Spring 2012

Site suitability report
C06XM

Putney Wharf Foreshore
Please note:

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.
Site suitability report
C06XM

Putney Wharf Foreshore
# List of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Introduction</strong></td>
<td>1</td>
</tr>
<tr>
<td>1.1 Purpose and structure of the report</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Background</td>
<td>1</td>
</tr>
<tr>
<td>1.3 Consultation</td>
<td>2</td>
</tr>
<tr>
<td><strong>2 Site information</strong></td>
<td>3</td>
</tr>
<tr>
<td>2.1 Site and surroundings</td>
<td>3</td>
</tr>
<tr>
<td>2.2 Type of site</td>
<td>4</td>
</tr>
<tr>
<td><strong>3 Proposed use of site: Construction phase</strong></td>
<td>5</td>
</tr>
<tr>
<td>3.1 Introduction</td>
<td>5</td>
</tr>
<tr>
<td><strong>4 Proposed use of site: Operational phase</strong></td>
<td>7</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>7</td>
</tr>
<tr>
<td>4.2 Restoration and after-use</td>
<td>8</td>
</tr>
<tr>
<td><strong>5 Engineering assessment</strong></td>
<td>9</td>
</tr>
<tr>
<td>5.1 Access</td>
<td>9</td>
</tr>
<tr>
<td>5.2 Construction works considerations</td>
<td>9</td>
</tr>
<tr>
<td>5.3 Permanent works considerations</td>
<td>10</td>
</tr>
<tr>
<td>5.4 Health and safety</td>
<td>10</td>
</tr>
<tr>
<td><strong>6 Planning assessment</strong></td>
<td>11</td>
</tr>
<tr>
<td>6.1 Introduction</td>
<td>11</td>
</tr>
<tr>
<td>6.2 Planning applications and permissions</td>
<td>11</td>
</tr>
<tr>
<td>6.3 Planning context</td>
<td>11</td>
</tr>
<tr>
<td>6.4 Planning comments</td>
<td>14</td>
</tr>
<tr>
<td><strong>7 Environmental appraisal</strong></td>
<td>17</td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>17</td>
</tr>
<tr>
<td>7.2 Transport</td>
<td>17</td>
</tr>
<tr>
<td>7.3 Archaeology</td>
<td>17</td>
</tr>
<tr>
<td>7.4 Built heritage and townscape</td>
<td>17</td>
</tr>
<tr>
<td>7.5 Water resources – hydrogeology and surface water</td>
<td>18</td>
</tr>
<tr>
<td>7.6 Ecology</td>
<td>18</td>
</tr>
<tr>
<td>7.7 Flood risk</td>
<td>18</td>
</tr>
</tbody>
</table>
List of tables

Table 3.1 Construction phase data .......................................................... 5
Table 4.1 Operational phase data ............................................................. 7

List of abbreviations

AOD above Ordnance Datum
BAP biodiversity action plan
BT British Telecom
CPO compulsory purchase order
CSO combined sewer overflow
EA Environment Agency
GLA Greater London Authority
HGV heavy goods vehicle
LNR local nature reserve
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 drainage systems
TfL Transport for London
TD tunnel datum
TLRN Transport for London Road Network
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPA</td>
<td>Thames Policy Area</td>
</tr>
<tr>
<td>UDP</td>
<td>unitary development plan</td>
</tr>
<tr>
<td>UXO</td>
<td>unexploded ordnance</td>
</tr>
</tbody>
</table>
1 Introduction

1.1 Purpose and structure of the report

1.1.1 The *Site selection methodology paper* (May 2009 and revised August 2011)\(^a\) outlines the process to be used to create the preferred list of main tunnel 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. Whether a consideration is relevant to the assessment of a site will depend on available information and professional judgement.

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 and this level of information is considered to be appropriate to this stage of assessment.

1.1.3 The *Site selection background technical paper* provides information on the requirements for different types of sites, their sizes and typical activities/within the sites.

1.1.4 Each site suitability report considers a particular site on its own merits\(^b\). In addition, an *Engineering options report* (Spring 2012) was produced, which relates to main tunnel and connection tunnel options. 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). The outcomes are reported in the *Section 48: Report on site selection process*.

1.2 Background

1.2.1 The process for selecting sites is set out in the *Site selection methodology paper*. All sites have previously passed through the following parts of Stage 1:

- Part 1A – Creation of the long list of potential main tunnel (and CSO) sites
- Part 1B – Creation of a short list of potential main tunnel (and CSO) sites
  - Table 2.2: Long list of main tunnel (and CSO) sites – an assessment against set considerations and values

\(^a\) The amendments made in August 2011 do not change the site selection methodology process. The amendments only related to the introduction of a second phase of consultation (paragraphs 2.3.13-2.4.15) and minor factual updates.

\(^b\) The Site selection methodology was developed in the absence of any statutory requirement or specific guidance other than the general planning policy principles. We are aware of the various national level policy changes such as the introduction of the National Planning Policy Framework and the National Policy Statement for Waste Water, which is now the primary policy document for consideration of the Thames Tunnel (NPS) scheme. Overall, the approach taken in the methodology accords with the national policies and the NPS.
1 Introduction

- Table 2.3: Draft short list of main tunnel (and CSO) sites – assessment against a list of more 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 main tunnel (and CSO) sites – site data, site visits, site suitability reports, engineering options report and optioneering workshops that are reported in the Section 48: Report on site selection process.

1.2.3 The Site selection methodology paper also contains a provision for a back-check process in paragraph 2.5.6 that states:

“If any sites for any of the main tunnel sites or intermediate sites (or CSO site) are eliminated for any reason, if there are significant changes of circumstances in relation to existing sites or combinations of sites, if new or replacement sites are required or found or if the engineering design develops in unexpected ways then a targeted repeat of stages 1-3 will need to be undertaken in order to fill in any site gaps.”

1.3 Consultation

1.3.1 Thames Water's approach to engagement and consultation for the Thames Tunnel project is outlined in the Statement of Community Consultation and the accompanying Community Consultation Strategy. Thames Water has engaged regularly with all potentially affected London local authorities, other stakeholders and interested parties on sites and the project.

1.3.2 Phase two consultation has been completed for all the preferred and shortlisted sites along with the Abbey Mills route. The analysis of the consultation responses is set out in the Report on phase two consultation. Any relevant site comments were considered at the post phase two consultation optioneering workshops. The outcomes of these workshops are reported in the Section 48: Report on site selection process. After the workshops, engagement on sites has continued with key stakeholders, and the engineering design for sites has also continued in parallel.
2 Site information

2.1 Site and surroundings

2.1.1 This site, known as C06XM, is one of the back-check shortlisted sites for Putney Bridge 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 C06XM is located to the east of Putney Bridge, within the tidal Thames foreshore and the London Borough of Wandsworth. A site location plan provided in Appendix 2 – Site location plan.

2.1.3 It is immediately north of a large paved public space with seating area, the Boathouse public house, a high-rise residential block with commercial units on the ground floor and the Grade II* Listed St. Mary’s Church. Immediately to the west of the site is the Grade II Putney Bridge. A small part of the site boundary extends under Putney Bridge where the interception chamber and connection culvert connects the Putney Bridge CSO to the shaft.

2.1.4 The site falls within designated areas from the Wandsworth Core Strategy, including the Thames Policy Area, Archaeological Priority Area and the Putney Bridge Conservation Area. All the mapped designations, where data was available, are shown on the planning and environment plans in Appendix 3 – Planning and environmental plans.

2.1.5 The wider area is mixed, comprising commercial, retail and residential uses. The immediate locality falls within Putney Town Centre and the designated Focal Point of Activity, Putney Wharf. The area to the east of the site along Deodar Road is residential, as is the wider area south of the town centre.

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

2.1.7 There is road access to the site from Brewhouse Lane via the existing slipway which would be temporarily backfilled to the adjacent ground level. There is no rail network local to the site. The Putney railway station is approximately 0.7km from the site and Putney Bridge tube station is approximately 1.0km from the site. There are no existing wharfage/jetty facilities at the site. A preliminary transport plan for the site is attached as Appendix 5 – Transport plan.

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

a. The site is located in the foreshore of the river. The shaft would lie within 45m of Putney Bridge.

b. Putney draw dock is located within the southern quarter of the site.

c. There are no known major utilities within the site.
d. There are no known underground services within the site.

2.1.9 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. For this reason, they may not be shown on the services and geology plan.

2.1.10 Information on the specific geology of this site is provided in the services and geology plan in Appendix 6. This plan shows that the shaft would be in London Clay.

2.2 Type of site

2.2.1 The site C06XM is being considered as a CSO site to intercept the Putney Bridge CSO (CS06X).
3 Proposed use of site: Construction phase

3.1 Introduction

3.1.1 The proposed construction phase layout for the CSO site is provided in Appendix 7 – Construction phase layout. It was based on a preliminary assessment of a possible layout.

3.1.2 The construction phase layout drawing is illustrative only and show:
   a. the layout for a CSO construction site within the foreshore
   b. potential access points.

3.1.3 The drawing provides an initial preliminary schematic layout that has not yet been optimised. If the site proceeds to the next stage as a proposed site, the construction phase layout would be optimised in order to minimise potential impacts.

3.1.4 Photographs of typical activities associated with the construction phase at a CSO site are also provided in Appendix 7. Potential above-ground features of the construction phase include:
   a. hoarding around the site boundary approximately 3m high
   b. welfare facilities and temporary structures approximately 3m high
   c. grout plant including silos approximately 3m to 5m high
   d. A mobile crane, approximately 30m high maximum (not for the full duration of construction).

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

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

<table>
<thead>
<tr>
<th><strong>Table 3.1 Construction phase data</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity</strong></td>
</tr>
<tr>
<td>Length of construction period</td>
</tr>
<tr>
<td>Likely working hours, ie, (night/day/weekend)</td>
</tr>
<tr>
<td>Working days</td>
</tr>
<tr>
<td>Primary means of transporting excavated material away from the site</td>
</tr>
<tr>
<td>Primary means of transporting materials to site</td>
</tr>
</tbody>
</table>
3 Proposed use of site: Construction phase
4 Proposed use of site: Operational phase

4.1 Introduction

4.1.1 An indicative operational phase layouts for the two options for this CSO site is located in Appendix 8 – Operational phase layout, and is based on a preliminary assessment.

4.1.2 An indicative operational phase layout for this CSO site is provided in Appendix 8. It was based on a preliminary assessment of a possible layout.

4.1.3 The generic elevations of structures on the operational phase layout are provided in Appendix 8 and provide an illustration of typical example of the permanent structures which are applicable to CSO sites.

4.1.4 The underground infrastructure at this site would likely comprise an interception chamber, double flap valve chamber and a drop shaft with access openings.

4.1.5 The above-ground infrastructure would likely comprise a ventilation column and an electrical and control kiosk.

4.1.6 The top structures are envisaged to be finished at a minimum level of 104.5mTD (4.5mAOD). The site currently comprises foreshore and the mean ground level of the adjacent footway/carriageway is approximately 105mTD (5mAOD). The top structure would be flush with the current adjacent ground level. The top structure would provide access and egress into the drop shaft.

4.1.7 An area of hardstanding would be provided around the permanent structures. The site would not be fenced.

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

Table 4.1 Operational phase data

<table>
<thead>
<tr>
<th>Operational phase</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of inspections and maintenance and likely working hours, ie, (night/day/weekend) – frequency of visits</td>
<td>One day-time visit every six months for electrical/instrument inspection. An additional one-week maintenance period for tunnel/shaft inspection required every ten years that could be night/day/weekend working.</td>
</tr>
<tr>
<td>No. of traffic movements</td>
<td>One van visit every six months. An additional one-week period of two to ten movements per day (estimated to be several vans and two cranes) every ten years.</td>
</tr>
</tbody>
</table>
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.
5 Engineering assessment

5.1 Access

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

Road

5.1.2 For the construction phase, road access to the site would be possible via Brewhouse Lane (an approximately 6m wide local road) and the existing slipway which would be temporarily backfilled to the adjacent ground level, meaning that the existing slipway would be closed for the duration of the construction period. The site cannot be accessed directly off the public highway. Construction vehicles would need to pass across a pedestrianised area of third party land to access the site.

5.1.3 For the operational phase, the access would be through Brewhouse Lane and the hardstanding northwest of the slipway.

Rail

5.1.4 The rail and London Underground networks are both local to this 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 the site is in the foreshore, there may be feasible opportunities to use barge transport, although there may be constraints associated with this because the site would be adjacent to Putney Bridge.

5.2 Construction works considerations

5.2.1 Based on the layouts as currently shown in Appendix 7 – Construction phase layouts, the temporary closure of the existing slipway would be required during the construction phase.

5.2.2 As the site is in the foreshore, a temporary cofferdam would need to be constructed and the contained area filled to provide a level site compound. The cofferdam would need to extend to include the interception chamber and connection culvert (depending upon the extent of this part of the cofferdam, it is likely that it would not be filled, and it is possible that there would be a divider between each part of the cofferdam).

5.2.3 Settlement of the existing Putney Bridge, river wall and other structures would need monitoring during construction of the drop shaft.

5.2.4 Data available on third-party assets and significant utilities show that the main items of concern at this site are Putney Wharf Tower, St Mary’s Church, Putney Bridge and the river wall. Construction methods would be adopted, as appropriate, to mitigate potential settlement of these assets.

5.2.5 There would be some disruption to the river. Since the proposed temporary site extends into the river channel, Putney Bridge spans...
numbers 4 and 5 may require closure for the duration of work at this site. The interception chamber would be constructed beneath the southern shore arch of Putney Bridge.

5.2.6 It is likely that the proposed works could be constructed within the overall construction programme.

5.3 Permanent works considerations

5.3.1 There is currently a variation in existing ground levels adjacent to the site, with the level at St Marys Church being lower than that adjacent to Putney Wharf Tower. The top structures to the drop shaft and flap valve chamber would need to be finished to the higher level adjacent to the tower. This would create a difference in level between the new finished structure and the lower level of the church grounds.

5.3.2 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.

5.4 Health and safety

5.4.1 As the site would be in the foreshore, measures would need to be taken to mitigate the risks of flooding and working over/near water.

5.4.2 Construction traffic and subsequent operational vehicles would need to pass across a pedestrianised area to access the site. This area is heavily used for recreational purposes.

5.4.3 There are no other unusual health and safety issues at 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 assessment in the Site selection methodology paper and covers the following areas:

- Planning applications and permissions
- Planning context
- Planning comments.

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 relevant planning applications submitted within the last five years applicable to either the site or the adjacent surroundings.

6.3 Planning context

6.3.1 The following is a summary of the relevant local planning policies and designations that affect the site. They were taken from the current statutory development plan for the borough. The Development Plan comprises the Core Strategy, adopted October 2010, the Development Management Plan (DMPD), adopted February 2012, the Site Specific Allocations Document, adopted February 2012 and the London Plan 2011.

6.3.2 The adopted Core Strategy, DMPD and Site Specific Allocations Document policies are afforded full weight in planning considerations and decisions on planning applications. These policies supersede all saved policies from the Wandsworth Unitary Development Plan.

6.3.3 Designations are shown in Appendix 3 – Planning and environmental plans.

Land Use

6.3.4 This site lies within the foreshore of the River Thames, the Putney Embankment Policy Area, and the Wandsworth Thames Policy Area.

Core strategy

6.3.5 Core Strategy Policy PL 9, River Thames and the riverside seeks to protect existing river infrastructure that provides access to the river and the foreshore, such as piers, jetties, drawdocks, slipways, steps and stairs. The policy also seeks to protect Putney Embankment’s special recreational character and function, particularly in connection with river sports. Development that encroaches onto the river foreshore or that harms the stability or continuity of flood defences will not be permitted.

6.3.6 Core Strategy Policy PL 6, Meeting the needs of the local economy states that employment floorspace will be sought as part of mixed-use development on sites in the Wandsworth Thames Policy Area.
6 Planning assessment

DMPD

6.3.7 DMPD Policy DMI 3, Thames Policy Area seeks to prevent the loss of existing B1, B2 and B8 and related Sui Generis floorspace unless there is evidence which demonstrates that there is no current or future demand for such space in the Wandsworth Thames Policy Area.

6.3.8 DMPD Policy DMO 6, Riverside development sets out criteria that all new development on sites adjoining the River Thames should comply with, including the incorporation of a public riverside walk, and the protection of existing views and biodiversity. Similarly, Policy DMO 7, Development in the river and on the foreshore sets out criteria for river-related development and seeks to enhance the river infrastructure and increase access to the River Thames. The policy also seeks to protect the residential amenity of adjoining sites, views of the river and biodiversity.

Heritage

6.3.9 The site falls within an archaeological priority area, Putney Embankment Conservation Area, and is in close proximity to a number of listed buildings, including the Grade II* listed St Mary’s Church and Grade II listed Putney Bridge and bollards along the Embankment.

Core strategy

6.3.10 Policy IS3 states that the Council will protect and reinforce the existing varied character and heritage of the borough.

DMPD

6.3.11 DMPD Policy DMS 2, Managing the Historic Environment requires development to sustain, conserve and, where appropriate, enhance the significance, appearance, character and setting of heritage assets and the surrounding historic environment. It also states that developments that would disturb archaeological priority areas will need to be assessed and may require an archaeological evaluation report.

6.3.12 Trees within conservation areas are also protected from damage or removal by DMPD Policy DMO5.

Nature Conservation

6.3.13 The site lies within the River Thames, a designated Site of Importance for Nature Conservation. This is a general designation that covers the entire River Thames.

Core strategy

6.3.14 Core Strategy Policy PL 4, Open Space and the Natural Environment seeks to protect and enhance the biodiversity value of the borough and the River Thames. New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological impacts that do occur.
DMPD

6.3.15 **DMPD Policy DMO 4, Nature Conservation** states that development which would cause harm to a Special Area of Conservation, Site of Special Scientific Interest, Local Nature Reserve, Site of Importance for Nature Conservation (see Appendix 3 – Planning and environmental plans), any other site with important bio/geodiversity value, or any protected species will not be permitted unless any damaging impacts can be prevented by appropriate mitigation measures or planning conditions.

6.3.16 **DMPD Policies DMO 6, Riverside development and DMO 7, Development in the river and foreshore** seek to protect and enhance the habitat value of the river and shoreline and to ensure that no harm is caused to the river regime, environment, biodiversity or archaeology of the river (including banks, walls and foreshore).

Open space

6.3.17 The site lies adjacent to a ‘green chain’ that runs adjacent to the southern boundary of the River Thames. The site lies in the foreshore of the River Thames, which in itself is an area of open space.

Core strategy

6.3.18 **Core Strategy Policy PL 4, Open space and the natural environment** seeks to protect and improve open space in the borough, including the network of green chains.

DMPD

6.3.19 **DMPD Policy DMO1, Protection and enhancement of open spaces** seeks to protect and enhance open spaces, including green infrastructure and smaller areas not displayed on the proposals map. **DMPD Policy DMT 3, Riverside walking and cycling routes** states that development of sites on the Thames riverside will be permitted where provision is made for a riverside walk at least 6m wide and appropriate to the scale of development along the entire river frontage. That is unless an alternative route of equivalent width and equal amenity value around or through the site is necessary for safety, operational or nature conservation reasons.

Amenity

6.3.20 The proposed construction site is close to residential, retail and commercial properties in the high-rise block, Putney Wharf Tower.

DMPD

6.3.21 **Policy DMS 1, General development principles – Sustainable urban design and the quality of the environment**, ensures development does not harm the amenity of occupiers through unacceptable noise, vibration, traffic congestion, air pollution, overshadowing, overbearing, loss of outlook, privacy or sunlight/daylight.

6.3.22 **Policy DM08- Focal Points of Activity** - The area of Putney Wharf adjacent to the site is within a designated focal point of activity area. The policy
seeks to provide mixed use developments which create vibrant active places with enhanced access to the river.

**Flood risk**

6.3.23 The site is located within the river channel.

**Core Strategy**

6.3.24 *Policy PL 2, Flood risk,* states that the development of appropriate sites within Thames riverside will be permitted in principle in terms of the Sequential Test. However proposals for individual sites within these Flood Zones must comply with the Exceptions Test. Where development is permitted within flood risk areas it must demonstrate that where possible, it will reduce fluvial, tidal and surface water flood risk and manage residual risks through appropriate flood risk measures.

6.3.25 **DMPD**

*Policy DMS 5, Flood risk management,* requires a flood risk assessment to be undertaken for all development in the highest risk areas and conformance with the exception test to be demonstrated for all development except water compatible development.

**6.4 Planning comments**

6.4.1 There are a number of planning designations and policies that are applicable to the site. These designations and policies are identified and described in Section 6.3 and those relating to land use, heritage, nature conservation, public open space and residential amenity and are of most relevance to the proposed development.

6.4.2 The site is within the foreshore of the River Thames which is 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 tidal Thames which, among other gains, would promote biodiversity. It is considered unlikely that construction activity within the river, with an appropriate level of mitigation, would adversely impact on or conflict with the aims of this designation. A detailed assessment is provided in Section 7.

6.4.3 The location of the site within the foreshore is highly visible and offers little opportunity for adequate screening. Plant machinery during construction works and remaining top structures may be prominent. Both the design and potential after use of these structures as public realm features will require further consideration. Appropriate mitigation is likely to be required to avoid potential adverse impacts on the character and appearance of the Thames Policy Area, Putney Bridge Conservation Area and the setting of adjacent listed buildings. A further heritage assessment is included in Section 7.

6.4.4 The site falls within a designated Archaeological Priority Area. The appropriate level of site investigation should be agreed with the LPA in accordance with DMPD policy *DMS2.* Further appraisal of the archaeological potential on the site is provided in Section 7 of this report.
6.4.5 The site is in the foreshore and located directly in the front of an area of public amenity space, which fronts a public house and a high-rise residential block, incorporating commercial and retail uses at ground floor level. The nearest dwellings are located approximately 5m from the site boundary within Putney Wharf Tower. Mitigation is likely to be required to protect residential and public realm amenity from potential adverse impacts arising from noise and dust from construction and increased associated traffic movements. Construction working hours are also likely to require control, in accordance with working hours normally operated in residential areas. The potential construction impacts on the general amenity of the public space, public house, and other adjacent businesses and residential properties may be difficult to mitigate under DMPD Policy DMS 1 and DM08 in terms of noise, dust, traffic movements and outlook.

6.4.6 Use of the site may also temporarily interrupt an existing green chain and this would require suitable mitigation.
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 suitable as a CSO site in transport terms, subject to appropriate mitigation measures, especially in relation to the pedestrianised area that would need to be crossed by construction vehicles. Site access would be possible from the slipway at the end of Brewhouse Lane then HGVs would use Putney Bridge Road to access onto the TLRN (A3). The use of rail is unlikely due to the small quantities of material produced by CSO sites. River access is possible and it may be feasible to deliver and take away materials by barge for this site although there may be constraints associated with the proximity to Putney Bridge.

7.2.2 There is good potential for the workforce to access the site using public transport, which would be important given that the site is unlikely to accommodate parking onsite, and on-street parking within the vicinity of the site is unsuitable.

7.2.3 Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site.

7.3 Archaeology

7.3.1 The site is considered suitable as a CSO site, although it is possible that the foundations of a post-medieval bridge may still be present within the site and that this would require archaeological mitigation. It is unlikely but possible that preservation in situ of post-medieval structural remains would be required.

7.3.2 Due to a lack of previous investigations in the area, the nature and extent of archaeological receptors cannot be confidently predicted at this stage, and based on the information available; it is possible that archaeological receptors of high or medium value may be present within this site.

7.3.3 Peat deposits containing archaeological material have been commonly recorded throughout London in a similar proximity to the tidal Thames. Given the location of the site, and wider evidence for historical occupation along the tidal, it is a reasonable assumption to suggest that waterlogged remains of archaeological value may be present.

7.4 Built heritage and townscape

7.4.1 This site is less suitable for a CSO site, as it has the potential to result in a direct adverse impact upon the Putney Embankment Conservation Area and indirect impacts upon a number of listed buildings of medium and high value in the proximity of the site, most notably, the Grade II* Church of St Mary the Virgin, which shares a close visual relationship with the site.
Although the existence of several modern, large-scale structures in close proximity to the site would help to reduce any adverse impact, mitigation is still likely to be required to reduce direct and indirect impacts particularly in relation to Putney Embankment Conservation Area and the setting of the Grade II* Church of St Mary the Virgin and Grade II listed Putney Bridge.

7.4.2 The site is considered less suitable as a CSO site from a townscape perspective owing to the visual prominence of the site, impact on the local historic environment and the potential for adverse impacts on the character and views of the River Thames. Mitigation through scheme design and/or screening could potentially reduce the impact of the development upon views and local character.

7.5 **Water resources – hydrogeology and surface water**

7.5.1 In terms of hydrogeology, this site is suitable as a CSO site because the drop shaft is to be constructed in London Clay (unproductive strata). The Chalk piezometric head is likely to be approximately 4.8m above the base of construction and should be taken into account in the engineering design. No impact on the Chalk aquifer is expected. Superficial deposits at the site comprise Kempton Gravel, which is classified as a secondary aquifer, and which is likely to be subject to a limited impact on flow due to the use of diaphragm walls or caissons.

7.5.2 This site is less suitable as a CSO site in terms of surface water resources, as the site is located within the river, and specific mitigation would be required to prevent pollution.

7.6 **Ecology**

7.6.1 The site is less suitable as a CSO site as it would require temporary and permanent land-take from the tidal Thames, a site of metropolitan importance. This is likely to require offsite mitigation/compensation solutions as well as demanding post-works restoration. The site is immediately upstream of the stretch of the Thames known to be the only spawning habitat for smelt in the Tideway, and this may require seasonal restrictions on working.

7.7 **Flood risk**

7.7.1 The site is less suitable as a CSO site, as it is located within the river channel and would require specific mitigation to protect it from flood levels, as well as potentially resulting in displacement, which could increase flood risk in the locality.

7.8 **Air quality**

7.8.1 This site is less suitable for use as a CSO site from an air quality perspective. 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
7 Environmental appraisal

air quality impacts in areas of already poor air quality. This can be somewhat mitigated by minimising the movement of HGVs during peak hours.

7.9 Noise
7.9.1 The site is less suitable as a CSO site due to the proximity of the residential receptors to the south of the site, and because any shielding afforded by the site perimeter barriers would be largely ineffectual due to the height of some of the receptors. In addition, the number of vehicles associated with the construction phase and the proposed access route is likely to impact on the residential properties on Brewhouse Lane.

7.10 Land quality
7.10.1 The site is suitable as a CSO site as there is little potential for contamination from historical on- and off-site activities. This is due to the distance of potential sources of contamination from the site.
8 Socio-economic and community assessment

8.1 Introduction

8.1.1 The socio-economic and community assessment builds on the advantages and disadvantages set out in Table 2.3 of the Site selection methodology paper and covers the following areas:

a. Socio-economic profile

b. Socio-economic and community issues and impacts.

8.2 Socio-economic profile

8.2.1 The site lies within the Thamesfield ward of the London Borough of Wandsworth. Statistics from the Office of National Statistics 2001 Census data show the following indicators for the ward, in comparison to the rest of Wandsworth, London and England as a whole:

a. A higher proportion of the population has achieved some form of qualification, in particular Level 4 or 5 educational qualifications, than in Wandsworth, London and England as a whole.

b. Employment statistics are comparable, with a slightly higher rate of full-time employees or self-employed, and a higher proportion of the population work in the financial and business sectors.

c. A higher proportion of the population describes their health as ‘good’ and a considerably lower proportion has a limiting long-term illness.

d. A slightly higher proportion of the population has no religion, and a lower rate of religions other than Christianity across the board, and a higher rate of Christianity compared to the borough and London (but not England).

e. A higher proportion of the population is aged between 25 and 59, with a correspondingly lower proportion of children, younger adults and the elderly compared to the borough, London and England as a whole.

f. The majority of the population describes themselves as ‘white British’ compared with Wandsworth and London as a whole, with a lower overall ethnic diversity (relatively much lower proportions from all other ethnic groups).

g. Regarding tenure, there is a similar proportion of owner-occupied households, but a lower proportion of households rented from the council or housing associations, and a considerably higher proportion of privately rented households (almost double the proportion for London as a whole).

8.2.2 Overall, these findings indicated that the Thamesfield ward consists of predominantly white, professional, well-educated residents, and that the ethnic mix and age structure is not as diverse as elsewhere in London. In addition, the higher proportion of residents who stated their religion as Christianity suggests that St Mary’s Church, which is in the vicinity of the site, may be important for community cohesion.
8 Socio-economic and community assessment

8.2.3 At the site visit, the tenure of the residential properties in Putney Wharf tower appeared to be privately owned / rented.

8.3 Issues and impacts

8.3.1 The site is directly opposite Putney Wharf Tower and many of the flats within the development have balconies which may have views of the river and site. This suggests that any disturbances may affect living spaces in these dwellings.

8.3.2 Use of the site also has the potential to impact on the Busy Bees Nursery including the play area in its grounds, and St Mary’s Church both of which are opposite the site to the south west. A market is also held in Church Square which is likely to be affected.

8.3.3 The site access is proposed to be via a narrow street and slipway adjacent to the site, which runs through a pedestrianised area, past the Boathouse public house and outdoor seating for several restaurants and the pub. This area is well used outdoor space, especially in the summer months after work hours, and the use of the slipway for access is likely to be disruptive to the area in terms of noise and increased traffic flow.

8.3.4 The site is unlikely to affect the Thames Path as this does not run along the river embankment at this point (instead being routed south along Putney High Street and to the east along Putney Bridge Road, before rejoining the river bank at Wandsworth Park). However, disturbance would be caused to the riverside pedestrianised area in front of the Putney Wharf Tower development.

8.3.5 A rowing club is located upstream on the embankment, but is unlikely to be affected directly, due to its distance from the site. However, views from Putney Bridge and the river may be affected.
9 Property Assessment

9.1 Introduction

9.1.1 This report builds on the advantages and disadvantages set out in Table 2.3 of the *Site selection methodology paper* and provides more up-to-date information.

9.1.2 The site comprises an area of the River Thames foreshore east of Putney Bridge. The surface of the site is mud and shingle (when exposed at low tide). It does not include any buildings.

9.2 Crown land and special land comments

9.2.1 The site required is an area of foreshore and envisaged to be held by the PLA.

9.2.2 The proposal may impact on Riverside Walk. It is likely to be owned by the London Borough of Wandsworth and therefore it may be classified as Special Land under Section 17 of the Acquisition of Land Act 1981. However, Section 17 does not apply where the body acquiring the land is a statutory undertaker. As Thames Water is a statutory undertaker, Section 17 will not apply to London Tideway Tunnels. However, Section 16 of the Act will apply and provides that land may not be acquired unless the Minister is satisfied that there will be no detriment to the operations of the owner, or that the land can be replaced. Therefore, the compulsory purchase may be subject to a Ministerial procedure. Contact should be made with the owner as soon as possible to establish if an acquisition can be agreed.

9.2.3 Riverside Walk may also open space and therefore it may be classified as Special Land under Section 19 of the Acquisition of Land Act 1981. If this is the case, and if an acquisition cannot be agreed with the owner, a special parliamentary procedure may be needed after the Order is confirmed. As the whole Order would be subject to the special parliamentary procedure, not just the acquisition of this site, the project could be delayed by a minimum period of several months in the best case. In the worst case, the Order might be rejected by Parliament, in which case an Act of Parliament would be needed before the Order could come into effect. This could delay the project for a much longer period and even result in the Order failing. Contact should be made with the owner as soon as possible to establish if an acquisition can be agreed.

9.2.4 It may also be advisable to consider the inclusion of exchange land in the Order if any is available.

9.3 Land to be acquired

9.3.1 The site requires the temporary acquisition of foreshore during the construction phase and a permanent acquisition would be needed to accommodate the permanent structure, which would extend the riverbank.

9.3.2 In addition, rights would be required to construct a culvert eastwards along the foreshore to intercept the CSO under Putney Bridge.
9 Property assessment

9.3.3 The compensation assessment assumes that the majority of the worksite would be acquired temporarily, via the new rights acquired for the period of the works set out in the engineering section above. It also assumes that a smaller area would need to be acquired permanently to house operational plant.

9.4 Property valuation comments

9.4.1 Compensation for the acquisition of new rights is normally based on the diminution of the land’s value due to the acquisition. Compensation for the permanent acquisition of land is normally based on the market value, but may be based on equivalent reinstatement for the acquisition of unusual types of property.

9.4.2 If compensation is assessed on a diminution in value basis for 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 would likely be relatively low and therefore acceptable.

9.4.3 If compensation is assessed on the basis of re-provision of flood compensation land, and an allowance for a one-off payment to the owner, acquisition costs would likely be acceptable. However, costs on this basis are difficult to assess and there is a risk that the cost of flood compensation land could increase significantly.

9.4.4 The temporary worksite land would be reinstated following the construction phase as a part of the engineering works. Therefore, reinstatement costs are not included in the compensation assessment.

9.5 Disturbance compensation comments

9.5.1 The site comprises unoccupied river foreshore and embankment therefore it is considered that disturbance compensation is unlikely to be necessary.

9.6 Discretionary purchase costs comments

9.6.1 Works on the site would be limited to 12-hour working, Monday to Saturday. There is a risk of discretionary purchase costs due to the proximity of Putney Wharf Tower.

9.7 Offsite statutory compensation comments

9.7.1 There should be limited potential for offsite statutory compensation under S.10 of the Compulsory Purchase Act 1965, as it is unlikely that there would be any physical interference with public or private property rights.

9.7.2 There is also limited potential for claims under the Land Compensation Act 1973 Part 1, as it is unlikely that the completed works would result in diminution in the value of property.

9.8 Site acquisition cost assessment

9.8.1 The statutory acquisition costs would likely be low due to the undeveloped nature of the foreshore.
**10 Site conclusions by discipline**

**10.1 Introduction**

10.1.1 The conclusions set out in this section are drawn from each discipline’s assessment. They are designed to inform the workshop reach a final conclusion on whether or not the site should move forward as a preferred site.

**10.2 Engineering**

10.2.1 The site is **suitable** as a CSO site because being located upon the foreshore then it would be relatively unrestricted in size and shape. Access, however, would be somewhat restricted due vehicles not being able access the site directly from the public highway and may raise safety issues in the pedestrianised area. The proximity to Putney Bridge may be a concern. The construction methodology of the culvert to the existing under Putney Bridge would require works close to a bridge abutment.

**10.3 Planning**

10.3.1 This site is **less suitable** as a CSO site.

10.3.2 There are a number of sensitive planning and environmental designations relating to this site. There are sensitive heritage issues, due to the siting within a conservation area and the site’s close proximity to the listed St Mary’s Church and Putney Bridge. Also, the site’s close proximity to residential dwellings and commercial uses would require mitigation to protect local amenity from the effects of dust, noise and vibration.

10.3.3 The construction works and culvert may have an impact on visual amenity of the surrounding area and on the adjacent residential block which could require a high level of screening. The proposed construction transport route is through a pedestrianised area and this would have an impact on public amenity.

**10.4 Environment**

10.4.1 Overall, this site is **less suitable** as a CSO site.

10.4.2 The site is considered **suitable** from the perspectives of transport, archaeology, water resources (hydrogeology) and land quality. However measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site.

10.4.3 Based on current information, the site is **less suitable** from the perspectives of built heritage and townscape, water resources (surface water), flood risk, ecology, air quality and noise.

10.4.4 Overall, the site is considered **less suitable**, subject to further investigation of whether built heritage, townscape, flood risk and surface water, ecology, air quality and noise can be adequately mitigated. Likely mitigation considerations would include:
a. Built heritage and townscape – further investigation to determine whether potential direct and indirect adverse impacts upon the townscape setting, a number of conservation areas and the setting of several listed buildings could be reduced to an acceptable level through sensitive design and screening.

b. Flood risk and surface water – mitigation to reduce flood risk to the worksite and elsewhere (loss of capacity) and specific mitigation to reduce the impacts of in-river working.

c. Ecology – offsite mitigation/compensation solutions and seasonal working restrictions to mitigate for impacts to foreshore habitat and potentially valuable spawning habitat for smelt.

d. Air quality – measures to ensure dust is adequately mitigated for the closest receptors; and

e. Noise – standard noise barriers are unlikely to be entirely effective and other techniques may be required to reduce construction noise to acceptable levels.

10.5 Socio-economic and community

10.5.1 This site is less suitable as a CSO site because its use appears likely to impact on the residential properties within Putney Wharf Tower which is directly opposite and overlooks the site.

10.5.2 The site’s use is also likely to impact on the Boathouse public house, the Busy Bees Nursery, St Mary’s Church and the market in Church Square. Mitigation may involve minimising disturbance to these sensitive receptors.

10.5.3 Disturbance is also likely to be caused to people using the pedestrianised area and outdoor seating to the east of the Putney Wharf Tower due to the proposed access route.

10.6 Property

10.6.1 The advantages of the site are as follows:

a. The site is undeveloped foreshore and therefore acquisition costs are likely to be acceptable.

10.6.2 The disadvantages of the site are as follows:

a. Risk of Discretionary Purchase costs.

10.6.3 This site is classified less suitable due to risk of discretionary purchase costs. Discussions are taking place with the PLA to ensure relevant licences can be put in place to enable the works to be undertaken.

10.7 Next steps in the site selection process

10.7.1 It should be noted at this point that the above conclusions do not represent an overall recommendation on the suitability of a site. The next step for the disciplines is to discuss their site suitability report conclusions at an optioneering workshop. All the shortlisted CSO sites will be compared at the workshop in order to determine the preferred site. This site will be put
forward for targeted consultation. Summaries of the assessments and outcomes will be reported in the Section 48: Report on site selection process.
10 Site conclusions by discipline
Appendices
Appendix 1: Sources of information

Engineering
a. Traffic Management and Access Roads/Rail – URS
b. Access River – BMT Isis
c. Services (Utilities) and Third Party Assets – Thames Tunnel and utility companies
d. Geology – British Geological Society and Thames Tunnel
e. Construction and Operational Layout Template – Thames Tunnel
f. Site selection background technical paper – Thames Tunnel

Planning
a. London Borough of Wandsworth online planning applications database
b. Wandsworth, Core Strategy, adopted October 2010
d. Wandsworth, Site Specific Allocations Document, adopted February 2012
e. Greater London Authority, London Plan, adopted July 2011

Environment
Transport
g. Bus Route Maps: North-east, north-west, south-west, south-east – www.tfl.gov.uk
h. Crossrail Plans – www.crossrail.co.uk/crossrail-bill-documents
i. Public Transport Accessibility Level (PTAL) scores – Obtained from Table 2.3 information
j. Thames Path map – www.walklondon.org.uk
k. Capital Ring – www.walklondon.org.uk
l. Cycle Routes – www.sustrans.org.uk and Local Cycling Guides 1-14
m. Highways Agency, Design Manual for Roads and Bridge TD 42/95

Archaeology

a. Historic Environment data from Greater London Archaeology Advisory Service (GLAAS)
b. National Monuments Record – for some additional information regarding registered historic parks and gardens
c. London Archaeological Archive and Research Centre (LAARC)
d. Local authority websites
e. Bing maps

Built heritage and townscape

a. Local authority lists of Locally Listed Buildings
b. National Monuments Record – for some additional information regarding registered historic parks and gardens
c. Wandsworth, Core Strategy, adopted October 2010
d. Wandsworth, Development Management Policies Document (DMPD), adopted February 2012
e. Local authority websites
Appendix 1: Sources of information

f. Bing maps

Water resources: Hydrogeology and surface water

a. Local authority details of unlicensed abstractors
b. Environment Agency abstraction licence details
c. Environment Agency groundwater levels and contour maps (2009-11)
d. Environment Agency water quality (surface water and groundwater)
e. Environment Agency Groundwater Source Protection Zones
g. Envirocheck
h. British Geological Survey (BGS) logs
i. BGS 1:50,000 Geological Sheets – Solid and Drift Editions (England and Wales)
j. BGS Geology of London – Special Memoir for 1:50,000 Geological sheets 256 (North London), 257 (Romford), 270 (South London) and 271 (Dartford) (England and Wales)
k. Crossrail (2005) – Assessment of Water Impacts Technical Report: Appendix C – Baseline Data. Figure C.4: Extent of Saline Intrusion based on 177 mg/l *5mmol/l* Isochlor

Ecology

c. Multi-Agency Geographic Information for the Countryside (MAGIC) – www.magic.gov.uk - statutory designated sites
d. London Wildweb – wildweb.london.gov.uk - non-statutory site of importance for nature conservation
g. Google Maps – aerial views of habitat features
h. BAP habitats – www.natureonthemap.org.uk
i. Priority habitats and species on national and local scales – www.ukbap.org.uk

Flood risk

b. Environment Agency National Flood and Coastal Defence Database
c. Envirocheck

Air quality

a. Local authority websites
c. Defra UK-AIR, air quality information resource – www.airquality.co.uk
d. Defra Air Quality Management Areas – http://aqma.defra.gov.uk
e. Defra Local Air Quality Management – http://laqm.defra.gov.uk

Noise

a. Envirocheck – Identification of receptors
b. Promap – Calculation of distances between site and receptors
c. Multimap – Aerial photography – www.multimap.co.uk
d. Defra noise maps – Identification of existing noise levels
Appendix 1: Sources of information

Land quality
a. Google Maps/Earth
b. Envirocheck Data Sheets provided as a GIS Database
c. British Geological Survey (BGS) logs

Socio-economic and community
a. Statistics from the Office of National Statistics 2001 Census data
b. Boats from Putney Pier (Transport for London):
c. London Rowing Club: www.londonrc.org.uk/contact.php

Property
a. Mouchel Land Registry information
b. Valuation Office Agency (VOA) website Multimap
Appendix 2: Site location plan
Location
Putney Embankment Foreshore
London Borough of Wandsworth

Document Information
Site Suitability Report
APPENDIX 2
Site Location Plan
CS06XM
1PL24-SS-02444
Appendix 3: Planning and environment plans
Appendix 4: Photographs of the site and surroundings
The site, viewed from the north, showing St. Mary's Church and the adjacent flats

The site, viewed from the north at closer proximity, showing the St Mary's Church and Putney Bridge to the west
Appendix 5: Transport plan
Appendix 6: Services and geology plan
Appendix 7: Construction phase layout
Appendix 7: Construction phase layout
THAMES TUNNEL SCHEME.

SELECTED AS A CONSTRUCTION SITE TO FORM PART OF THE
THAMES TUNNEL. SHOULD NOT BE TAKEN TO MEAN THAT SUCH SITE WILL BE
INCLUDED ON THIS DRAFT PLAN SHORTLIST OF CONSTRUCTION SITES FOR THE PROPOSED
STAKEHOLDERS, MAY BE CONFIRMED AS BEING ON THE
FOLLOWING DISCUSSIONS WITH LOCAL AUTHORITIES AND OTHER
LIMITED. IT PROVIDES AN INDICATION OF SITES THAT,
EXPRESS WRITTEN PERMISSION OF THAMES WATER UTILITIES
DISTRIBUTED OR SHOWN TO ANY THIRD PARTY WITHOUT THE
RIGHT 2012. ALL RIGHTS RESERVED ORDNANCE SURVEY LICENCE ON BEHALF OF HMSO. © CROWN COPYRIGHT AND DATABASE
MAPPING REPRODUCED BY PERMISSION OF ORDNANCE SURVEY

THIS DRAWING IS AN INDICATIVE WORKING DRAFT WHICH HAS BEEN
PRODUCED FOR THE PURPOSE OF CONFIDENTIAL DISCUSSIONS ONLY. ACCORDINGLY, THE DRAWING MUST NOT BE COPIED,
PRODUCED FOR THE PURPOSE OF CONFIDENTIAL DISCUSSIONS

THIS DRAWING IS AN INDICATIVE WORKING DRAFT WHICH HAS BEEN
PRODUCED FOR THE PURPOSE OF CONFIDENTIAL DISCUSSIONS ONLY. ACCORDINGLY, THE DRAWING MUST NOT BE COPIED,
VENTILATION COLUMN (CSO)

ELECTRICAL CONTROL KIOSK (CSO)

NOTE:
1. Structure to be protected by removable handrail 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></td>
<td>Access to road network</td>
<td>Access will be taken from the end of Brewhouse Street. The permanent access will be provided in front of Putney Wharf (through the removable bollards). It is understood that the existing slipway would need to be backfilled to enable access during construction. Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site. Brewhouse Street is subject to a 30mph speed limit and is streetlit. It has a carriageway width of 6.6-7.1m which is reduced to an effective width of 4.7-5.2m due to on street parking on the western side. Access to the A3 (TLRN strategic highway network) is from Brewhouse Street onto Putney Bridge Road eastbound. Route passes through a residential area and under two rail bridges with no visible restrictions. Distance 1.6km to TLRN (A3). See Transport Access Plan in Appendix 5.</td>
<td>Conclusion: Road access to site possible for HGVs accessing the site at the end of Brewhouse Street. Access to the slipway will need to be maintained throughout the construction phase. Access to the TLRN (A3) passes through a residential area and under two rail bridges with no visible restrictions. Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site.</td>
</tr>
<tr>
<td></td>
<td>Access to river</td>
<td>River access possible as site located in the river.</td>
<td>River access not required despite the site being located in the river.</td>
</tr>
<tr>
<td></td>
<td>Access to rail</td>
<td>Access to rail unlikely to be feasible due to small volumes of excavated material produced by the site. Access to existing railway sidings at Clapham Junction using and following the TLRN (A3)</td>
<td>Route to possible rail link at Clapham Junction runs through a high street area along St John’s Hill and over one road bridge with no visible restrictions. Clapham Junction railway sidings at the Traincare Depot accessible</td>
</tr>
</tbody>
</table>
### Transport

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>eastbound onto St John’s Hill before turning onto Plough Road for the Clapham Junction Traincare Depot railway sidings. The route passes over one road bridge on the A3 with no visible restrictions and through a high street area along St John’s Hill. Distance 3.9km to rail access point from site.</td>
<td>using Plough Road.</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>Parking cannot be provided onsite as the site is located on the foreshore. On street parking exists within the vicinity of the site along Brewhouse Street, although unlikely to be suitable for workforce as time restricted. Workforce parking would therefore need to be provided.</td>
<td>Parking for workforce unable to be provided within site boundary and on street parking nearby unsuitable. Workforce parking therefore needs to be provided.</td>
</tr>
<tr>
<td>Public transport accessibility</td>
<td>PTAL 5-6 (High), as identified within Table 2.3.</td>
<td>Good possibility of workforce being able to use public transport to access site</td>
</tr>
<tr>
<td>Traffic Management</td>
<td>It has been assumed that the connection culvert will be joined to the existing sewer underneath Putney Bridge. Any construction affecting the carriageway on Putney Bridge would require a lane closure which would have a significant impact on traffic on the bridge. Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site. It is understood that the slipway will be unavailable for the duration of the works.</td>
<td>It has been assumed that the connection culvert will be joined to the existing sewer underneath Putney Bridge. However, Temporary Traffic Management would be required in the form of at least a lane closure on Putney Bridge if construction works associated with the joining in the connection culvert were to affect the carriageway. Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area to access the site. It is understood that the slipway will be unavailable for the duration of the works.</td>
</tr>
</tbody>
</table>
Appendix 9: Environmental appraisal tables

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

**Summary:**
The site is suitable as a CSO site in transport terms, subject to appropriate mitigation measures, especially in relation to the pedestrianised area that would need to be crossed by construction vehicles. Site access would be possible from the slipway at the end of Brewhouse Lane then HGVs would use Putney Bridge Road to access onto the TLRN (A3). The use of rail is unlikely due to the small quantities of material produced by CSO sites. River access is possible and it may be feasible to deliver and take away materials by barge for this site although there may be constraints associated with the proximity to Putney Bridge.

There is good potential for the workforce to access the site using public transport, which would be important given that the site is unlikely to accommodate parking onsite, and on-street parking within the vicinity of the site is unsuitable.

Measures will need to be considered to minimise potential conflicts between pedestrians and construction vehicles as they cross a pedestrianised area 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>No designation within the site boundary</td>
<td>N/A</td>
</tr>
<tr>
<td>Summary of historical uses</td>
<td>The site is located on the Thames foreshore within the route of a former Putney Bridge (Demolished Late 19th C).</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>The foundations of the post medieval bridge may be considered high value. Further unrecorded receptors of potentially 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>
</tbody>
</table>
| Potential receptors of medium value with the potential to be directly affected | The foundations of the post medieval bridge may be considered medium value. Further unrecorded receptors of potentially high value may be present within the site.  
Pottery of medieval date has been found in the vicinity of the site.  
The burial ground of St Mary's Church is located immediately to the south and outside of the site. Proposals are unlikely to impact the burial ground directly but there may be potential for human remains within the foreshore deposits. | A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development. |
<p>| Other receptors with the potential to be directly affected                   | Dewatering of potential waterlogged deposits containing archaeological remains may be an issue considering the close proximity of the site to the Thames. | A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development. |
| Extent of existing disturbance (if known)                                   | There is no firm cartographic evidence for any ground disturbance other than that for the construction of the former | A detailed desk based assessment is required to sufficiently understand the archaeological resource and define risk to potential development. |</p>
<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Putney Bridge. Geotechnical data indicates approximately 1m thickness of made and superficial ground. Compared with adjacent sites this is a very thin layer, which may indicate that the site has been subject to terracing or ground reduction.</td>
<td>potential development.</td>
<td></td>
</tr>
</tbody>
</table>
| Potential issues | Detailed design proposals, and an outline method statement will be required to enable initial assessment of development impacts, and to inform mitigation proposals. With the currently available information it is not possible to highlight specific potential issues. | Mitigation methods could include:  
- Desk based assessment  
- Production of deposits model  
- Archaeological monitoring of geotechnical investigations  
- Archaeological evaluation  
- Archaeological watching brief  
- Archaeological excavation |

**Summary:**
The site is considered suitable as a CSO site, although it is possible that the foundations of a post-medieval bridge may still be present within the site and that this would require archaeological mitigation. It is unlikely but possible that preservation in situ of post-medieval structural remains would be required.

Due to a lack of previous investigations in the area, the nature and extent of archaeological receptors cannot be confidently predicted at this stage, and based on the information available; it is possible that archaeological receptors of high or medium value may be present within this site.

Peat deposits containing archaeological material have been commonly recorded throughout London in a similar proximity to the tidal Thames. Given the location of the site, and wider evidence for historical occupation along the tidal, it is a reasonable assumption to suggest that waterlogged remains of archaeological value may be present.
## Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| **Listed Buildings** | Church of St Mary the Virgin, Putney High Street, Grade II*: 15m  
Putney Bridge (Wandsworth end), Grade II: 20m  
Putney Bridge (Hammersmith and Fulham end), Grade II: 100m  
The White Lion Public House, Putney High Street, Grade II: 70m  
3 Bollards at junction with Lower Richmond Road (Putney Embankment), Grade II: 160m  
Park Lodge, Putney Bridge Road, Grade II: 200m | In the case of listed buildings, conservation areas, and registered historic parks and gardens 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 determine the likely impact of the development and to inform more detailed mitigation proposals.  
On the basis of currently available information (June 2009) and on the basis of certain receptors not being present within 250m of C06XM, mitigation will not be applicable in the case of locally listed buildings, locally listed parks and gardens and protected views. |
| **Locally Listed Buildings** | 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 within 250m of C06XM and within the borough of Wandsworth. |
| **Conservation Areas** | Putney Embankment Conservation Area: 0m  
Deodar Road Conservation Area: 75m  
Oxford Road Conservation Area: 160m  
Bishops Park Conservation Area: 70m  
Putney Bridge Conservation Area: 65m  
Hurlingham Conservation Area: 210m | |
## Built heritage and townscape

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
</table>
| **Registered Historic Parks and Gardens**  
Bishops Park, Grade II: 180m | | |
| **Locally Listed Parks and Gardens**  
There are no locally listed parks and gardens within 250m of C06XM. | | |
| **Protected Views**  
There are no protected views within 250m of C06XM. | | |
| **Potential receptors of medium to very high importance with the potential to be directly affected** | The Putney Embankment Conservation Area has the potential to be directly affected as C06XM lies within the boundaries of the designated area. | Mitigation in the form of a high quality and sensitive scheme design and/or screening would be required to ensure that the development preserves or enhances the character or appearance of the Putney Embankment Conservation Area. |
| **Other receptors of lesser importance with the potential to be directly affected** | Not Applicable | Not Applicable |
| **Potential receptors of medium to very high importance with the potential to be indirectly affected** | There is the potential for 6 listed buildings (one Grade II* and five Grade II listed buildings) to be indirectly affected through changes to their settings. There is also the potential for 5 conservation areas and one registered historic park and garden to be indirectly affected. | Of the 6 listed buildings within 250m of C06XM, only four of the buildings share a visual relationship with the site (Church of St Mary the Virgin; Putney Bridge (Wandsworth and Hammersmith & Fulham ends); and The White Lion Public House). Many of these structures, which range between medium and high importance) are located particularly close to the site (the Church of St Mary the Virgin, which is Grade II* listed, for instance, has a close visual relationship with |
### 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></td>
<td></td>
<td>the site). Consequently the scheme has a high potential to have an adverse impact upon the settings of these receptors. Mitigation in the form of a high quality scheme design and/or screening is therefore likely to be required. However, as there are already a number of modern, large-scale structures in close proximity to these structures, the overall impact of the development upon their setting is will be reduced. The remaining two listed buildings (the 3 bollards at junction of Putney Embankment and Lower Richmond Street and Park Lodge, Putney Bridge Road) do not share a visual relationship with the site. The development would therefore not result in an impact upon these listed structures and mitigation would not be required. The Oxford Road, Bishop Park and Hurlingham Conservation Areas do not share a visual relationship with C06XM as views between the designated areas and the site are blocked by the presence of existing buildings and structures. The development will therefore not affect the setting of these designated areas or views to and from them and mitigation will therefore not be required. In contrast, the Deodar Road and Putney Bridge Conservation Areas do share</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></td>
<td></td>
<td>a visual relationship with C06XM and the development therefore has the potential to have an adverse impact upon their setting or views to and from the designated areas. Mitigation in the form of a high quality scheme design and/or screening may be required to reduce the visual impact of the scheme upon these conservation areas. The Bishops Park registered historic park and garden does not share a visual relationship with C06XM as views to and from the site are obscured by Putney Bridge. The development will therefore not affect the setting of the registered area and mitigation will not be required.</td>
</tr>
<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 in Thames Policy Area Sensitive site on the south bank of the tidal Thames. St.Mary’s Church and densely built-up residential properties to the south, Putney High Street that feeds the Putney Bridge to the west, tidal Thames to the north and east, Putney Rail Bridge to the east. The presence and operation of machinery, materials stores and buildings onsite would potentially result in temporary, but severe, adverse, direct impacts on the character of the river and temporary, adverse indirect</td>
<td>Retention of trees where possible and protection in accordance with BS 5837. Introduction of landscape scheme to include appropriate surface treatments and planting to relate to adjacent river frontage. Presence and operation of machinery, materials stores and buildings onsite would potentially severely impact character of river, the adjacent residential property and St Mary’s Church. This site is less suitable given its location and character.</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>Built heritage and townscape</td>
<td>Impacts on neighbouring areas which include Listed buildings and structures. Location of the vent column and electrical kiosk would result in permanent, adverse, direct impact on the character of St Mary’s Church and the neighbouring residential property. Loss of mature trees due to location of vent column and electrical kiosk.</td>
<td></td>
</tr>
<tr>
<td>Potential views likely to be affected</td>
<td>Open views from the river and overlooking residences on north and south bank and St Mary’s Church. Interrupted views from Putney Bridge and properties to the west of it.</td>
<td>During construction, use of hoardings and appropriate lighting. Design of top structure, vent column, and electrical kiosk to be given extremely careful consideration. Plants to screen permanent plant. Removal of mature vegetation would be visually significant, therefore, adequate new planting would be important to protect visual amenity. This site is less suitable given its visibility on the tidal Thames.</td>
</tr>
<tr>
<td>Particular considerations on sites where new permanent structures are required</td>
<td>Permanent structures at C06XM have the potential to directly affect the character or appearance of the Putney Embankment Conservation Area. They may also have an indirect impact upon the setting of two other conservation areas (the Deodar Road and Putney Bridge Conservation Areas) and the setting of four listed buildings (Church of St Mary the Virgin; Putney Bridge (Wandsworth and Hammersmith &amp; Fulham ends); and The White Lion Public House). The visual impact of the</td>
<td>Any permanent structures would need to be of a high quality design and/or screened in order that any physical and/or visual impact is minimised. This would be particularly important in the case of the Grade II* Church of St Mary the Virgin which is located to the south west to the site. It should, however, be noted that the setting of the church already encompasses a number of modern, large-scale structures, and these existing ground conditions will</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>development upon these built heritage receptors would therefore have to be carefully considered.</td>
<td>lessen the overall impact of the proposed development. Furthermore, the design of the site and any permanent structures will need to preserve or enhance the character or appearance of the Putney Embankment Conservation Area.</td>
<td></td>
</tr>
</tbody>
</table>

### Potential issues

| Potential issues | The development could result in a number of direct and indirect impacts to the local townscape character, conservation areas and listed buildings. There is the potential to mitigate adverse impacts through high quality scheme design and/or screening of the site. | The scheme design will need to be of a sufficiently high quality and may need to incorporate some screening in order that it preserves or enhances the character of the Putney Embankment Conservation Area and does not indirectly affect the setting of a number of listed buildings and two other conservation areas. |

### Summary:

This site is less suitable for a CSO site, as it has the potential to result in a direct adverse impact upon the Putney Embankment Conservation Area and indirect impacts upon a number of listed buildings of medium and high value in the proximity of the site, most notably, the Grade II* Church of St Mary the Virgin, which shares a close visual relationship with the site. Although the existence of several modern, large-scale structures in close proximity to the site would help to reduce any adverse impact, mitigation is still likely to be required to reduce direct and indirect impacts particularly in relation to Putney Embankment Conservation Area and the setting of the Grade II* Church of St Mary the Virgin and Grade II listed Putney Bridge.

The site is considered less suitable as a CSO site from a townscape perspective owing to the visual prominence of the site, impact on the local historic environment and the potential for adverse impacts on the character and views of the River Thames. Mitigation through scheme design and/or screening could potentially reduce the impact of the development upon views and local character.
<table>
<thead>
<tr>
<th>Hydro-geological conditions (Groundwater and Surface Water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From BGS Geological Model giving average ground condition profile. Local near surface conditions may vary, particularly within the river</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogeological conditions (Groundwater and Surface Water)</td>
<td>Geology (thickness)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Superficial Geology and Made Ground (1m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- London Clay (43m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Lambeth Group (18m)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Thanet sand (12m)</td>
<td></td>
</tr>
<tr>
<td>Hydrogeology</td>
<td>Piezometric Level in Chalk Aquifer: ~ -24 mAOD (~24 mbgl) from EA Jan 08 water level contouring</td>
<td></td>
</tr>
<tr>
<td>Groundwater Monitoring Location</td>
<td>- EA Hydrometry Sites: TQ27-159 - approximately 1.68 km southeast of the site (water levels to March 2009)</td>
<td></td>
</tr>
<tr>
<td>Watercourses</td>
<td>- Within the tidal Thames</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPZs and groundwater users</th>
<th>SPZ</th>
<th>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;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. 72m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.109m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 137m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 80m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a result, the shaft is not located within any of these catchment areas.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Licence Numbers:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 28/39/39/0221 (1 borehole)</td>
<td></td>
</tr>
<tr>
<td>2. 28/39/39/0177 (2 boreholes)</td>
<td></td>
</tr>
<tr>
<td>3. 28/39/42/0071 (1 borehole)</td>
<td></td>
</tr>
<tr>
<td>4. 28/39/41/0081 (1 borehole)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Locations:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1.1km northwest of the site (other side of the River Thames)</td>
<td></td>
</tr>
<tr>
<td>2. 660m northeast of the site (other side of the River Thames)</td>
<td></td>
</tr>
<tr>
<td>3. 1.73km east of the site</td>
<td></td>
</tr>
<tr>
<td>4. 1.81km southeast of the site</td>
<td></td>
</tr>
<tr>
<td>Operator:</td>
<td></td>
</tr>
<tr>
<td>1. Fulham Football Club Ltd.</td>
<td></td>
</tr>
<tr>
<td>2. Trustees of the Hurlingham Club</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>
</table>
| 3. Hanson Quarry Prod Europe Ltd 4. London Borough of Wandsworth  
**Abstraction Purposes:** 1. Industrial, commercial and public service (sports grounds/facilities- spray irrigation) 2. Industrial, commercial and public service (sports grounds/facilities- spray irrigation) 3. Industrial, commercial and public service (mineral products-general use) 4. Industrial, commercial and public service (municipal grounds-make up or top up water)  
**Abstraction Quantity (annual):** 1. 6,500 m³ 2. 15,000 m³ 3. 23,515 m³ 4. 8,000 m³  
**Local Authorities (LA) Unlicensed Groundwater Abstractions and Details**  
- Information pending from Hammersmith and Fulham Council  
- No abstraction borehole within 1 km radius inside Wandsworth Council Boundary | | |
| borehole locations and depths | There are 7 historical records of water wells: 4 deep wells and 3 shallow wells within 1 km radius.  
Depth range: 96.3 – 152.4 m  
Depth range: 14.6 – 14.8 m | Not applicable. |
| Potential impacts on surface water features | There is a direct pathway to the Thames due to the work being undertaken on the foreshore. | Work needs to be undertaken in consideration current guidance |
## 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 groundwater (resources and quality)</td>
<td>No impact on groundwater at depth is likely since the main shaft is to be constructed in London Clay (unproductive strata). At shallow depth, the shaft is located in Kempton Gravel which is classified as a secondary aquifer. Limited impact on shallow aquifer if water is excluded from the excavation by diaphragm wall or caissons.</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 be below piezometric head in Chalk. Potential pressure effects. Limited impact on flow in shallow aquifer.</td>
<td>Confined head in Chalk to be considered as part of geotechnical design. Impact on shallow aquifer will depend on construction design.</td>
</tr>
</tbody>
</table>

**Summary:**
In terms of hydrogeology, this site is suitable as a CSO site because the drop shaft is to be constructed in London Clay (unproductive strata). The Chalk piezometric head is likely to be approximately 4.8m above the base of construction and should be taken into account in the engineering design. No impact on the Chalk aquifer is expected. Superficial deposits at the site comprise Kempton Gravel, which is classified as a secondary aquifer, and which is likely to be subject to a limited impact on flow due to the use of diaphragm walls or caissons.

This site is less suitable as a CSO site in terms of surface water resources, as the site is located within the river, and specific mitigation would 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>Barnes Common LNR and Barnes Wetland Centre SSSI are within 2km</td>
<td>None required</td>
</tr>
<tr>
<td>Non-statutory designated wildlife sites</td>
<td>Site is within River Thames and Tidal Tributaries SMI</td>
<td>The site is located within the tidal Thames, and constructions or working methods affecting the Thames, particularly above ground features of a permanent nature, but also temporary or buried works are likely to require compensatory habitat provision. There may also be post-works restoration required.</td>
</tr>
<tr>
<td>BAP priority habitats</td>
<td>The River Thames is a London BAP habitat</td>
<td>The site is located within the tidal Thames, and constructions or working methods affecting the Thames, particularly above ground features of a permanent nature, but also temporary or buried works are likely to require compensatory habitat provision. There may also be post-works restoration required.</td>
</tr>
<tr>
<td>protected or otherwise notable species within the Study Area</td>
<td>Site is located entirely on shingle. Shallow water and marginal habitat immediately downstream of 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) or dewatering in this location. Any constructions 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>
<tr>
<td>Site considerations</td>
<td>Comments</td>
<td>Mitigation required and conclusions</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>

**Summary:**
The site is less suitable as a CSO site as it would require temporary and permanent land-take from the tidal Thames, a site of metropolitan importance. This is likely to require offsite mitigation/compensation solutions as well as demanding post-works restoration. The site is immediately upstream of the stretch of the Thames known to be the only spawning habitat for smelt in the Tideway, and this may require seasonal restrictions on working.
### 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>The site is located within the 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.</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 at this stage.</td>
<td>None required.</td>
</tr>
</tbody>
</table>

**Summary:**
The site is less suitable as a CSO site, as it is located within the river channel and would require specific mitigation to protect it from flood levels, as well as potentially resulting in displacement, which could increase flood risk in the locality.
## 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 Putney High Street (A219) and Putney Wharf Tower. The nearest residential properties are within 20m from the site at Putney Wharf Tower.</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 A219 and A3209 corridors.</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 A219 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 A219 or other point of access to major road network.</td>
</tr>
<tr>
<td></td>
<td>The risk from additional exhaust emissions from construction HGVs is undefined at present. The risk from dust impacts at residential properties is high.</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 for use as a CSO site from an air quality perspective. 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 somewhat mitigated by minimising the movement of HGVs during peak hours.
<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 between 58 and 69 dB $L_{Aeq}$ and night-time noise levels of between 50 and 60 dB $L_{Aeq}$ at residential properties located at Putney Wharf Tower on Brewhouse Lane to the south of the site. The residential properties facing the site are likely to experience relatively moderate daytime and night-time noise levels due to their distance to the A219 Putney Bridge Approach. 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 are located to the west on the corner of Putney High Street and Lower Richmond Road. St Mary’s Church is also located to the south of the site. On the other side of the tidal Thames lies Swanbank Court. Sensitive receptors to the south at Putney Wharf Tower consist of between 8-15 storey residential dwellings. These are located at a distance of approximately 20m from the southern site boundary. Sensitive receptors to the west are located approximately 55m away and St Mary’s Church is approximately 15 metres to the</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
## Site suitability report C06XM

### Noise

<table>
<thead>
<tr>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>south. There are a number of sensitive receptors adjacent to the site access route, including properties on Brewhouse Lane and along Putney High Street which will be considerably affected by HGV traffic.</td>
<td></td>
</tr>
<tr>
<td>Existing traffic issues</td>
<td>Local road traffic, coupled with more distant road traffic on the A219 to the west and north and the A3209 to the south will contribute to the local noise climate in the area.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Existing sources of significant noise emissions</td>
<td>Local road traffic, coupled with more distant road traffic on the A219 to the west and north and the A3209 to the south 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 – 4 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 Putney Wharf Tower on Brewhouse Lane. A relatively large number of daily HGV movements are anticipated, and this has the potential to result in adverse noise impacts along the length of Brewhouse Lane, off which permanent access is proposed. The immediate site area is fairly small and, whilst the shaft location may be fixed, ancillary plant should be sited as far as is practicable from surrounding receptors.</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>
<th>Site considerations</th>
<th>Comments</th>
<th>Mitigation required and conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sensitive receptors. Situating plant in the northern area 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 20m and it is unlikely that vibration levels will result in minor cosmetic damage during shaft sinking but may give rise to annoyance. Vibration from 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>
<tr>
<td>Summary:</td>
<td>The site is less suitable as a CSO site due to the proximity of the residential receptors to the south of the site, and because any shielding afforded by the site perimeter barriers would be largely ineffectual due to the height of some of the receptors. In addition, the number of vehicles associated with the construction phase and the proposed access route is likely to impact on the residential properties on Brewhouse Lane.</td>
<td></td>
</tr>
</tbody>
</table>
### Land quality

<table>
<thead>
<tr>
<th>Site Location</th>
<th>Grid Reference: 524205, 175625</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Site Use</td>
<td>Foreshore in front of St Mary’s Church</td>
</tr>
<tr>
<td>Topography</td>
<td>Foreshore of the tidal Thames</td>
</tr>
<tr>
<td>Field Evidence of contamination (ie, visual/olfactory)</td>
<td>None</td>
</tr>
</tbody>
</table>
| Current surrounding land use (immediately adjacent to site) | North: River Thames, adjacent to Putney Bridge  
East: (South East) The river embankment, private, modern development with views over river and site.  
South: St Mary’s Church and Busy Bees Nursery in grounds of church between church and site.  
West: Putney Bridge. Direct views of the site not possible from the bridge unless leaning over the parapet |

### Geological and Hydro geological Information

<table>
<thead>
<tr>
<th>Geological Strata(^1)</th>
<th>Geology (thickness)</th>
</tr>
</thead>
</table>
|                          | • Superficial Geology and Made Ground (1m)  
• London Clay (43m)  
• Lambeth Group (18m)  
• Thanet sand (12m) |

| Underlying Aquifer Classes | Unproductive Strata: London Clay  
Secondary Aquifer: River Terrace Deposits, Lambeth Group, Thanet Sands  
Principal Aquifer: Chalk |
|---------------------------|-----------------------|

| Groundwater Vulnerability/Soil Classification (High/Intermediate/Low/Not Applicable)\(^2\) | River Terrace Deposits – Minor Aquifer  
High Leaching Potential of Soils (U)\(^1\) |
|---------------------------------|----------------------------------|

<table>
<thead>
<tr>
<th>Source Protection Zone Details</th>
<th>Not located in a Source Protection Zone</th>
</tr>
</thead>
</table>

| Surface Water Receptor | Site located within the tidal Thames |

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

<table>
<thead>
<tr>
<th>Historical Potentially Contaminating Activities (based on mapping data)</th>
<th>Onsite</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Historical maps show the site’s land use has remained largely unchanged. The site is located on sand and shingle adjacent to the tidal Thames and below the Mean High Water Level from 1874 onwards</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 9: Environmental appraisal tables

#### Land quality

<table>
<thead>
<tr>
<th>Offsite</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Depot, use not specified (5m south) 1954 – 1968</td>
<td></td>
</tr>
<tr>
<td>• Tanks (35m south, 125m southeast, 160m southwest) 1951 – 1969 and (158m southwest and 230m southwest) no mapping dates</td>
<td></td>
</tr>
<tr>
<td>• Mills, use not specified (45m southeast) 1896 – 1899</td>
<td></td>
</tr>
<tr>
<td>• Gas Works (45m southeast) 1954 – 1968, with suction gas plant (90m south east), two gas engines/dynamos (81m south) and associated gas use, fuel tanks and oil storage (87 – 202m southeast to south of site)</td>
<td></td>
</tr>
<tr>
<td>• Wharf, (transport support and cargo handling), (75m southeast) 1896 - 2009</td>
<td></td>
</tr>
<tr>
<td>• Works, use not specified (140m southwest) 1954 – 1968</td>
<td></td>
</tr>
<tr>
<td>• Electrical substations (151m southeast and 243m west) 1969 – 1971, (240m northeast) 1951 – 1952</td>
<td></td>
</tr>
<tr>
<td>• Asbestos curtain feature from historical building plans (180m south), interpreted to be the flameproof curtain from a historical theatre no mapping dates</td>
<td></td>
</tr>
<tr>
<td>• Paint based oils feature from historical building plans (221m southwest), interpreted to be a historical paint manufacturing site no mapping dates</td>
<td></td>
</tr>
<tr>
<td>• Railway line (230m southeast) 1896 – 2009</td>
<td></td>
</tr>
</tbody>
</table>

#### Pollution Incidents to controlled waters

<table>
<thead>
<tr>
<th>Four:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Unknown, minor incident (54m north)</td>
</tr>
<tr>
<td>• Unknown, significant incident (93m northeast)</td>
</tr>
<tr>
<td>• Sewage, major incident (243m northwest)</td>
</tr>
<tr>
<td>• Sewage, major incident (247m northwest)</td>
</tr>
</tbody>
</table>

#### Landfill Sites

<table>
<thead>
<tr>
<th>None</th>
</tr>
</thead>
</table>

#### Other Waste Sites

<table>
<thead>
<tr>
<th>None</th>
</tr>
</thead>
</table>

#### Registered Radioactive Substances

<table>
<thead>
<tr>
<th>None</th>
</tr>
</thead>
</table>

#### Fuel Stations/Depots

<table>
<thead>
<tr>
<th>None</th>
</tr>
</thead>
</table>

#### Contemporary Trade Directory Entries

<table>
<thead>
<tr>
<th>One:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Photographic Processors, Active (143m southwest)</td>
</tr>
</tbody>
</table>

#### 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>Potential Site Contaminants derived</td>
<td>Not Applicable as site located within</td>
<td>Not Applicable as site located</td>
</tr>
</tbody>
</table>
### Appendix 9: Environmental appraisal tables

#### Land quality

<table>
<thead>
<tr>
<th>Source of Contamination</th>
<th>Category 1 – Assessed as Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>from surface sources (e.g. contaminants in made ground)</td>
<td>the tidal Thames</td>
</tr>
<tr>
<td>Potential Site Contaminants derived from offsite sources and transported to site</td>
<td>1) Depot</td>
</tr>
<tr>
<td></td>
<td>2) Tanks</td>
</tr>
<tr>
<td></td>
<td>3) Gas Works</td>
</tr>
<tr>
<td>Potential Contamination Pathways to Site (Conceptual Site Model)</td>
<td>Source 1: A1, A2, A3, B4</td>
</tr>
</tbody>
</table>

#### Summary:
The site is suitable as a CSO site as there is little potential for contamination from historical on- and off-site activities. This is due to the distance of potential sources of contamination from the site.

#### 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