected</td>
<td>A Bronze Age sword is recorded as having been recovered from within the site. This find may be considered of high importance. Potential exists for further such finds to be recovered from within the site. Further unrecorded archaeological receptors of high value may be present within the site.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Potential receptors of medium value with the potential to be directly affected</td>
<td>No medium value archaeological receptors are recorded within the site. This does not preclude the possibility of unrecorded archaeological receptors of medium value being within the site. An archaeological evaluation 40m east of the site has identified early post medieval waterfront timber structures. It is possible that similar structures extend to within the area of the site.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Other receptors with the potential to be directly affected</td>
<td>The dewatering of adjacent waterlogged deposits is unlikely to be an issue considering the location of the site within the Thames.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Extent of existing disturbance (if known)</td>
<td>The construction of the existing combined sewer pipelines within the site is likely to have adversely impacted any archaeological receptors for a localised area.</td>
<td>A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development.</td>
</tr>
<tr>
<td>Potential issues</td>
<td>Detailed design proposals, and an outline method statement will be required to enable initial Mitigation methods could include: Desk based</td>
<td></td>
</tr>
</tbody>
</table>

Appendix 9 - Page 3
### Archaeology

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| assessment of development impacts, and to inform mitigation proposals. With the currently available information it is not possible to highlight specific potential issues. | assessment  
- Production of deposits model  
- Archaeological monitoring of geotechnical investigations  
- Archaeological evaluation  
- Archaeological watching brief  
- Archaeological excavation | |

**Summary:** Based on current information this site is less suitable. Archaeological finds of potential high value have been recovered from the site and there is some potential for further finds/receptors of a similar value to be present within the site. With the currently available information it is possible that archaeological receptors of high or medium value may be present within this site. While no direct evidence has been revealed waterlogged remains and peat deposits conditioning archaeological material of high or medium value may also be present.
### Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designations including Conservation Areas, including trees</td>
<td>Listed Buildings&lt;br&gt;There are no listed buildings located within 250m of the site.</td>
<td>In the case of conservation areas, a high quality scheme design and adequate screening for the development may be required as discussed below. A detailed desk-based assessment in conjunction with archaeology work will be required to further inform the likely impact of the development and to determine more detailed mitigation proposals. On the basis of currently available information (June 2009), mitigation will not be applicable in the case of listed buildings, locally listed buildings, registered historic parks and gardens, locally listed parks and gardens and protected views.</td>
</tr>
<tr>
<td>Locally Listed Buildings</td>
<td>Although a local list is maintained by the borough of Hammersmith and Fulham, this data was not available at this time of this assessment. There are no locally listed buildings located within 250m of the site within the borough of Wandsworth.</td>
<td></td>
</tr>
<tr>
<td>Conservation Areas</td>
<td>Sands End Conservation Area: 60m</td>
<td></td>
</tr>
<tr>
<td>Registered Historic Parks and Gardens</td>
<td>There are no registered historic parks and gardens within 250m of the site.</td>
<td></td>
</tr>
<tr>
<td>Locally Listed Parks and Gardens</td>
<td>There are no locally listed parks and gardens with 250m of the site.</td>
<td></td>
</tr>
<tr>
<td>Protected Views</td>
<td>There are no protected views within 250m of the site.</td>
<td></td>
</tr>
<tr>
<td>Potential receptors of medium to very high importance with the potential to be directly affected</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other receptors of lesser importance with the potential to be directly affected</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Potential receptors of medium to very high importance with the potential to be indirectly affected</td>
<td>There is the potential for the setting of one conservation area to be indirectly impacted upon as a result of the development</td>
<td>There are views to and from the development site to Sands End Conservation Area located to the west of the site and across the River Thames. Mitigation in the form of a high quality scheme design and/or screening would be required to reduce any adverse impact.</td>
</tr>
</tbody>
</table>
### Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other receptors of lesser importance with the potential to be indirectly affected</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Sensitive landscape character areas likely to be affected, including trees and TPOs</td>
<td>Site adjacent to a ‘Green Chain and Links’ route, whole site in the Thames Policy Area.</td>
<td>Introduction of landscape scheme to include appropriate surface treatments and planting to relate to adjacent river frontage. Access to cause minimal interruption to the ‘Green Chain and Links’ route. The presence and operation of machinery, materials stores and buildings onsite would severely impact character of the river and the river frontage. This site is, therefore, less suitable.</td>
</tr>
<tr>
<td></td>
<td>Sensitive site on the southern foreshore of the River Thames.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction site to the east, River Thames to the north (with a helipad site) and west with densely built-up residential area along the north bank of the River, residential development and York Road to the south. The presence and operation of machinery, materials stores and buildings would result in temporary, adverse direct impacts on the character of the river and river frontage and temporary, adverse indirect impacts on neighbouring areas. Permanent elements onsite would severely impact character of the river frontage.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential views likely to be affected</td>
<td>Open views from the River and surrounding residential properties including properties on the north bank of the River. Partially interrupted views from York Road and York Gardens to the east. During construction, views of cranes from surrounding residences. Permanent elements visible from surrounding residences and partial views from Bridges Court and York Road.</td>
<td>During construction, the use of hoardings and appropriate lighting would minimize visual impact. Design of river wall, top structure, vent column, and electrical kiosk to be given careful consideration. Planting along river wall to screen permanent plant. Adequate new planting would be important to protect visual amenity. This site is less suitable since it would have an adverse impact on the local views.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particular considerations on sites where new permanent structures are required.</td>
<td>Permanent structures at C09XA have the potential to have an indirect effect upon Sands End Conservation Area. The appearance of any above ground structures would need to be carefully considered in the</td>
<td>Any permanent structures would need to be of a high quality design and/or screened in order that the visual impact upon Sands End Conservation Area is minimised in accordance</td>
</tr>
</tbody>
</table>
# Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>scheme design and some form of screening for the site may be required.</td>
<td>with planning policy and English Heritage guidance.</td>
<td></td>
</tr>
<tr>
<td>Potential issues</td>
<td>The development could result in direct adverse impacts on the character of the Thames, public open space and some local views as well as an indirect impact upon one conservation area. However, there is the potential to mitigate any adverse impacts through a high quality scheme design and/or screening.</td>
<td>The scheme design will need to be of a sufficiently high quality and may need to incorporate some screening in order that the potential visual intrusiveness of the development upon one conservation area can be mitigated.</td>
</tr>
</tbody>
</table>

**Summary:** This site is suitable from a built heritage perspective because it will not result in any direct impacts upon the historic built environment. Potential indirect impacts would be limited to one conservation area and could be mitigated through the scheme design and/or screening of the site.

The site is less suitable from a townscape perspective because it could potentially result in direct adverse impacts on the character of the Thames, public open space and some local views, both during construction and operation.
## Water resources – hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| Hydro-geological conditions (Groundwater and Surface Water) | Geology (thickness)  
- Superficial Geology and Made Ground (3m)  
- London Clay (40m)  
- Lambeth Group (18m)  
- Thanet sand (10m)  
Hydrogeology  
- Piezometric Level in Chalk Aquifer: ~ -27 mAOD (~27 mbgl) from EA Jan 08 water level contouring  
Groundwater Monitoring Location  
- EA Hydrometry Sites: TQ27-159 - approximately 1.61km southwest of the site (water levels to March 2009)  
Watercourses  
- Within the River Thames | The drop shaft will be constructed to an invert level of approximately 31.66 mbgl therefore the shaft will be founded in the London Clay. Piezometric head in Chalk is approximately 4.66 m above the base of the construction. |
| SPZs and groundwater users | SPZ  
- Not located in a Source Protection Zone  
EA Licensed Groundwater Abstractions and Details  
- No public water supply  
- 7 licensed abstraction borehole within 2km radius  

License Numbers:  
1. 28/39/42/0071 (1 borehole)  
2. 28/39/41/0081 (1 borehole)  
3. 28/39/39/0177 (2 boreholes)  
4. 28/39/39/0157 (1 borehole)  
5. 28/39/42/0060 (2 boreholes)  

Locations:  
1. 836m southwest of the site.  
2. 1.94km southwest of the site  
3. 1.64km west of the site (other side of the River Thames)  
4. 1.06km north of the site (other side of the River Thames)  
5. 1.81km northeast of the site  
Operator:  
1. Hanson Quarry Prod Europe Ltd | A simple volumetric approach has been used to calculate the 400 days travel times of the abstraction borehole. A conservative mean annual recharge of 100 mm/year was used to calculate a radius for licensed abstraction boreholes as follows;  
1. 137m  
2. 80m  
3. 109m  
4. 425m  
5. 296m  
As a result, the shaft is not located within any of these catchment areas. |
## Water resources – hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. London Borough of Wandsworth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Trustees of the Hurlingham Club</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Circadian Limited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Wandsworth Borough Council</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Abstracted Aquifer Unit:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Chalk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Chalk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Chalk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. information pending</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Abstraction Purposes:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Industrial, commercial and public service (mineral products-general use)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Industrial, commercial and public service (municipal grounds-make up or top up water)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Industrial, commercial and public service (sports grounds/facilities- spray irrigation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Production of energy (electricity-boiler feed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Industrial, commercial and public service (municipal grounds- spray irrigation and make up or top up water)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Abstraction Quantity (annual):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 23,515m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 8,000m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 15,000m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. 227,300m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. 110,000m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Local Authorities (LA)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Unlicensed Groundwater Abstractions and Details</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Information pending from Hammersmith and Fulham Council</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No abstraction borehole within 1 km radius inside Wandsworth Council Boundary</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>borehole locations and depths</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are 22 historical records of water wells: 19 deep wells and 3 shallow wells within 1 km radius.</td>
<td></td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Depth range: 106.6 – 192.02m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth range: 6.8 – 9.1m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Water resources – hydrogeology and surface water

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential impacts on surface water features</td>
<td>There is a direct pathway to the Thames due to the work being undertaken on the foreshore.</td>
<td>Work needs to be undertaken in consideration of Pollution Prevention Guidelines – PPG1, PPG5 and PPS23.</td>
</tr>
<tr>
<td>Potential impacts on groundwater (resources and quality)</td>
<td>No impact on groundwater at depth is likely since the drop shaft is to be constructed in London Clay (non aquifer). At shallow depth, the shaft is located in Alluvium which is classified as a non aquifer so no impact is expected.</td>
<td>See below (likely types of mitigation measures that will be required).</td>
</tr>
<tr>
<td>Likely types of mitigation measures that will be required</td>
<td>No mitigation required if groundwater is not impacted.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential issues</td>
<td>The drop shaft to be excavated in London Clay but to below piezometric head in Chalk. Potential pressure effects.</td>
<td>Confined head in Chalk to be considered as part of geotechnical design.</td>
</tr>
</tbody>
</table>

**Summary:** In terms of hydrogeology, this site is suitable because the drop shaft is to be constructed in London Clay (non aquifer). The Chalk piezometric head is likely to be approximately 4.7m above the base of construction and should be taken into account in the engineering design. No impact on the Chalk aquifer is expected. The superficial deposits are Alluvium which is classified as a non aquifer at the shaft site. Therefore, no impact is expected at shallow depth.

In terms of surface water resources, this site is less suitable because the work is to be undertaken within the channel of the River Thames. As such, mitigation will be required to prevent pollution.
<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory designations</td>
<td>None within 2km</td>
<td>None required</td>
</tr>
<tr>
<td>Non-statutory designated wildlife sites</td>
<td>Site is within River Thames &amp; Tidal Tributaries SMI</td>
<td>Any constructions or working methods affecting the Thames, particularly above ground features of a permanent nature, but also temporary or buried works will require compensatory habitat provision. There may also be post-works restoration required.</td>
</tr>
<tr>
<td>BAP priority habitats</td>
<td>Foreshore consists of BAP habitat ‘mudflats’. The Tidal Thames is a London BAP habitat</td>
<td>Any loss (particularly permanent loss) of mudflat will require compensatory habitat provision. This may involve an offsite solution which may affect feasibility. There may also be arduous post-works restoration required. Any buried constructions in the Thames will require careful habitat restoration and careful working methods.</td>
</tr>
<tr>
<td>Protected or otherwise notable species within the Study Area</td>
<td>Site is located partially on mudflats. Shallow water and marginal habitat within this stretch known to be only spawning area in Tideway for smelt. The area may also be utilised by uncommon aquatic invertebrates.</td>
<td>Detailed negotiation may be required with the EA for the placement of structures (particularly permanent ones) in this location. Any constructions or dewatering in the Thames will require detailed aquatic invertebrate and fish investigation. There may be seasonal restrictions on working (avoiding March – April spawning period)</td>
</tr>
<tr>
<td>Potential issues</td>
<td>The cumulative impact of all jetties and other above ground structures proposed within the Thames may increase flow velocity in the river with effects on juvenile migratory fish</td>
<td>Consideration needs to be given to the cumulative impacts on hydrodynamics with reference to known critical flow velocities for fish. Not considered significant at a site specific level.</td>
</tr>
</tbody>
</table>

**Summary:** This site is less suitable. This site has heightened sensitivity due to the requirement for temporary and permanent land take from the River Thames. The site is immediately upstream of the stretch known to be the only spawning habitat for smelt in the Tideway. There may also be a need for seasonal restrictions on working, offsite mitigation/compensation solutions as well as potentially arduous post-works restoration requirements.
### Flood risk assessment

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood Risk Zone</td>
<td>River Channel - therefore flood zone 3b, functional flood plain.</td>
<td>The site will be developed with a cofferdam and should be protected to the 1 in 200 year tidal return period. An evacuation plan will be required for this site in the event the dam is breached. Mitigation may also be required for the impact of displacement of flood water as a result of defending the site on the foreshore. The impact of such a physical construction (the cofferdam) would also have to be assessed for the impact of sediment erosion on the integrity of the defences.</td>
</tr>
<tr>
<td>Assessment of conditions for SuDS</td>
<td>Not suitable for SuDS due to location within the Thames.</td>
<td>N/A</td>
</tr>
<tr>
<td>Potential issues</td>
<td>No further issues identified</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Summary:** This site is less suitable because the site requires specific mitigation to protect it from flood levels and this will cause displacement with respect to the working areas being in the river which could increase flood risk elsewhere locally.
### Air quality

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQMA</td>
<td>The air quality objective for NO(_2) is exceeded on major roads in vicinity of site.</td>
<td>There is a need for more site specific data.</td>
</tr>
<tr>
<td>Sensitive Receptors</td>
<td>There are residential properties along York Road (A3205).</td>
<td>There are relevant air quality sensitive receptors present along the route the construction traffic is likely to take and close to the proposed construction works.</td>
</tr>
<tr>
<td>Existing traffic issues</td>
<td>The main traffic issue in this area is exhaust emissions from vehicles along the A3205 corridor.</td>
<td>Additional vehicle emissions have a high potential to interfere with local air quality action plan policies.</td>
</tr>
<tr>
<td>Existing sources of significant air pollutants</td>
<td>See existing traffic issues above.</td>
<td>See existing traffic issues above.</td>
</tr>
<tr>
<td>Notable gaps in existing air quality monitoring</td>
<td>There is no data at likely access to the A3205 and the nearest existing data indicates existing exceedance of AQLV.</td>
<td>Collect minimum 6 months diffusion tube data at the nearest residential receptors to the site access to A3205 or other point of access to major road network.</td>
</tr>
<tr>
<td>Potential issues</td>
<td>The risk from additional exhaust emissions from construction HGVs is undefined at present. The risk from dust impacts at residential properties is moderate.</td>
<td>Minimise HGV movements on the local road network during the peak hours. Standard dust control measures will minimise the effect of fugitive dust on nearby sensitive receptors.</td>
</tr>
</tbody>
</table>

**Summary:** This site is less suitable. There are residential properties in close proximity to the site, therefore there is potential for fugitive emissions of dust during construction to have a perceptible impact at these properties. These impacts can be minimised with standard dust control measures. There is potential for HGV movements on the local road network to cause localised air quality impacts in areas of already poor air quality. This can be partially mitigated by minimising the movement of HGVs during peak hours.
## Noise

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise band level (from Defra noise maps)</td>
<td>Information from Defra noise maps indicates daytime noise levels of less than 58dB $L_{Aeq}$ and night-time noise levels of less than 50dB $L_{Aeq}$ at residential properties located at Princes Court on Cotton Row located to the south of the site. The residential properties facing the site are likely to experience relatively low daytime and night-time noise levels due to the northern façade of the receptors being shielded from the nearby A3205 to the east. Noise levels from the Defra noise maps provide an indication of prevailing noise levels only, and will not be employed in any detailed assessments for chosen sites.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sensitive Receptors</td>
<td>There are sensitive receptors in close proximity to the southern boundary of the site. Further residential properties at Waterman’s Quay are located to the west on the opposite side of the River Thames. Sensitive receptors to the south at Princes Court consist of 6 storey residential dwellings. These are located at a distance of approximately 10m from the southern site boundary. Sensitive receptors to the west are located approximately 180m away. There are a number of sensitive receptors adjacent to the site access route, including properties overlooking Bridges Court which will be considerably affected by HGV traffic.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Existing traffic issues</td>
<td>Local road traffic, coupled with more distant road traffic on the A3209 to the east will contribute to the local noise climate in the area.</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
## Noise

<table>
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<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing sources of significant noise emissions</td>
<td>Local road traffic, coupled with more distant road traffic on the A3209 to the east will contribute to the local noise climate in the area.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Potential issues</td>
<td>Construction: The construction period is estimated at 2 to 3 years and working hours will be 12 hours per day (7am to 7pm) Monday to Saturday. This has the potential to result in adverse noise impacts to the sensitive receptors surrounding the site, and in particular those at Princes Court on Cotton Row. A relatively large number of daily HGV movements are anticipated. This number of vehicle movements has the potential to result in adverse noise impacts along the length of Bridges Court, off which permanent access is proposed. The immediate site area is relatively large and, whilst the shaft location may be fixed, ancillary plant should be sited as far as is practicable from surrounding sensitive receptors. Situating plant in the western and north western areas of the site would maximise the distance between them and the nearest sensitive receptors and minimise potential disturbance. Proposed 3m site boundary fencing will provide useful noise mitigation to some plant and construction activities however it will not provide any attenuation to higher floor levels. Vibration resulting from general construction works is not anticipated result in an adverse impact. The nearest receptors to the proposed shaft location are at a distance of approximately 30m and it is unlikely that vibration levels will result in minor cosmetic damage during shaft sinking but may give rise to annoyance. Vibration from</td>
<td>Adherence to the good site practices provided in BS5228. Siting of noisy equipment and construction activities as far as is practicable from sensitive receptors. Provision of site boundary noise fences.</td>
</tr>
</tbody>
</table>
### Noise

<table>
<thead>
<tr>
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<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tunnelling should be considered on a case by case basis at particular sensitive locations. Operation: With appropriate attenuation (if necessary), there is no reason why noise from the ventilation column and top chamber should not result in adverse noise impacts to nearby sensitive receptors.</td>
<td></td>
</tr>
</tbody>
</table>

**Summary:** This site is less suitable due to the proximity of the residential properties to the south of the site. Any shielding afforded by the site perimeter barriers will be largely ineffectual due to the height of some of the properties. In addition the number of vehicles associated with the construction phase and the proposed access route is likely to cause an adverse noise impact on the residential properties on Bridges Court.
### Land quality

<table>
<thead>
<tr>
<th>Site location</th>
<th>Grid Reference: 526486, 176007</th>
</tr>
</thead>
</table>
| Current Site Use | ~98% Inter-tidal Mudflats  
Remainder of the site comprises Embankment Wall and a small area of hard paving on the embankment which is currently part of an access route to a new mixed-use development site. |
| Topography | Mudflat sloping towards centre of river |
| Field Evidence of contamination (ie, visual/olfactory) | None identified from site visit |
| Current surrounding land use (immediately adjacent to site) | North: Mud Flats, River Thames, Helipad Pier/Wharf (approximately 80m north)  
East: Thames Path, New Mixed-use development – “Bridge Wharf” still under construction (6 Storeys immediately adjacent to site, top 5 of which are likely to be residential), temporary offices affiliated with the development site.  
South: Occupied residential development – 6 storeys (10m away), and offices (company name: Searchy) on the bottom floor.  
West: Residential Flats on opposite bank of the Thames (approx 175m), 6-7 Storeys. |

### Geological and hydrogeological information

<table>
<thead>
<tr>
<th>Geological Strata</th>
<th>Geology (thickness)</th>
</tr>
</thead>
</table>
| Superficial Geology and Made Ground (3m) | London Clay (40m)  
Lambeth Group (18m)  
Thanet sand (10m) |

| Underlying Aquifer Classes | Non-Aquifer: London Clay  
Minor Aquifer: River Terrace Deposits, Lambeth Group, Thanet Sands, Harwich Formation,  
Major Aquifer: Chalk |
|---------------------------|--------------------------|
| Groundwater Vulnerability/Soil Classification (High/Intermediate/Low/Not Applicable) | River Terrace Deposits - Minor Aquifer / London Clay – Non aquifer  
High Leaching Potential of Soils (U) |

<table>
<thead>
<tr>
<th>Source Protection Zone Details</th>
<th>Not located in a Source Protection Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water Receptor</td>
<td>Site located within the River Thames</td>
</tr>
</tbody>
</table>

### Relevant Information within a 250m radius of the site

<table>
<thead>
<tr>
<th>Historical Potentially Contaminating Activities</th>
<th>Onsite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Historical maps show the site’s land use has remained largely unchanged. The site is located on mud and shingle adjacent to the River Thames and below the Mean High Water Level from 1874 onwards</td>
</tr>
</tbody>
</table>
## Land quality

### Offsite
- Wharf, (transport support and handling), in numerous directions (closest located 5m east), 1898-1987
- Animal by-products manufacture i.e. gelatine, soap, glue etc. (5m south) 1874
- Works, use not specified (10m east) 1898 – 1949
- Paraffin Wax Store (15m east) no mapping dates
- Diesel oil refinery (16m east) no mapping dates
- Oil Furnace (25m east) no mapping dates
- Numerous Tanks (closest located 27m east and 32m south), 1950 – 1973
- Further tanks, fuel storage, oil use, paraffin use and oil furnaces have been widely detected in conjunction with historical buildings (10 – 250m radius north to south) no mapping dates
- Area cleared due to enemy action (55m north, 185m southeast) no mapping dates
- Heliport, (transport: air and space, cargo handling), (76m north) 1987 - 2009
- Electric substations (closest located 90m southeast), 1973.
- Industrial works (machinery and engines) (93m south), 1898
- Food processing facility (94m south) 1920 – 1949
- Food processing facility (142m south) 1898
- Textile manufacturing (151m south) 1874
- Chemical Manufacturing – general (240m northeast), 1898

#### Pollution Incidents to controlled waters
- Three:
  - Miscellaneous, unknown, minor incident (194m southwest)
  - Unknown, minor incident (197m southwest)
  - Oils, unknown, minor incident (199m southwest)

#### Landfill Sites
- None

#### Other Waste Sites
- Metal recycling site, vehicle dismantlers, status: Issued (250m northeast)

#### Registered Radioactive Substances
- None

#### Fuel Stations/Depots
- None

#### Contemporary Trade Directory Entries
- Nineteen:
  - Furniture Manufactures (120m east) Active
  - Printers (120m east) Inactive
  - Air conditioning Equipment & Systems (120m east) Inactive
  - Car dealers (124m east) three Active listings
  - Car body repairs (130m northeast) Active
  - Classic Car Specialists (130m northeast) Active
  - Heliport (130m northeast) Active
  - Candle manufacturers and suppliers (150m southeast) three Inactive listings, one Active listing
  - Commercial Cleaning services (163m southeast) Inactive
## Land quality

- Oil and Gas Exploration Supplies and Services (163m southeast) Active
- Telecommunications Equipment & Systems (208m south) one Active, one Inactive listing
- Packing Materials Manufactures & Suppliers (211m south) two Active listings

### Site Classification Based on Above Information

<table>
<thead>
<tr>
<th>Activity</th>
<th>Distance and Direction to Site</th>
<th>Contaminants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Site Contaminants derived from surface sources (e.g. contaminants in made ground)</strong></td>
<td>Not Applicable as site located within the River Thames</td>
<td>Not Applicable as site located within the River Thames</td>
</tr>
<tr>
<td><strong>Potential Site Contaminants derived from offsite sources and transported to site</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Wharf operations</td>
<td>1) 5m east</td>
<td>1) Metals, TPH, PAH</td>
</tr>
<tr>
<td>2) Animal by products manufacture</td>
<td>2) 5m south</td>
<td>2) TPH, PAH, Solvents</td>
</tr>
<tr>
<td>3) Works (unspecified)</td>
<td>3) 10m east</td>
<td>3) Metals, TPH, PAH</td>
</tr>
<tr>
<td>4) Paraffin Wax Store</td>
<td>4) 15m east</td>
<td>4) TPH, Metals</td>
</tr>
<tr>
<td>5) Diesel Oil refinery</td>
<td>5) 16m east</td>
<td>5) TPH, Metals</td>
</tr>
<tr>
<td>6) Oil Furnace</td>
<td>6) 25m east</td>
<td>6) TPH, PAH, Metals</td>
</tr>
<tr>
<td>7) Tanks</td>
<td>7) closest 27m east</td>
<td>7) TPH, PAH, Metals</td>
</tr>
</tbody>
</table>

**Potential Contamination Pathways to Site**

(Conceptual Site Model)

**Source 1**: A1  
**Source 2**: D6, E1, F7

### Contamination Category

**Category 2 – Assessed as Medium Risk**

**Summary**: The site is less suitable based on the moderate potential for contamination to be present. The proposed location is in the near vicinity of the River Thames where it may be expected that contaminants would be diluted. However, numerous historical operations undertaken nearby may have resulted in contamination of mud and sediments at the site. This potentially poses a risk to construction workers and adjacent human receptors through direct contact and vapour inhalation. Additionally, the potential exists for contamination of the River Thames itself.

**Notes:**

1. From BGS Geological Model giving average ground condition profile. Local near surface conditions may vary, particularly within the river.

2. Soil information for urban areas is based on fewer observations than elsewhere in the country. Therefore a worst case vulnerability (H) is assumed until proven otherwise.

3. Refer to schematic Conceptual Site Model for explanation of site-specific source-pathway-receptors.
Contacts

For information about the Thames Tideway Tunnel

Call: 0800 0721 086 Lines are open 24 hours a day
Visit: www.thamestidewaytunnel.co.uk
Email: info@tidewaytunnels.co.uk

For our language interpretation service call 0800 0721 086

For information in Braille or large print call 0800 0721 086

For information about acceptance of our application and the examination process please contact the Planning Inspectorate.

Call: 0303 444 5000
Visit: http://infrastructure.planningportal.gov.uk