

**Thames Tideway Tunnel**  
Thames Water Utilities Limited



# Application for Development Consent

Application Reference Number: WWO10001

## Final Report on Site Selection Process

Doc Ref: **7.05**

### **Volume 3**

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

Hard copy available in

Box **47** Folder **A**  
January 2013

**Thames  
Tideway Tunnel**



Creating a cleaner, healthier River Thames

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# Thames Tideway Tunnel

## Final Report on Site Selection Process

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- Volume 3:** Acton Storm Tanks (this document)
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# Thames Tideway Tunnel

## Final Report on Site Selection Process Volume 3: Acton Storm Tanks

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# 1 Introduction

## 1.1 Introduction to the Thames Tideway Tunnel project

- 1.1.1 At present, untreated sewage mixed with rainwater (combined sewage) regularly overflows into the tidal reaches of the River Thames from London's Victorian sewerage system via combined sewer overflows (CSOs).
- 1.1.2 Combined sewage discharges must be reduced in order to comply with relevant wastewater legislation. The primary objective of the proposed Thames Tideway Tunnel project (the 'project') is to control discharges from CSOs in order to meet the requirements of the European Union's Urban Waste Water Treatment Directive (91/271/EEC) (UWWTD) and the related United Kingdom legislation.
- 1.1.3 The Environment Agency has identified 34 'unsatisfactory' CSOs that the project needs to address. The project would control CSO discharges by intercepting and diverting combined sewage flows into a new storage and transfer tunnel. The 'main tunnel' would run from west London to Abbey Mills in the east where it would connect to the Lee Tunnel. The Lee Tunnel would then transfer the flows to Beckton Sewage Treatment Works for treatment.

## 1.2 Introduction to this volume

- 1.2.1 The *Site selection methodology paper* states that the project team shall produce a final report that sets out the site selection process in full. This *Final Report on Site Selection Process* was prepared for that purpose. Volume 1 of this report explains our approach to identifying the sites required to construct and operate the project and includes a glossary of relevant terminology. Volume 2 comprises the complete *Site selection methodology paper* and *Site selection background technical paper*, which were the main documents that guided the site selection process. Volumes 3 to 23 describe the site selection process for each of the sites considered on the Abbey Mills route.
- 1.2.2 This volume sets out the site selection process that was followed to identify the most suitable site to construct the western sections of the main tunnel at each phase of the pre-application process. This is summarised below in Table 1.1.

**Table 1.1 Summary of sites identified at each phase of the pre-application process**

Phase	Site name	Site use
Phase one consultation	Acton Storm Tanks	To intercept the Acton Storm Relief CSO and receive the connection tunnel from Hammersmith Pumping Station

Phase	Site name	Site use
Phase two consultation	Acton Storm Tanks	To intercept the Acton Storm Relief CSO and receive the main tunnel from Carnwath Road Riverside*
Section 48 publicity	Acton Storm Tanks	As above
Submission of the application	Acton Storm Tanks	As above

\* The connection tunnel was replaced by the extension of the western end of the main tunnel

1.2.3 This volume is structured as follows:

- a. This section describes the type of site needed and summarises how the *Site selection methodology paper* was applied at each stage of the pre-application process.
- b. Section 2 explains how we identified our preferred site to intercept the CSO and receive the connection tunnel for phase one consultation.
- c. Section 3 details the post phase one consultation site selection review and explains why we changed the use of our preferred site to intercept the CSO and receive the main tunnel for phase two consultation.
- d. Section 4 describes the post phase two consultation site selection review and how we confirmed our proposed site to intercept the CSO and receive the main tunnel for Section 48 publicity.
- e. Section 5 describes the post Section 48 publicity site selection review and confirms our selected site to intercept the CSO and receive the main tunnel for the application.

## 1.3 Type of site

1.3.1 We need a site to intercept the local combined sewer overflow (CSO) known as the Acton Storm Relief CSO, and connect it to the main tunnel.

1.3.2 We also needed to identify a series of suitable sites to allow us to build and operate the main tunnel. The main tunnel would transfer the collected overflows to the Abbey Mills Pumping Station, which would then be transferred via the Lee Tunnel (under construction) to Beckton Sewage Treatment Works.

1.3.3 Larger sites are required where a tunnel boring machine (TBM) would be inserted into the ground (known as main tunnel drive sites). This type of site would need to handle all the materials excavated by the TBM as it constructs that section of the tunnel. Smaller sites are required to remove the TBM from the ground at the end of a tunnel drive (known as main tunnel reception/intermediate sites). A more detailed description of the different types and sizes of sites required to construct and operate the project can be found in the *Site selection background technical paper*.

### 1.4 Site selection process

- 1.4.1 The *Site selection methodology paper* recognises the vital complementary relationship between the site selection process and engineering design developments. Accordingly, as the site selection process progressed it was increasingly important to compare sites against engineering requirements. A fundamental consideration was the need to identify enough sites in the right locations to enable the project to be built.
- 1.4.2 All potential sites were identified in accordance with our *Site selection methodology paper*, which involved a ‘sieving’ approach that commenced with the identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites). The main tunnel sites went through levels of increasingly detailed assessments. All the assessments were informed by a multidisciplinary approach that took into account engineering, planning, environmental, community and property considerations and our teams’ professional judgement.
- 1.4.3 Prior to phase one consultation, we applied our multidisciplinary sieving approach to all the assessments outlined in the *Site selection methodology paper* (summarised at paragraph 2.1.2) for all three main tunnel route options under consideration at this stage of the pre-application process. This process is set out below in Section 2. In Volume 1, Section 4 there is a more detailed discussion of the tunnelling options and comparisons for the main tunnel on the three proposed routes.
- 1.4.4 Following phase one consultation, we reviewed the preferred site and decided to carry out a ‘back-check’ (as set out in the *Site selection methodology paper*) in order to review the preferred and shortlisted sites prior to phase two consultation. This back-check involved a repeat of each relevant stage of our site selection process to reconsider which sites would be most suitable to construct the main tunnel, including a re-examination of main tunnel drive options, to identify the preferred main tunnel site and use. The back-check utilised the same multidisciplinary approach that was followed prior to phase one consultation. The results of this back-check process are presented below in Section 3 and superseded all previous assessments undertaken prior to phase one consultation and reported in Section 2. This is the result of the iterative nature of the process. In Volume 1, Section 6 there is a more detailed discussion of the tunnelling options and comparisons for the main tunnel on the preferred Abbey Mills route.
- 1.4.5 Following phase two consultation, we reviewed the possible main tunnel sites. This involved re-checking the selection of sites identified as most suitable main tunnel sites associated with the preferred Abbey Mills route in order to confirm the proposed main tunnel sites and uses for Section 48 publicity. This process is set out below in Section 4 (also see Volume 1, Section 7 for tunnelling review).
- 1.4.6 Following Section 48 publicity, we reviewed our proposals having regard to the feedback from the publicity exercise. The purpose of this review was to define and decide any changes to our final proposals for the

application. Every proposed main tunnel site on the Abbey Mills route was re-checked in order to confirm its selection for the application. This process is set out in Section 5. In Volume 1, Section 8 there is a review of tunnelling options and comparisons for the main tunnel on proposed Abbey Mills route.

## 2 Phase one consultation preferred CSO site: Site selection process

### 2.1 Introduction

- 2.1.1 This section explains how the *Site selection methodology paper* was implemented in order to arrive at the preferred site to intercept the Acton Storm Relief CSO and connect it to the main tunnel for phase one consultation. This stage took place from Spring 2009 to Summer 2010.
- 2.1.2 In order to arrive at the preferred site for phase one consultation, the site selection process comprised:
- a. identification of sites for inclusion on a long list
  - b. assessment of sites on the long list to create a draft short list
  - c. assessment of the draft shortlisted sites to create a final short list
  - d. preparation of detailed site suitability reports for each final shortlisted site; preparation of the *Engineering options report* (Spring 2010) with the tunnelling drive options
  - e. a multidisciplinary optioneering workshop to consider the suitability of each of the shortlisted sites and identify the preferred CSO site to intercept the Acton Storm Relief CSO and connect this to the main tunnel for phase one consultation.
- 2.1.3 The assessments described in this section were based on the information available at the time and the related stage in the pre-application process. The assessments in this section comprise a historic representation of the process and all of the assessments have been superseded by the ones set out in Section 3.

### 2.2 Assessment of the long list sites

- 2.2.1 The long list of potential sites to intercept the Acton Storm Relief CSO was created by conducting a desktop survey of the land in the vicinity of the existing sewer.
- 2.2.2 In total, 28 sites were included on the long lists. The sites were assessed having regard to the high-level considerations set out in Table 2.2 of the *Site selection methodology paper* (hereafter referred to as SSMP Table 2.2), which included engineering (site size, site features, availability of a jetty/wharf, and access), planning and environment (heritage, landscape/townscape, open space and ecology), and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.
- 2.2.3 Table 2.1 below provides a summary of the outcome of the SSMP Table 2.2 assessment of the long list of sites considered for the interception of the CSO. Sites that were identified to be the least constrained in light of the SSMP Table 2.2 considerations passed to the

draft short list. This did not necessarily mean that these sites were ultimately judged to be suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out in SSMP Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed assessment. The main rationale for excluding these sites at this stage is summarised below in Table 2.1.

**Table 2.1 Long list to draft short list SSMP Table 2.2 assessment**

Site ID	Site name/description	Recommendation and rationale
C01XA	Foreshore of Chiswick Eyot	<b>Recommendation:</b> To draft short list.
C01XB	Chiswick Eyot	<b>Recommendation:</b> To draft short list.
C01XC	Shoreline and river between land and Chiswick Eyot	<b>Recommendation:</b> To draft short list.
C01XD	Riverside gardens of river front properties	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The gardens are part of the residential curtilage.
C01XE	Private gardens backing large river front properties	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The gardens are part of the residential curtilage.
C01XF	Chiswick Maternity Hospital (derelict)	<b>Recommendation:</b> To draft short list.
C01XG	Gardens backing river front properties	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The gardens are part of the residential curtilage.
C01XH	British Grove South	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The site is small and difficult to access. It also comprises residential curtilage.
C01XJ	Netheravon Road South from Great Western Road (A4) to area fronting Chiswick Maternity Hospital	<b>Recommendation:</b> To draft short list.
C01XK	Junction of British Grove and Netheravon Road	<b>Recommendation:</b> To draft short list.
C01XL	Green area between Great Western Road and	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering

## 2 Phase one consultation preferred CSO site: Site selection process

Site ID	Site name/description	Recommendation and rationale
	Netheravon Road South	connection to the sewer would be long and difficult.
C01XM	Gardens to houses between Netheravon Road and Airedale Avenue	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> Access to the site is poor and the site includes residential curtilage.
C01XN	Homefield Recreation Ground	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XP	Tree and grass area including footpath/verge fronting Great Western Road, with part of Berestede Road	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XQ	Park within St Peters Square	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XR	Part Beverley Road, part area behind residences	<b>Recommendation:</b> To draft short list.
C01XS	Tree/grass gardens fronting Prebend Gardens	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> Access to the site is poor.
C01XT	Car park at south end of Welstead Way	<b>Recommendation:</b> To draft short list.
C01XU	Grassed area fronting Stamford Brook Road	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XV	Park fronting Stamford Brook Road	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XW	Grassed area fronting Stamford Brook Road	<b>Recommendation:</b> To draft short list.

Site ID	Site name/description	Recommendation and rationale
C01XX	Car parking area to block of flats adjacent Goldhawk Road	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The site is highly restrictive with a long and difficult engineering connection to the sewer. It also includes residential curtilage.
C01XY	Wendall Park	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The engineering connection to the sewer is would be long and difficult.
C01XZ	Grassed area between the rear gardens of houses on Woodstock Road and the high rise blocks of flats behind	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The work conditions on the site would be highly restrictive and the site has poor access.
C01YA	Area to the south west of the boundary wall of Acton Storm Tanks	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The site is too narrow and has poor access.
C01YB	Areas in front of block of flats on Warple Way	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The site is too narrow and has poor access.
C01YC	Area of Acton Storm Tanks	<b>Recommendation:</b> To draft short list.
C01YD	Airedale Avenue South cul de sac	<b>Recommendation:</b> Not to draft short list. <b>Rationale:</b> The site is small with constrained access and a long and difficult engineering connection to the sewer. It also comprises residential curtilage.

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

2.2.4 Of the 28 sites identified, 10 were assessed as potentially suitable and passed to the draft short list, and 18 sites were eliminated as unsuitable.

## 2.3 Assessment of draft short list sites

2.3.1 The remaining 10 sites identified for further assessment at the next stage were:

- a. C01XA: Foreshore of Chiswick Eyot

- b. C01XB: Chiswick Eyot
- c. C01XC: Shoreline and river between land and Chiswick Eyot
- d. C01XF: Chiswick Maternity Hospital (derelict)
- e. C01XJ: Netheravon Road South from Great Western Road (A4) to area fronting Chiswick Maternity Hospital
- f. C01XK: Junction of British Grove and Netheravon Road
- g. C01XR: Part Beverley Road, part area behind residences
- h. C01XT: Car park at south end of Welstead Way
- i. C01XW: Grassed area fronting Stamford Brook Road
- j. C01YC: Area of Acton Storm Tanks.

2.3.2 These sites were further assessed by the engineering, planning, environment, community, and property disciplines, having regard to the considerations set out in Table 2.3 of the *Site selection methodology paper* (hereafter referred to as SSMP Table 2.3) which included: engineering (site size, distance and route to the river, jetty/wharf facilities, means of road/rail access, site features, site efficiency, tunnelling and systems engineering requirements); planning and environment (planning applications/permissions, London Plan/UDP/LDF allocations or special policy areas, heritage designations, landscape/open space designations, ecological designation, transport and amenity); property (ownership of site, tenant on site, estimated acquisition cost, Crown land and special land, access and material transfer rights) and community (proximity to sensitive receptors, social, economic, health and equality considerations). This stage of the process built on the information gathered and the assessment undertaken at the long list stage but focussed on more detailed local considerations.

2.3.3 At this stage, we also consulted with each of the London local authorities along the route of the project and other pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of the sites for the short list.

2.3.4 Table 2.2 below summarises the outcome of the SSMP Table 2.3 assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the SSMP Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at SSMP Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The decision of whether or not to retain a site on the short list was taken at a multidisciplinary workshop. The main rationale for excluding sites at this stage is summarised below in Table 2.2.

**Table 2.2 Draft short list to final short list SSMP Table 2.3 assessment**

Site ID	Site name/description	Recommendation and rationale
C01XA	Foreshore of Chiswick Eyot	<b>Recommendation:</b> Not to short list. <b>Rationale:</b> Preliminary consultations with statutory consultees raised significant concerns over the use of this site.
C01XB	Chiswick Eyot	<b>Recommendation:</b> Not to short list. <b>Rationale:</b> Preliminary consultations with statutory consultees raised significant concerns over the use of this site.
C01XC	Shoreline and river between land and Chiswick Eyot	<b>Recommendation:</b> Not to short list. <b>Rationale:</b> Preliminary consultations with statutory consultees raised significant concerns over the use of this site.
C01XF	Chiswick Maternity Hospital (derelict)	<b>Recommendation:</b> Retain on short list
C01XJ	Netheravon Road South from Great Western Road (A4) to area fronting Chiswick Maternity Hospital	<b>Recommendation:</b> Not to short list. <b>Rationale:</b> <ul style="list-style-type: none"> <li>• Engineering: The site is small and the shape would make work difficult. Also, the shaft level would be above ground so there would be no possibility of locating it in a public road.</li> <li>• Transport: There would likely be access issues.</li> <li>• Property: This is a difficult site and would require replacement of access to properties possibly require us to take gardens.</li> </ul>
C01XR	Part Beverley Road, part area behind residences	<b>Recommendation:</b> Not to short list. <b>Rationale:</b> <ul style="list-style-type: none"> <li>• Engineering: It is a small and narrow site with a restricted working area. The access route is potentially unsuitable for heavy goods vehicles due to the need to use narrow</li> </ul>

Site ID	Site name/description	Recommendation and rationale
		<p>residential roads with parking on either side.</p> <ul style="list-style-type: none"> <li>Community: There would be a significant impact on residential amenity, including the use of residential gardens and the residential road network, which might result in adverse impacts community cohesion.</li> </ul>
C01XT	Car park at south end of Welstead Way	<b>Recommendation:</b> Retain on short list.
C01XW	Grassed area fronting Stamford Brook Road	<p><b>Recommendation:</b> Not to short list.</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>Engineering: The site is constrained particularly in terms of features (substation and electricity cables).</li> <li>Community: Concerns regarding the significant impact on community considerations due to a large number of sensitive receptors, which would result in potential health and equality impacts. A church and open space adjacent to the proposed site might also be affected.</li> </ul>
C01YC	Area of Acton Storm Tanks	<b>Recommendation:</b> Retain on short list.

NB: The site ID and site name/description were used as an internal mechanism to record and describe the site but were updated where necessary.

2.3.5 Of the 10 sites on the draft short list, three were assessed as potentially suitable and passed to the final short list, and seven sites did not proceed.

## 2.4 Assessment of the final short list sites

2.4.1 The three sites identified for the inclusion on the final short list and assessment at the next stage were:

- a. C01XF: Chiswick Maternity Hospital (derelict)
- b. C01XT: Car park at south end of Welstead Way
- c. C01YC: Area of Acton Storm Tanks.

2.4.2 A site suitability report was prepared for each of these final shortlisted sites. These reports contained an assessment of each site's suitability in

light of engineering, planning, environment, community and property considerations. At this stage in the process, no comparisons were drawn between other sites; they were assessed in isolation and with no regard to tunnelling strategy. Sites were evaluated by each discipline using our teams' technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline's perspective based on the available information at this stage of the pre-application process.

2.4.3 A summary of the conclusions of each discipline's assessment from the site suitability reports is provided below.

### **C01XF: Former Chiswick Maternity Hospital (derelict)**

2.4.4 Site C01XF comprises the former Chiswick Maternity Hospital, known as Chiswick Lodge, situated on Netheravon Road South, Chiswick. The site extends between Netheravon Road to the north and Chiswick Mall to the south. The surrounding area is characterised by residential properties that front onto Chiswick Mall and face the River Thames. The site is in the London Borough of Hounslow.

2.4.5 **Engineering:** The site was considered **suitable** for use as a CSO interception site as there were no restrictions in terms of access and working area and no major utilities that run through the site.

2.4.6 **Planning:** The site was considered **less suitable** for use as a CSO site. The site is subject to a number of planning and environmental designations including a conservation area and listed buildings. The current status and implementation timescales for the redevelopment of the site required further investigation and on-going monitoring.

2.4.7 **Environment:** Overall, the site was considered **suitable** for use as a CSO site. The site was considered **suitable** from the perspectives of transport, archaeology, townscape, water resources, ecology and flood risk. However, the site was considered **less suitable** from the perspectives of built heritage, air quality, noise and land quality. Various mitigation measures would be required.

2.4.8 **Socio-economic and community:** The site was considered **suitable** for use as a CSO site. We recognised that there might be impacts on adjacent residential properties and mitigation would be required.

2.4.9 **Property:** The site was considered **suitable** for use as a CSO site. The site is a brownfield site and likely to have a resale value, which would offset the cost of acquisition. There was also a low prospect of offsite compensation being required.

### **C01XT: Car park at south end of Welstead Way**

2.4.10 Site C01XT is located in a public car park at the southern end of Welstead Way, Chiswick. The site is roughly rectangular in shape and located approximately 200m south of Bath Road/Brook Road. The site is bounded by the rear gardens of residential dwellings to the east, north and west, and by the elevated London Underground District Line to the south. The site is in the London Borough of Hounslow.

- 2.4.11 **Engineering:** The site was considered **suitable** for use as a CSO interception site as it is of a sufficient size and the sewer runs beneath the site, which would allow all works to be contained in one area.
- 2.4.12 **Planning:** The site was considered **less suitable** for use as a CSO site. The proposal site is enclosed by residential properties along three site boundaries, with short separation distances between the properties and the construction works.
- 2.4.13 **Environment:** Overall, the site was considered **suitable** for use as a CSO site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage and townscape, water resources (hydrogeology and surface water), ecology, flood risk and land quality. However, the site was considered **less suitable** from the perspectives of air quality and noise. Various mitigation measures would be required.
- 2.4.14 **Socio-economic and community:** The site was considered **less suitable** for use as a CSO site. We recognised that there might be impacts on residential properties adjacent to the site and appropriate mitigation would be required for noise and visual disruption.
- 2.4.15 **Property:** The site was considered **suitable** for use as a CSO site. Site acquisition costs were likely to be acceptable, although owner of the land was not known at this stage. It was also unlikely that there would be disturbance compensation claims.
- C01YC: Acton Storm Tanks**
- 2.4.16 Site C01YC is located on land within the curtilage of a Thames Water pumping station and storm water storage tanks fronting Warple Way, Acton. The site is currently open land and forms part of the landscaped area of the pumping station, situated at the southernmost tip of the pumping station site.
- 2.4.17 The site is bounded to the north by Canham Road and industrial units. The east and southeast of the site are bounded by Warple Way and residential properties with further dwellings along Greenend Road to the southwest and west. The site is located in the London Borough of Ealing, but close to the boundary of London Borough of Hammersmith and Fulham.
- 2.4.18 **Engineering:** The site was considered **suitable** for use as a CSO site as it is large enough to fit all the site facilities, access is reasonable and the land is owned by Thames Water. It should be noted, however, that this site is a considerable distance from the river.
- 2.4.19 **Planning:** The site was considered **suitable** for use as a CSO site. Although the site is near residential properties, appropriate mitigation could reduce any impact on amenity.
- 2.4.20 **Environment:** Overall, the site was considered **suitable** for use as a CSO site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources, flood risk, and ecology. However, the site was considered **less suitable** from the perspectives of air quality, noise and land quality. Various mitigation measures would be required.

- 2.4.21 **Socio-economic and community:** The site was considered **suitable** as a CSO site. We recognised that there might be impacts on residents in the housing development to the east and southeast of the site and appropriate mitigation would be required for noise and other types of disruption.
- 2.4.22 **Property:** The site was considered **suitable** for use as a CSO site as the land is owned by Thames Water.

### 2.5 Phase one consultation preferred site

- 2.5.1 Following the completion of the site suitability reports, we held a multidisciplinary workshop to compare the suitability of each shortlisted site based on the site suitability report assessment and to make a recommendation as to which site should be identified as the preferred site.
- 2.5.2 Of the three shortlisted sites, **Acton Storm Tanks (CO1YC)** was identified as the preferred site for the following reasons (not in order of importance):
- The building on site C01XF had been derelict for a considerable period of time but site activities, including partial demolition, earthworks and foundation construction commenced in Spring 2010. We therefore considered that, as redevelopment of the site had started, the Former Maternity Hospital, Netheravon Road South site should be considered unavailable as a possible worksite for the interception of the local CSO.
  - The remaining two shortlisted sites would provide a suitably sized construction area to enable efficient working.
  - C01YC would provide a suitable clear area of land and we considered that there was less of a risk of it becoming unavailable due to changes of use or redevelopment. Furthermore, the site is within an existing operational site owned by Thames Water. The environmental impact of using C01YC was assessed as low. The key consideration was mitigation of noise and dust impacts on the adjacent residential properties.
  - C01XT is bounded by residential dwellings along three sides and we considered that work at this site would subject adjacent properties to some air quality, noise and vibration impacts during construction. Access to the site would be via a relatively narrow residential carriageway and potentially disturb the community and disrupt traffic.
- 2.5.3 In addition to the CSO interception at Acton Storm Tanks (CO1YC), this site would also receive a connection tunnel from Hammersmith Pumping Station (S33HF).
- 2.5.4 Table 2.3 below sets out the preferred site and use.

**Table 2.3 Preferred site and use for phase one consultation**

**Site:** C01YC: Acton Storm Tanks

**Use:** To intercept the Acton Storm Relief CSO and receive the connection tunnel from Hammersmith Pumping Station

## 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

### 3.1 Introduction

3.1.1 This section explains how we implemented the *Site selection methodology paper* in order to arrive at the preferred site to intercept the Acton Storm Relief CSO and receive the western end of the main tunnel for phase two consultation. This stage took place from Winter 2010 to Autumn 2011.

3.1.2 Following phase one consultation and prior to phase two consultation, the site selection process comprised:

- a. a review of comments from phase one consultation
- b. consideration of any ongoing scheme design and/or any new information received
- c. a back-check exercise to review the sites listed in Section 2 along with any potential new sites or a combination of sites
- d. application of the assessment process outlined in 2.1.2, including the preparation of a new *Engineering options report – Abbey Mills route* (Summer 2011) with revised tunnelling drive options
- e. a multidisciplinary optioneering workshop to consider the detailed contents of the site suitability report for each shortlisted site and the *Engineering options report – Abbey Mills route* (Summer 2011)
- f. comparison of sites to identify the preferred main tunnel site and use (drive or reception/intermediate) for phase two consultation (also see Volume 1, Section 6 for the pre-phase two consultation discussion of tunnelling drive options).

3.1.3 The assessments described in this section were based on the information available at the time and the related stage in the pre-application process.

### 3.2 Summary of phase one consultation feedback

3.2.1 Details of the consultation comments related to the proposed use of the Acton Storm Tanks site and our responses are provided in the *Report on phase one consultation*. The main concerns raised relevant to site selection can be summarised as follows:

- a. impact on residential amenity during construction
- b. existing odour problems on the site
- c. increased congestion and alternative access arrangements should be explored
- d. impact on the conservation area
- e. impact of subsidence on buildings and structures

- f. the whole site requires improvement
  - g. impact of odour on completion of the works.
- 3.2.2 The main comments received in support of the phase one consultation preferred site included:
- a. The land is already in Thames Water's ownership.
  - b. The site has an existing utility purpose and facilities, so will have the least impact on surrounding area.
  - c. The proposed design for after-use of the site is acceptable.
  - d. The site as it currently exists is unappealing and the proposals provide an opportunity to significantly improve the area.
  - e. The site is large enough and feasible in all other respects.
- 3.2.3 Having taken all comments received during phase one consultation into account, we still believed that Acton Storm Tanks was the most appropriate CSO site because the site is of adequate size, on the line of the existing sewer and located in an existing Thames Water operational site. We recognised the concerns that were raised, including the impact on residential amenity and traffic congestion and took them into account in developing the project further, including measures to minimise potential impacts.

## 3.3 Back-check process

- 3.3.1 The tunnelling strategy proposed during phase one consultation utilised the Acton Storm Tanks site to intercept the local CSO and connect it to the main tunnel via a connection tunnel to the Hammersmith Pumping Station site (S33HF). It was proposed that this connection tunnel would be driven from the Hammersmith Pumping Station site and the site at Acton Storm Tanks would be used to receive the TBM that would create this connection tunnel.
- 3.3.2 Design development identified that a larger diameter connection tunnel was required to connect the Acton Storm Tanks CSO to the main tunnel than originally anticipated at phase one consultation. The Acton Storm Tanks site is also large enough to potentially be suitable as a main tunnel site.
- 3.3.3 In addition to the design development of our tunnelling strategy, a significant planning constraint was identified in relation to the use of the Hammersmith Pumping Station site (S33HF) as a main tunnel reception site and to drive the connection tunnel to Acton Storm Tanks, as a new planning application had been submitted for the site. The Hammersmith Pumping Station site already had planning permission for a mixed-use development. However, the site was then purchased and the new landowner submitted a revised planning application for a major residential development for the whole of the site, including the area identified as our preferred site at phase one consultation. In addition, the London Borough of Hammersmith and Fulham's emerging Local Development Framework reallocated the site from offices to residential use. This new planning

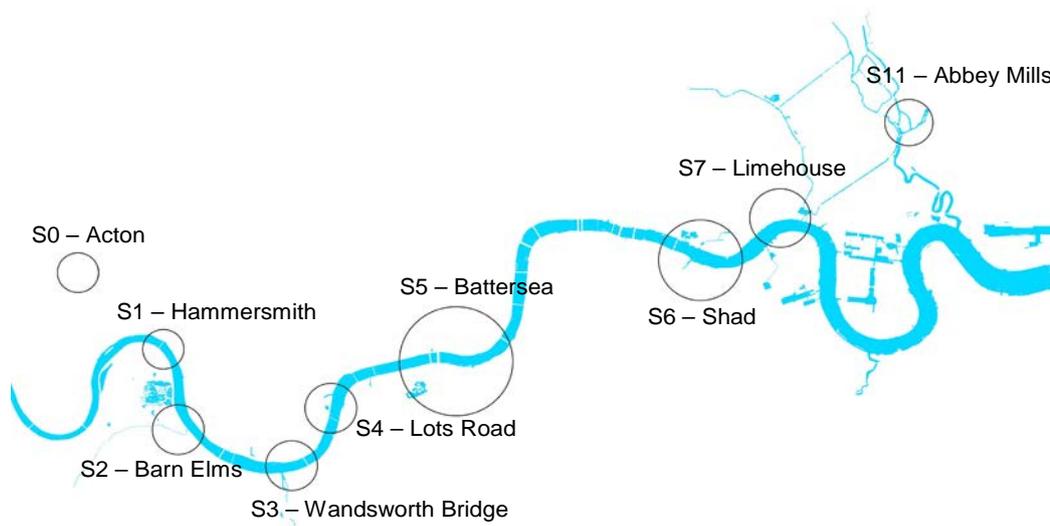
### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

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application and the revised allocation increased the acquisition complexities and potential cost of the site. All these factors significantly increased the risk that the Hammersmith Pumping Station site would not be available to be used as proposed at phase one consultation.

- 3.3.4 Extensive negotiations with the owner of the Hammersmith Pumping Station site resulted in a change in our proposed use of the site as it became clear that the only viable option was to use the site to intercept the local CSO (known as the Hammersmith Pumping Station CSO). Further details can be found in Volume 4.
- 3.3.5 As a result of the changes to the tunnelling strategy and other engineering considerations, as well as the planning and property issues at Hammersmith Pumping Station, we began a review of the tunnelling strategy for the western end of the main tunnel to address the possibility of extending the main tunnel to Acton Storm Tanks.
- 3.3.6 A back-check involving a targeted repeat of each relevant stage of our site selection process (as set out in the Site selection methodology paper) was therefore undertaken to identify sites in the Acton area that could potentially be used as a main tunnel site for the western end of the main tunnel.
- 3.3.7 In developing the tunnelling strategy for phase one consultation, the final shortlisted main tunnel sites were grouped geographically into 'zones', and tunnel drive options were identified with an illustration of how the sites in the various zones could be connected to construct the main tunnel. These tunnel drive options defined the tunnelling direction between zones and the type of site (either main tunnel drive or reception site) required in a zone.
- 3.3.8 The need for a new main tunnel site in the Acton area to construct the western end of the main tunnel required us to create a new zone, Zone S0, as shown on Figure 3.1. Once we had identified a short list of suitable sites in Zone S0, we could consider the tunnel drive options utilising this new zone.

**Figure 3.1 Revised main tunnel shaft zones including Zone S0**



### Engineering assumptions

- 3.3.9 As part of the back-check process, the engineering assumptions from the initial phase of site selection were reviewed to see if any of the design developments or new technical information altered the original assumptions.
- 3.3.10 The outcome of this review was that the size of construction site required for a main tunnel drive shaft in Zones S0 to S4 (which covered the majority of the section of the tunnel that must be constructed predominantly in London Clay) was reduced from 18,000m<sup>2</sup> to 15,000m<sup>2</sup>. This change allowed the back-check process to review sites that were previously considered too small for main tunnel drive sites. At the same time, the size of site required for a double drive site (ie, tunnelling in two directions simultaneously from one shaft) was adjusted to 20,000m<sup>2</sup> (see Section 4.4 of the *Site selection background technical paper* (Summer 2011)).
- 3.3.11 The following section outlines the results of each stage of the back-check process.

### Assessment of the back-check long list

- 3.3.12 As Zone S0 was newly identified there was no original long list of sites that were suitable for main tunnel sites in this zone. However, the Acton Storm Tanks site identified at phase one consultation was found to be large enough to support a main tunnel site, so this was reviewed alongside the newly identified sites. The scoping exercise found that we needed to assess the following six sites:
- a. S01EG: Acton Storm Tanks
  - b. S02EG: Commercial Units, Stanley Gardens
  - c. S03EG: Acton Park Industrial Estate
  - d. S04EG: Industrial Units, Allied Way
  - e. S05EG: Southfields Park
  - f. S88HF: Wendall Park: new site (also C01XY).
- 3.3.13 The back-check long list sites were then assessed against the high-level considerations set out in SSMP Table 2.2 which included engineering (site size, site features, availability of a jetty/wharf, access and location (proximity to the sewer to be intercepted)), planning and environment (heritage, landscape/townscape, open space and ecology) and community and property (neighbouring land uses, site use, Special Land/Crown land and acquisition costs) considerations.
- 3.3.14 Table 3.1 below provides a summary of the outcome of the back-check assessment of the back-check long list of sites. Sites that were determined to be the least constrained in light of the SSMP Table 2.2 considerations passed to the draft short list. This did not necessarily mean that these sites were ultimately judged suitable, but rather that no significant constraints were identified in relation to the high-level considerations set out in SSMP Table 2.2. Sites that were judged to be more constrained were not retained on the draft short list for more detailed

### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

assessment. The main rationale for excluding these sites at this stage is summarised below in Table 3.1.

- 3.3.15 At this stage we also determined how the size of the sites that were retained at this stage would be assessed under the SSMP Table 2.3 assessment. We concluded that, due to distance from the river and the navigational constraints of being upstream of Hammersmith Bridge, all Zone S0 sites could not be considered as a main tunnel drive sites.

**Table 3.1 Long list to draft short list for main tunnel sites in Zone S0 (SSMP Table 2.2 assessment)**

Site ID	Site name/description	Recommendation
S01EG	Acton Storm Tanks	<b>Recommendation:</b> To draft short list as a main tunnel reception site
S02EG	Commercial Units, Stanley Gardens	<b>Recommendation:</b> To draft short list as a main tunnel reception site.
S03EG	Acton Park Industrial Estate	<b>Recommendation:</b> To draft short list as a main tunnel reception site.
S04EG	Industrial Units, Allied Way	<b>Recommendation:</b> To draft short list as a main tunnel reception site.
S05EG	Southfields Park	<b>Recommendation:</b> To draft short list as a main tunnel reception site.
S88HF	Wendall Park	<b>Recommendation:</b> To draft short list as a main tunnel reception site.

NB. The site ID and site name/description were used as an internal mechanism to record and describe the site but could be updated as necessary.

- 3.3.16 All six sites on the long list were assessed as potentially suitable and passed to the draft short list. No sites were eliminated as unsuitable.

#### Assessment of the back-check draft short list sites

- 3.3.17 The six back-check draft shortlisted sites were further assessed by the engineering, planning, environment, community and property disciplines, having regard to the considerations set out in SSMP Table 2.3.
- 3.3.18 Table 3.2 below summarises the outcome of the SSMP Table 2.3 back-check assessment of the draft short list of sites. Sites that were assessed as being the least constrained in light of the SSMP Table 2.3 considerations were retained on the short list and passed to the next stage of assessment. This did not necessarily mean that a site was ultimately judged suitable, but rather that no significant constraints were identified in relation to the considerations set out at SSMP Table 2.3. Sites that were judged to be more constrained were not retained on the short list for more detailed assessment. The decision of whether or not to retain a site on the short list was taken at a multidisciplinary workshop. The main rationale for excluding sites at this stage is summarised below in Table 3.2.

**Table 3.2 Draft short list to final short list for main tunnel sites in Zone S0 (SSMP Table 2.3 assessment)**

Site ID	Site name/description	Recommendation and rationale
S01EG	Acton Storm Tanks	<b>Recommendation:</b> Retain on short list as a main tunnel reception site.
S02EG	Commercial Units, Stanley Gardens	<b>Recommendation:</b> Retain on short list as a main tunnel reception site.
S03EG	Acton Park Industrial Estate	<b>Recommendation:</b> Retain on short list as a main tunnel reception site.
S04EG	Industrial Units, Allied Way	<b>Recommendation:</b> Retain on short list as a main tunnel reception site.
S05EG	Southfields Park	<p><b>Recommendation:</b> Not to final short list.</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Planning/Environment: There were a number of constraints that related to this site, particularly concerns regarding the impact on open space (a priority site for playground provision in relation to child density and improving access to nature areas), the impact on the conservation area, and access issues. It should also be noted that other brownfield sites are potentially available.</li> <li>• Community: Temporary loss of over half of the recreation facilities (tennis courts, playground and nature area). The tennis courts are run by a group that encourages local level tennis in parks. All these factors might have an adverse impact on health and equality considerations.</li> </ul>
S88HF	Wendall Park	<p><b>Recommendation:</b> Not to final short list.</p> <p><b>Rationale:</b></p> <ul style="list-style-type: none"> <li>• Planning/Environment: There were a number of constraints that related to this site, particularly concerns regarding the impact on open space (a priority site for playground provision in relation to child density and improving access to nature areas), the impact on the conservation area, and access issues. It should also be noted that</li> </ul>

### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

Site ID	Site name/description	Recommendation and rationale
		<p>other brownfield sites are potentially available.</p> <ul style="list-style-type: none"> <li>Community: There are a number of sensitive receptors in close proximity such as a church, vicarage and school. There would be a temporary loss of this park. All of these might in turn have an adverse impact on community cohesion, health and equality considerations.</li> </ul>

NB. The site ID and site name/description were used as an internal mechanism to record and describe the site but could be updated as necessary.

3.3.19 Of the six sites on the back-check short list, four were assessed as potentially suitable and passed to the back-check final short list and two sites did not proceed to the back-check final short list.

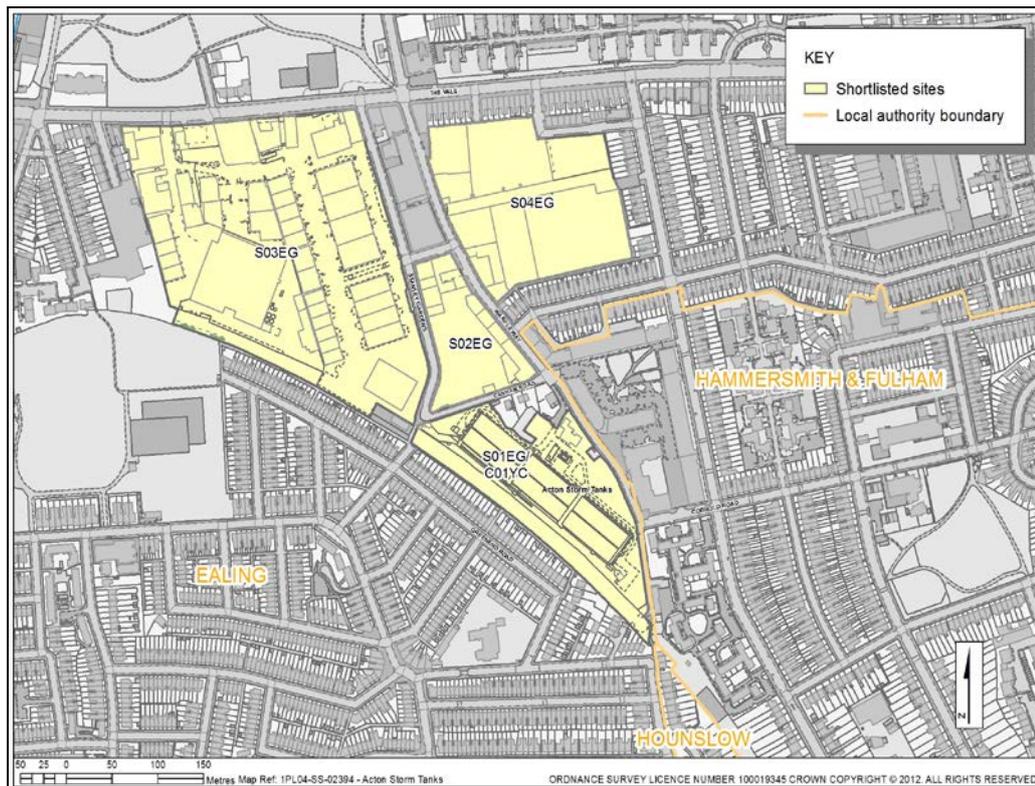
#### Assessment of the back-check final short list sites

3.3.20 Following the back-check, the four final shortlisted sites identified for assessment at the next stage were as follows:

- a. S01EG/C01YC: Acton Storm Tanks
- b. S02EG/C01YC: Commercial Units, Stanley Gardens
- c. S03EG/C01YC: Acton Park Industrial Estate
- d. S04EG/C01YC: Industrial Units, Allied Way.

3.3.21 Figure 3.2 shows the shows the shortlisted sites in Zone S0 that could potentially be used in tunnelling strategies to receive the western end of the main tunnel and intercept the Acton Storm Relief CSO.

**Figure 3.2 Location of shortlisted main tunnel sites in Zone S0**



3.3.22 All of the above sites were assessed as potential main tunnel reception sites in combination with our preferred CSO interception site at Acton Storm Tanks (C01YC) and a site suitability report prepared.

3.3.23 These site suitability reports contain an assessment of each site's suitability in the light of engineering, planning, environment, community and property considerations. At this stage in the process, no comparisons were drawn between sites; they were assessed in isolation and with no regard to tunnelling strategy. Sites were evaluated by each discipline using our teams' technical knowledge and professional judgement as appropriate, and assessed as suitable, less suitable or not suitable from that discipline's perspective.

3.3.24 A summary of the conclusions of each discipline's assessment from the site suitability reports is provided below.

#### **S01EG/C01YC: Acton Storm Tanks**

3.3.25 Site C01EG is located on land within the curtilage of a Thames Water pumping station and storm water storage tanks fronting Warple Way, Acton. The site is slightly bigger than site C01YC which was assessed at phase one in order to allow a CSO interception and main tunnel site works in one location.

3.3.26 The site is currently open land and forms part of the landscaped area of the pumping station, situated at the southernmost tip of the pumping station site. The site is bounded to the north by Canham Road and industrial units. The east and southeast of the site are bounded by Warple Way and residential properties with further dwellings along Greenend Road to the southwest and west. The site is located in the London

### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

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Borough of Ealing, but close to the boundary of London Borough of Hammersmith and Fulham.

3.3.27 **Engineering:** The site was considered **suitable** for use as a main tunnel reception site as it is large enough to accommodate all the site facilities, access is reasonable and the land is owned by Thames Water.

3.3.28 **Planning:** The site was considered **less suitable** for use as a main tunnel reception site as it is located in very close proximity to adjacent residential properties. However, the site could become **suitable** with appropriate mitigation to reduce any impacts on residential amenity.

3.3.29 **Environment:** Overall, the site was considered **suitable** for use as a main tunnel reception site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources, flood risk, and ecology. However, the site was considered **less suitable** from the perspectives of air quality, noise and land quality. Various mitigation measures would be required.

3.3.30 **Socio-economic and community:** The site was considered **less suitable** for use as main tunnel reception site as it was likely that there would be significant impacts on residential property adjacent to the site. Appropriate mitigation would be required for noise and visual disruption.

3.3.31 **Property:** The site was considered **suitable** for use as a main tunnel reception site as it would only use Thames Water land.

#### **S02EG/C01YC: Commercial Units, Stanley Gardens**

3.3.32 Site S02EG is located in an industrial area. This site was assessed for use as a main tunnel reception site and to intercept the Acton Storm Relief CSO at Acton Storm Tanks (C01YC). The site is located in the London Borough of Ealing.

3.3.33 **Engineering:** This site was considered **suitable** for use as a main tunnel reception site. The site is of sufficient size to fit all the site facilities for efficient working and has suitable access. The site requires the demolition of a number of existing structures that currently occupy the site prior to commencing the main works.

3.3.34 **Planning:** The site was considered **less suitable** for use as a main tunnel reception site as it is located in very close proximity to adjacent residential properties. However, the site could become **suitable** with appropriate mitigation to reduce any impacts on residential amenity.

3.3.35 **Environment:** Overall, the site was considered **suitable** for use as a main tunnel reception site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources (hydrogeology and surface water), ecology, flood risk and noise. However, the site was considered **less suitable** from the perspectives of air quality and land quality.

3.3.36 **Socio-economic and community:** The site was considered **less suitable** for use as a main tunnel reception site. It was assessed as unlikely that there would be a substantial or long-term impact on the local community. However, a number of businesses might need to be relocated

on a temporary or permanent basis. Furthermore, noise and visual disruption would be experienced during construction by residential properties in close proximity to the east. There are also a number of residential properties in close proximity to the proposed CSO interception works.

- 3.3.37 **Property:** The site was considered **less suitable** for use as a main tunnel reception site as a number of business operations would be displaced.

#### **S03EG/C01YC: Acton Park Industrial Estate**

- 3.3.38 Site S03EG is located in an industrial area. It was assessed for use as a main tunnel reception site and to intercept the Acton Storm Relief CSO at Acton Storm Tanks (C01YC). The site is located in the London Borough of Ealing.

- 3.3.39 **Engineering:** This site was considered **suitable** for use as a main tunnel reception site. The site is of sufficient size to fit all the facilities for efficient working and has suitable access. The site requires the demolition of a number of existing structures that currently occupy the site prior to commencing the main works.

- 3.3.40 **Planning:** The site was considered **less suitable** for use as a main tunnel reception site. The site is within or in proximity to a number of planning and environmental policy designated areas and sensitive uses such as residential properties, community facilities and public open spaces. Further investigation would be required to determine whether the temporary loss of designated employment land and the relocation of a number of existing businesses would be acceptable. Appropriate mitigation to protect the amenity of residential dwellings and other sensitive community uses from construction impacts would be required.

- 3.3.41 **Environment:** Overall, the site was considered **suitable** for use as a main tunnel reception site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources (hydrogeology and surface water), ecology, flood risk, air quality and noise. However, the site was considered **less suitable** from the perspectives of land quality.

- 3.3.42 **Socio-economic and community:** The site was considered **less suitable** for use as a main tunnel reception site. The use of the site appeared likely to require the demolition of around five commercial units, which could affect owners, employees and the local community. A number of other business premises and residential properties in proximity to the site might also be affected by works in this area. There are also a number of residential properties in close proximity to the proposed CSO interception works.

- 3.3.43 Appropriate mitigation would be required for noise and visual disruption during construction to reduce the potential impacts on the neighbouring commercial and residential properties.

- 3.3.44 **Property:** The site was considered **less suitable** for use as a main tunnel reception site. A large number of business occupiers would be displaced. Furthermore, the site adjoins residential properties.

### S04EG/C01YC: Industrial Units, Allied Way

- 3.3.45 Site S04EG is located in an industrial area. It was assessed for use as a main tunnel reception site and to intercept the Acton Storm Relief CSO at Acton Storm Tanks (C01YC). The site is located in the London Borough of Ealing.
- 3.3.46 **Engineering:** The site was considered **less suitable** for use as a main tunnel reception site. The site is of sufficient size to fit all the facilities for efficient working and has suitable access. However, due to the distance from C01YC and the nature of existing development between both sites, construction of the tunnelled connection culvert would be complex and likely need to be deep, which would lead to deeper CSO and main tunnel shafts. This would increase the amount of excavated material to be removed from the site and lengthen the construction programme.
- 3.3.47 **Planning:** The site was considered **less suitable** for use as a main tunnel reception site as the site. The site is within or in proximity to a number of planning and environmental policy designated areas and sensitive uses, such as residential properties and community facilities. Further investigation would be required to determine whether the temporary loss of designated employment land and the relocation of a number of existing businesses would be acceptable. Appropriate mitigation to protect the amenity of residential dwellings and other sensitive community uses from construction impacts would be required and we recognised that this might be particularly challenging at this site, given the proximity and number of sensitive receptors
- 3.3.48 **Environment:** Overall, the site was considered **suitable** for use as a main tunnel reception site. The site was considered **suitable** from the perspectives of transport, archaeology, built heritage, townscape, water resources (hydrogeology and surface water), flood risk and ecology. However, the site was considered **less suitable** from the perspectives of air quality, noise and land quality.
- 3.3.49 **Socio-economic and community:** The site was considered **less suitable** for use as a main tunnel reception site. Residential properties are located in close proximity to the proposed works would likely be directly affected. Furthermore, several businesses would likely be required to relocate during construction and operations. There are also a number of residential properties in close proximity to the proposed CSO interception works.
- 3.3.50 **Property:** The site was considered **less suitable** for use as a main tunnel reception site. A large number of business occupiers would be displaced. Furthermore, the site adjoins residential properties on three sides.

## 3.4 Phase two consultation preferred site

- 3.4.1 Following the completion of the back-check process, we held a multidisciplinary workshop to consider the suitability of each of the shortlisted sites in main tunnel Zone S0 and the CSO interception at Acton Storm Tanks (C01YC). This workshop took into account the site suitability

### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

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report findings, potential drive options, feedback received during phase one consultation and interim engagement (carried out after phase one consultation and before phase two consultation).

3.4.2 On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that site **S01EG/C01YC: Acton Storm Tanks** should become the phase two preferred main tunnel reception site and to intercept the Acton Storm Relief CSO. We believed it to be the most appropriate site, subject to further engagement with stakeholders, further design development and phase two consultation.

3.4.3 In summary, S01EG/C01YC: Acton Storm Tanks was identified as the preferred site for the following reasons (not in order of importance):

- a. Use of this site would not result in the loss of existing businesses, which would be the case for the three other shortlisted sites.
- b. It was already necessary to use this site for the interception of the CSO.
- c. Use of the site as a main tunnel reception site was assessed as suitable by the engineering, planning, environment and property disciplines.
- d. Use of the site as a main tunnel reception site was considered potentially suitable by the community discipline, with appropriate mitigation measures to reduce impacts on the local area.
- e. Detailed transport management arrangements would be made to manage construction vehicle movements.
- f. It would maximise the use of Thames Water-owned land for construction works.
- g. It is located in an existing Thames Water site.
- h. There might be an opportunity to decommission the existing tanks.

3.4.4 It should be noted that the previous proposal to use this site only to intercept the Acton Storm Relief CSO with a smaller connection tunnel to the main tunnel was no longer a viable solution to meet the aims of the project.

3.4.5 Table 3.3 below sets out a summary of the preferred site and use .

**Table 3.3 Preferred site and use for phase two consultation**

**Site:** S01EG/C01YC: Acton Storm Tanks

**Use:** To intercept the Acton Storm Relief CSO and receive the main tunnel from Carnwath Road Riverside (S87HF)

3.4.6 We also confirmed the following at the same time and using the same process:

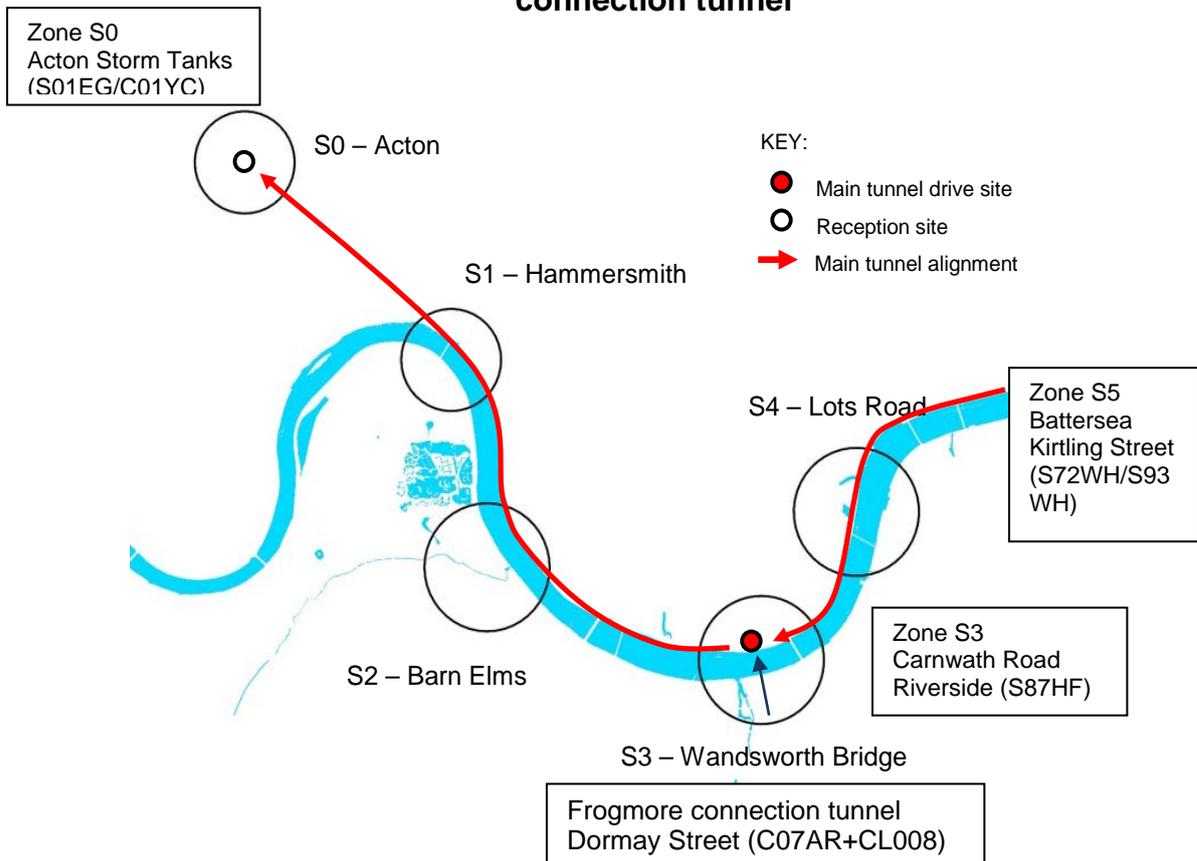
- a. S87HF: Carnwath Road Riverside in Zone S3 was identified as a preferred main tunnel drive site (see Volume 9), this site would be used to drive the main tunnel to S01EG/C01YC: Acton Storm Tanks

### 3 Phase two consultation preferred main tunnel site: Scheme development and site selection process

and receive the main tunnel from S72WH/S93WH: Kirtling Street (with Cringle Street).

3.4.7 Figure 3.3 sets out the preferred phase two consultation drive strategy for the construction of the western section of the main tunnel.

**Figure 3.3 Phase two consultation preferred sites and tunnelling strategy for the western section of the main tunnel and Frogmore connection tunnel**



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## 4 Post phase two consultation: Review and confirmation of proposed main tunnel site for Section 48 publicity

### 4.1 Introduction to the review

- 4.1.1 This section explains how we implemented the requirement in the *Site selection methodology paper* to review the preferred site following phase two consultation and prior to Section 48 publicity. This stage took place from Spring 2012 to Summer 2012.
- 4.1.2 The review at this stage of the site selection process comprised:
- a review of comments from phase two consultation related to main tunnel sites and tunnelling options associated with Zones S0 to S4 for the western sections of the main tunnel as set out in the *Engineering options report - Abbey Mills route* (Spring 2012)
  - consideration of any ongoing scheme design and/or new technical information
  - multidisciplinary workshops and reviews to identify the proposed main tunnel site and use for Section 48 publicity.
- 4.1.3 The assessments described in Section 4 were based on the information available at the time and the related stage in the pre-application process.

### 4.2 Summary of phase two consultation feedback

- 4.2.1 Details of the consultation comments related to the proposed use of the Acton Storm Tanks site and our responses are provided in the *Report on phase two consultation*. The main concerns raised relevant to site selection can be summarised as follows:
- reasons for selecting this preferred site are flawed/questionable; the site has only been chosen because it is owned by Thames Water for the associated cost benefits, rather than as the best site from a technical point of view
  - the scale of effects on the local area and community resulting from the selection of this site is unacceptable/has not been properly considered
  - alternative drive strategies were suggested for the western section of the main tunnel
  - alternative site suggestions included Acton Park Industrial Estate and Barn Elms.
- 4.2.2 The main comments received in support of the phase two consultation preferred site included:
- support use of this site, including changing the use since phase one consultation

- b. the site is more suitable than any shortlisted or alternative site.
- 4.2.3 We recognised the concerns that were raised, including the potential impact on the local community, and have taken these into account in developing the scheme, including measures which can be put in place to minimise any significant potential impacts.
- 4.2.4 In light of comments received suggesting alternative drive options prior to Section 48 publicity, we reviewed our tunnelling strategy and prepared a revised *Engineering options report - Abbey Mills route* (Spring 2012). This report concluded that the suggested alternatives would not add any new drive options, so the potentially feasible main tunnel drive options remained the same as those in the *Engineering options report - Abbey Mills route* (Summer 2011) set out prior to phase two consultation. Despite there being no new options, we still checked the sites and tunnelling drive options to ensure our assessments were still valid. This process did not lead to different sites or tunnelling strategy for the western section of the main tunnel (see Volume 1, Sections 6 and 7).
- 4.2.5 Having taken all comments received during phase two consultation into account, we believed S01EG/C01YC: Acton Storm Tanks remained the most suitable site to intercept Acton Storm Relief CSO and to receive the main tunnel from Carnwath Road Riverside.

### 4.3 Consideration of project design or new information

- 4.3.1 No new information relevant to site selection was raised at phase two consultation or received from other sources.
- 4.3.2 Given that there were no changes in circumstances or new information with relevance to site selection, we still believed S01EG/C01YC: Acton Storm Tanks site remained the most suitable site to receive the main tunnel from Carnwath Road Riverside and intercept Acton Storm Relief CSO.

### 4.4 Proposed site and use for Section 48 publicity

- 4.4.1 Having completed the site selection review described above, we held a further multidisciplinary workshop prior to Section 48 publicity. On balance, the review process did not identify any additional considerations that would have caused us to change our preferred site from phase two consultation. **S01EG/C01YC: Acton Storm Tanks** remained the proposed site to receive the main tunnel from Carnwath Road Riverside and intercept the Acton Storm Relief CSO for Section 48 publicity for the following reasons (not in order of importance):
  - a. The site is large enough to accommodate all of the proposed works.
  - b. We would only need one site to receive the main tunnel and intercept the CSO on S01EG/C01YC unlike the other shortlisted sites that would require work on two sites.
  - c. The site would avoid the disruption and loss of a place of worship.

#### 4 Post phase two consultation: Review and confirmation of proposed main tunnel site for Section 48 publicity

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- d. The site would avoid the disruption and loss of existing businesses within the 'The Vale', a designated major employment location unlike the other shortlisted sites.
- e. The site would minimise demolition arisings and the volume of excavated material and thereby reduce the transportation impact on the highway network.
- f. The site best utilises land owned by Thames Water, thereby consolidating all Thames Water operational infrastructure on a single site and minimising acquisition risk and cost.

4.4.2 Table 4.1 below sets out a summary of the proposed site and use.

**Table 4.1 Proposed site and use for Section 48 publicity**

**Site:** S01EG/C01YC: Acton Storm Tanks

**Use:** To intercept the Acton Storm Relief CSO and receive the main tunnel from Carnwath Road Riverside (S87HF)

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## **5 Post Section 48 publicity: Review and final selection of main tunnel site for the application**

### **5.1 Introduction to the review**

5.1.1 This section explains how we conducted a site selection review in order to arrive at the final selection of sites to be included in the application. This stage took place during Autumn 2012.

5.1.2 The final site selection review comprised:

- a. review of comments from Section 48 publicity related to main tunnel sites and tunnelling options associated with Zone S0 for the western sections of the main tunnel as set out in Volume 1, Section 6.6
- b. consideration of any ongoing project design and/or new technical information
- c. final review of shortlisted sites in Zone S0 which comprised multidisciplinary workshops and reviews to re-consider the various site and main tunnel drive comparisons and the rationale for selecting the main tunnel site and its use for the application.

### **5.2 Summary of Section 48 publicity feedback**

5.2.1 Details of the comments to Section 48 publicity related to this site and our responses are provided in the *Consultation Report*. The main concerns raised relevant to site selection can be summarised as follows:

- a. No main objections, issues and concerns were received in respect of site selection.

5.2.2 The main support raised relevant to site selection can be summarised as follows:

- a. The preferred site is more suitable than any alternative sites. In particular, the alternatives suggested would require the relocation of existing business premises.
- b. Supportive of the use of Acton Storm Tanks.
- c. Support for changes in extent of preferred site since phase one consultation.

5.2.3 Relevant Section 48 publicity comments were taken into account in the review of shortlisted main tunnel sites set out in Section 5.4 below.

### **5.3 Consideration of project design or new information**

5.3.1 The review of this site confirmed that there was no new project design issues and/or information relevant to site selection.

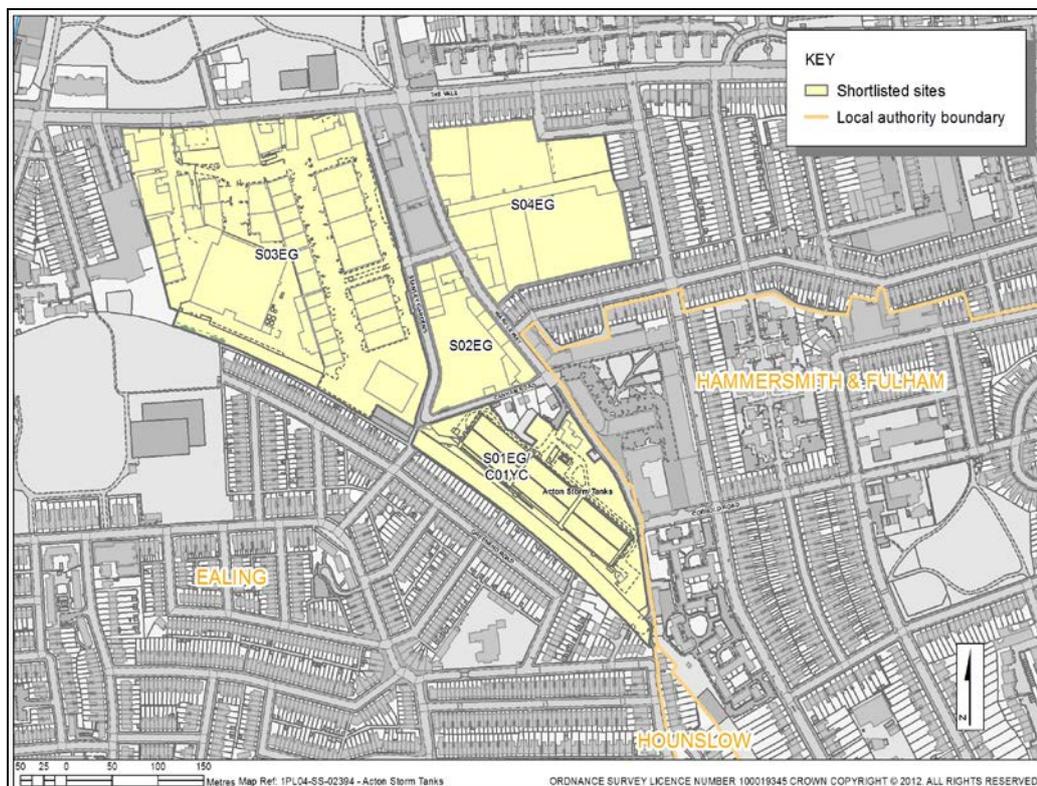
## 5.4 Final review of shortlisted main tunnel sites in Zone S0

5.4.1 As part of the final review process, all the final shortlisted sites in main tunnel Zone S0 were once again reviewed and compared following Section 48 publicity. For the avoidance of doubt, we did not re-review phase one shortlisted sites because we undertook a back-check following phase one consultation that generated an updated shortlist of sites, based on new information and this superseded the shortlist drawn up prior to phase one consultation. We reviewed the shortlisted site assessments presented in Section 3, which remain valid. To avoid unnecessary repetition, site specific points have not been reproduced in this section.

5.4.2 Below is the final list of shortlisted sites, as illustrated in Figure 5.1, followed by a summary of the points that distinguished between the sites (comparisons are not in order of importance):

- a. S01EG/C01YC: Acton Storm Tanks
- b. S02EG/C01YC: Commercial Units, Stanley Gardens
- c. S03EG/C01YC: Acton Park Industrial Estate
- d. S04EG/C01YC: Industrial Units, Allied Way.

**Figure 5.1 Shortlisted main tunnel sites in Zone S0**



5.4.3 S01EG/C01YC is large enough to accommodate main tunnel and CSO works on one site. The other three shortlisted sites would also require the use of C01YC to intercept the CSO, so two sites would be needed for each of these options. Therefore, each of these three shortlisted sites would require the construction of a main tunnel shaft on site and a

connection tunnel to C01YC where the CSO would be intercepted. As two shafts would be required instead of one and a connection tunnel would need to be constructed between the two the volume of excavated material, which would need to be transport off-site, would be far greater than that associated with the use of the combined site S01EG/C01YC. The use of S01EG/C01YC is therefore more efficient in terms of site set up and would lead to less HGV movements and use fewer resources.

5.4.4 S01EG/C01YC provides an opportunity to utilise existing Thames Water infrastructure, whereas the other three shortlisted sites are in private ownership and would have to be acquired. Use of this site also minimises the amount of demolition works required in comparison to the three other shortlisted sites, where more demolition and material removal would be required.

5.4.5 S02EG, S03EG and S04EG are less suitable as a main tunnel site, in comparison to S01EG/C01YC, because a large number of business occupiers would need to be displaced. Furthermore, use of S01EG/C01YC would not result in the loss and potential relocation of a place of worship, which is the case for S02EG. This place of worship is located within Long Island House at 1-4 Warple Way.

### Conclusion of site review in Zone S0

5.4.6 In summary, the most suitable site within Zone S0 was confirmed as S01EG/C01YC: Acton Storm Tanks. This site would also be used to intercept the Acton Storm Relief CSO.

## 5.5 Final review of tunnelling drive options

5.5.1 Having established the most suitable site in Zone S0, we then reviewed the drive options. The drive options are set out in *Engineering options report – Abbey Mills route* (Spring 2012) and explained in Volume 1, Section 6.6 (also see Volume 1, Section 7.6 for an update).

5.5.2 The review concluded that all sites in Zone S0 could only be considered as main tunnel reception sites, due to distance from the river and the navigational constraints of being upstream of Hammersmith Bridge. Therefore S01EG, the site identified as most suitable in Zone S0, was confirmed as a main tunnel reception site for the western end of the main tunnel.

5.5.3 The only drive option that could be considered required the main tunnel to be driven to Zone S0.

## 5.6 Selected site for the application

- 5.6.1 In summary, we reviewed and considered:
- a. Section 48 publicity feedback
  - b. any relevant changes and/or new information
  - c. shortlisted sites and tunnelling options.

5 Post Section 48 publicity: Review and final selection of main tunnel site for the application

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5.6.2 The final site selection review described above, culminated in a multidisciplinary workshop following Section 48 publicity. On balance, the review process did not identify any new considerations that would have caused us to change our proposed site from Section 48 publicity. Therefore, **S01EG/C01YC: Acton Storm Tanks** was selected as the main tunnel/CSO site for the application for the following reasons (not in order of importance):

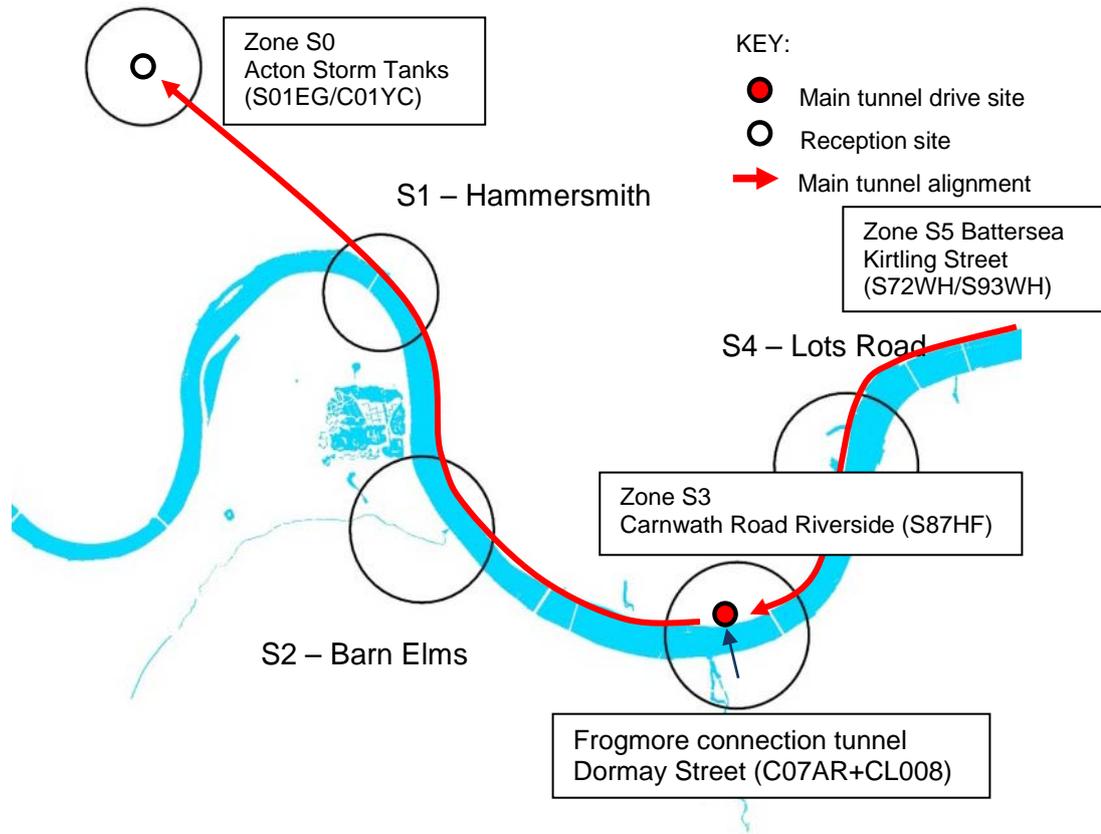
- a. The site is large enough to accommodate all of the proposed works.
- b. We would only need one site to receive the main tunnel and intercept the CSO on S01EG/C01YC unlike the other shortlisted sites that would require work on two sites.
- c. The site would avoid the disruption and loss of a place of worship.
- d. The site would avoid the disruption and loss of existing businesses, unlike the other shortlisted sites.
- e. The site would minimise demolition arisings and the volume of excavated material and thereby reduce the transportation impact on the highway network.
- f. The site best utilises land owned by Thames Water, thereby consolidating all Thames Water operational infrastructure on a single site and minimising acquisition risk and cost.

5.6.3 Table 5.1 below sets out the selected site and use. Figure 5.2 illustrates the selected sites and tunnelling strategy for the construction of the western section of the main tunnel.

**Table 5.1 Selected site and use for the application**

<p><b>Site:</b> S01EG/C01YC: Acton Storm Tanks</p> <p><b>Use:</b> To intercept the Acton Storm Relief CSO and receive the main tunnel from Carnwath Road Riverside (S87HF)</p>
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**Figure 5.2 Sites and tunnelling strategy for the western section of the main tunnel and Frogmore connection tunnel**



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DCO-DT-000-ZZZZZ-070500

