Appendix L – Kirtling Street (formerly Tideway Walk)

L.1 Introduction
L.1.1 This appendix sets out the site selection process that we used and our rationale for identifying our preferred phase one and phase two consultation sites for constructing the central sections of the main tunnel.

Type of site
L.1.2 We need a worksite to connect the local combined sewer overflows (CSOs), known as the Heathwall Pumping Station and South West Storm Relief, to the main tunnel. To enable the connection to be made the site needs to be as close as possible to the line of the existing sewers.

L.1.3 We also need to identify a series of suitable worksites to allow us to build the main tunnel. The main tunnel will transfer the collected overflows to the Abbey Mills Pumping Station and they will then transfer via the Lee Tunnel (under construction) to Beckton Sewage Treatment Works.

L.1.4 Larger sites are required where a TBM will be inserted into the ground (known as a main tunnel drive site). This type of worksite will need to handle all the materials excavated by the TBM as it constructs a section of the tunnel. Smaller sites are required to remove the TBM from the ground at the end of a tunnel drive (known as a main tunnel reception/ intermediate site). A more detailed description of the different types of worksite required to construct and operate the Thames Tunnel and the size requirements of these sites can be found in the Site selection background technical paper.

Site selection process
L.1.5 All potential worksites have been identified in accordance with our Site selection methodology paper (SSM), which involved a ‘sieving’ approach, commencing with identification of all potentially suitable areas of land (excluding concentrated residential sites and World Heritage Sites) and passing these sites through increasingly detailed levels of assessment to move from a long list to a draft short list, a final short list and finally a list of preferred sites for phase one consultation.

L.1.6 The SSM recognises the vital complementary relationship between the site selection process and engineering design developments. Accordingly, as the site selection process has progressed it has been increasingly important to compare sites against engineering requirements. A fundamental consideration is the need to identify sufficient sites, in the right locations, to enable the scheme to be built.

Preferred site for phase one and phase two consultation
L.1.7 The table below identifies our preferred phase one and phase two consultation sites. Section L.2 in this appendix provides the details of how we identified our preferred phase one site. Sections L.3 to L.5 provide details of why we have identified a different main tunnel preferred site for phase two consultation.
Phase one consultation site:  
Tideway Walk – combined main tunnel and CSO site

Phase two consultation site:  
Kirtling Street – main tunnel site only  
(Heathwall Pumping Station – CSO only – see Appendix M)

L.2 Site selection up to phase one consultation

Assessment of the long list sites

L.2.1 The long list of potential main tunnel sites for the central sections of the tunnel route was created by conducting a desktop survey of the land within the London boroughs of Wandsworth, Southwark and Lambeth, the Royal Borough of Kensington and Chelsea, Westminster and City of London.

L.2.2 In total, 157 sites were included on the long list as potential sites for main tunnel shafts. These sites were assessed having regard to the high-level considerations set out in Table 2.2 of the SSM (hereafter referred to as Table 2.2) including engineering (site size, site features, availability of jetty/wharf and access), planning and environment (heritage, landscape/townscape, open space and ecological) community and property (neighbouring land uses, site use, Special Land/Crown Land and acquisition costs) considerations.

L.2.3 Sites which were assessed as being the least constrained when considered against Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites would ultimately be judged as suitable for use as main tunnel shaft site, but that no significant constraints were identified in relation to the high-level considerations addressed at Table 2.2. Sites that were judged to be more constrained were not recommended to be retained on the draft short list for more detailed assessment. Full details of these assessments are provided in the Table 2.2 assessment tables and accompanying plans.

L.2.4 Of the 157 sites identified as suitable for main tunnel shafts at the western end of the tunnel route, 26 were assessed as potentially suitable and passed to the draft short list while 131 sites were eliminated as being unsuitable.

Assessment of draft short list sites

L.2.5 The 26 draft short list sites identified as potentially suitable at Table 2.2 were then further assessed by the engineering, planning, environment, community and property disciplines having regard to the considerations set out in Table 2.3 of the SSM (hereafter referred to as Table 2.3). This stage of the process built on the information gathered and assessment undertaken at long list stage but focussed on more detailed local considerations.
L.2.6 At this stage we also consulted with each of the London boroughs and pan-London stakeholders, such as the Environment Agency and English Heritage, to seek their views on the suitability of sites for the short list.

L.2.7 As with the Table 2.2 assessment, sites which were assessed as being the least constrained when considered against Table 2.3 considerations were retained on the short list to pass to the next stage of assessment. This did not necessarily mean that a site would ultimately be judged as suitable, but that no significant constraints were identified in relation to the considerations addressed at Table 2.3. Sites judged to be more constrained were not recommended to be retained on the short list for more detailed assessment. Full details are provided in the Table 2.3 assessment tables and accompanying plans.

L.2.8 Of the 26 sites on the draft short list, 11 were assessed as potentially suitable for use and passed to the final short list. The remaining 15 sites did not proceed to the final short list.

**Assessment of the final short list sites**

L.2.9 Eleven final shortlisted sites were retained for more detailed assessment as potential main tunnel shaft sites. In some cases, these sites were grouped together and consequently, there were 13 sites or scenarios considered on the final short list:

Sites identified as suitable for use as main tunnel drive or reception/intermediate sites:

- S61WH: Battersea Park
- S68WH: Battersea Power Station
- S68WH with S69WH: Industry/warehouses, Cringle Street
- S69WH: Industry/warehouses, Cringle Street
- S73WH with S79WH: Industry/warehouses, Tideway Walk
- S74WH with either S72WH or S73WH or S79WH: Industry/warehouses, Tideway Walk
- S79WH with S80WH: Tideway Walk and TWUL Pumping Station including Middle Wharf.

Sites identified as suitable for use as main tunnel reception/intermediate sites only:

- S72WH: Concrete batching plant and wharf, Cringle Street
- S73WH: Industry/warehouses, Tideway Walk
- S79WH: Warehouses, Tideway Walk
- S87WH: Warehouse, Post Office Way
- S04WR: Open space, Grosvenor Road
- S11WR: Foreshore, adjacent to Riverwalk House and Vauxhall Bridge.
A site suitability report (SSR) was prepared for each of these final shortlisted sites. These reports contained an assessment of each site’s suitability having regard to engineering, planning, environment, community and property considerations. At this stage in the process, sites were assessed in isolation without comparison to other sites or regard to tunnelling strategy. Sites were evaluated by each discipline using technical knowledge and professional judgement as appropriate and assessed as suitable, less suitable or not suitable from that discipline’s perspective.

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

**S61WH: Battersea Park**

Site S61WH is located in Battersea Park, a Grade II* registered park and garden located in the London Borough of Wandsworth. The site is bounded to the north by the River Thames, to the east by Queenstown Road and Chelsea Bridge, to the west by Albert Bridge Road and to the south by Prince of Wales Drive. The park contains woodland, grassed areas, a lake and gardens, and a diverse range of community facilities and public amenities.

The site was assessed for use as a main tunnel double drive site (ie, driving the tunnel in two directions from this site), main tunnel single drive and a main tunnel reception/intermediate site.

**Engineering:** Assessed the site as suitable for use as a main tunnel double drive, single drive or reception/intermediate site. This was predominantly due to the good site size, river and road access. Also, the locations of the proposed shafts are sufficiently far from major third-party assets such as the Crossrail Line 2 Safeguarded Zone, Albert Bridge and Chelsea Bridge, to avoid impact on these.

**Planning:** Assessed the site as not suitable for use as a main tunnel double drive or single drive site. This was predominantly due to the scale of proposed works and the land-take required, which is considered too great for this sensitive location, which is subject to a number of policy designations. The conflict with planning policies, including those relating to heritage conservation, Metropolitan Open Land and public open space, is very likely to be unacceptable, particularly given the scale, longevity and prominence of both the construction works and after-structures.

The site was also assessed as less suitable for use as a main tunnel reception/intermediate site due to the reduced scale of construction activity and permanent land-take. Significant mitigation would, however, be required.

**Environment:** Overall, the site was assessed as less suitable for all types of site. The site was considered likely to be suitable from the perspective of transport, archaeology, water resources, flood risk, air quality, noise and land quality. However, the site is less suitable from the perspective of built heritage, townscape and ecology.
L.2.18 The site was considered to be less suitable, owing primarily to impacts on townscape character and heritage receptors.

L.2.19 **Socio-economic and community:** Assessed the site as not suitable for use as a main tunnel double drive site due to the likely cumulative community impacts. The areas of the park directly affected by the proposed double drive main tunnel site are likely to be valued by the community as areas of open space. Based on its current use, Chelsea Bridge Fields appears to be a unique open space within Battersea Park, due to its elevation and tree cover. The riverside edge of Festival Pleasure Gardens offers views across the river and over the park, and is therefore likely to be popular.

L.2.20 The site was assessed as less suitable from a community impacts perspective for a main tunnel drive or reception/intermediate site. As with the main tunnel double drive site, the area of the park proposed for use as a main tunnel drive or reception/intermediate site appears likely to be valued by the community as areas of open space.

L.2.21 **Property:** Assessed the site as suitable for use as a main tunnel single drive or reception/intermediate site. The level of risk will increase with the land area required and the impact on the park’s amenities. The area required for a main tunnel double drive site was considered to be unacceptably large in this context, and the site was therefore considered not suitable.

**S68WH: Battersea Power Station and S68WH with S69WH:**

**Industry/warehouses, Cringle Street**

L.2.22 Sites S68WH and S69WH are located in the London Borough of Wandsworth, adjacent to the railway lines that run parallel to Chelsea Bridge and located directly on the riverfront. Site 68WH is occupied by the disused Grade II* listed Battersea Power Station. Site S69WH is occupied by two industrial buildings, which are surrounded by general purpose hardstanding for parking and loading/unloading, although the southern area of S69WH is narrow and less useable. Both sites are irregular in shape and access is via Cringle Street.

L.2.23 The site was assessed as a split main tunnel double drive site (ie, involving two shafts on a site including both S68WH and S69WH to drive the main tunnel in two directions from this site), main tunnel drive site (using only S68WH) and main tunnel reception/intermediate site (using S68WH only).

L.2.24 **Engineering:** Assessed the site as less suitable for use as either a split main tunnel double, single or reception/intermediate site. The presence of Battersea Power Station restricts site traffic and, for a main tunnel double and single drive site, the length of river frontage available is insufficient to accommodate the necessary jetties. For all site types, there are also potential problems with contaminated land and numerous underground structures that impact on the shaft location which may require enabling works and protection measures. It is also possible that there are other underground structures associated with the power station in addition to those currently identified.
L.2.25 **Planning:** Assessed the site as **less suitable** for use as a split main tunnel double or single drive site as construction would require significant land-take across the site and a substantial amount of construction activity both on-site and in the river. This level of construction activity would reduce the potential to redevelop the site in parallel with other uses, which could cause delay or even hinder the potential regeneration of such a prominent site. Potential impacts on the appearance and setting of the Grade II* Battersea Power Station listed building are likely to require significant mitigation and the level of disruption may be considered unacceptable.

L.2.26 The site was assessed as **suitable** for use as a main tunnel reception/intermediate site as, due to the smaller site size required, it may be possible to implement regeneration proposals alongside the use of the site for the Thames Tunnel project.

L.2.27 Under all three proposed scenarios, the design, permanent access and particularly visual impact of the remaining after-use structures will also require further consideration in relation to the Grade II* listed power station and future regeneration plans.

L.2.28 **Environment:** Overall, the site was considered **suitable** for all three scenarios, although mitigation would be required to enable the site to be used.

L.2.29 Based on current information, the sites were considered **suitable** from the perspective of transport, archaeology, water resources, flood risk, air quality, and noise. The sites were considered **less suitable** from the perspective of built heritage, townscape, ecology and land quality. Overall, the sites were considered **suitable**, subject to further investigation of whether built heritage, townscape, ecology, and land quality impacts can be adequately mitigated.

L.2.30 **Socio-economic and community:** This site is regarded as **suitable** for all three scenarios, as it appears unlikely to have a significant impact on the local community due to the existing industrial and commercial land uses around the site.

L.2.31 Industrial and commercial properties in the vicinity of the site appear the most likely to be impacted by the proposed use of the site. Of these premises, the adjacent Cringle Dock Refuse Transfer Station to the east, which is used by residents of the borough, appears the most likely to be affected.

L.2.32 **Property:** This site is regarded as **not suitable** for all three scenarios due to significant acquisition costs.

**S69WH: Industry/warehouses, Cringle Street**

L.2.33 Site S69WH is situated on industrial land within Nine Elms Industrial Area, at the end of Cringle Street between Cringle Dock Refuse Transfer Station and the Grade II* listed Battersea Power Station. A Grade II listed Thames Water Pumping Station occupies part of the southern end of the site.

L.2.34 The site was assessed as a main tunnel reception/intermediate site only.
L.2.35 **Engineering:** Assessed this site as **suitable** as a main tunnel reception/intermediate site based on its size and accessibility. There are potential constraints that would require further investigation in order to finalise an assessment of overall suitability, these being final existing tunnel alignments and potential contamination issues.

L.2.36 **Planning:** This site was considered **suitable** for use as a main tunnel reception/intermediate site. There are few planning designations that are applicable to the site, and it is considered that with appropriate mitigation measures, these designations are unlikely to be unacceptably impacted upon. Potential redevelopment of the site in conjunction with Battersea Power Station would require further consideration.

L.2.37 **Environment:** Overall, the site was assessed as **suitable** for use as a main tunnel reception/intermediate site. However, mitigation would be required to enable the site to be used. Based on current information, the site was **suitable** from the perspective of transport, archaeology, built heritage and townscape, water resources, ecology, air quality and noise. The site was considered **less suitable** from the perspective of flood risk and land quality.

L.2.38 Overall, the site was considered **suitable**, subject to further investigation of whether flood risk, land quality and built heritage impacts can be adequately mitigated.

L.2.39 **Socio-economic and community:** This site was considered **suitable** for use as a main tunnel reception/intermediate site. Its use appears unlikely to have a significant impact on the local community, due to the current industrial and commercial land uses around the site. The adjacent Cringle Dock Refuse Transfer Station to the east, which is used by residents of the borough, may be affected. Mitigation may involve discussions around hours of use and access to the waste facility.

L.2.40 **Property:** This site was assessed as **less suitable** for use as a main tunnel reception/intermediate site, on the basis of the anticipated high acquisition cost relative to its size.

L.2.41 As many redevelopment schemes such as the Battersea Power Station proposals are progressing slowly due to current economic conditions, this site looks favourable. However, the development aspirations may dictate that any land acquisition and associated diminution in value prompts a significant claim by the landowner.

**S73WH:** Industry/warehouses, Tideway Walk and **S79WH:** Industry/warehouses, Tideway Walk

L.2.42 Site S73WH is situated on land occupied by an industrial warehouse within the Nine Elms Industrial Area. The site fronts onto Kirtling Street to the south and is bounded by the River Thames to north. The Cringle Street ready-mix concrete depot is situated to the west of the site and Tideway Industrial Estate is situated to the east. The site consists of a single warehouse building and a small, general purpose area for loading/unloading and site parking.
L.2.43 The site S73WH was considered as a main tunnel reception/intermediate site and as a split main tunnel drive site with S79WH.

L.2.44 **Engineering:** The site was considered suitable for use as a split main tunnel drive site with S79WH in terms of size and access by road. However, availability of jetty/wharfage facilities is critical and this may not be possible at this location. Overall, the site is therefore considered to be suitable as a split main tunnel drive site, subject to availability of jetty/wharfage facilities.

L.2.45 The site was assessed as suitable as a main tunnel reception/intermediate site as it is of adequate size and has good access potential by road.

L.2.46 **Planning:** Assessed the site as suitable for use as either a split main tunnel drive or reception/intermediate site. There are few planning designations that are applicable to the site and it was considered that, with appropriate mitigation measures, these designations are unlikely to be unacceptably impacted upon. Potential impacts on the future use of the Battersea Power Station site require further consideration and mitigation.

L.2.47 **Environment:** This site was assessed as suitable for use as a split main tunnel drive or reception/intermediate site, although mitigation would be required to enable the site to be used for either purpose.

L.2.48 Based on current information, the site was regarded as suitable for both types of site from the perspective of transport, archaeology, built heritage, townscape, hydrogeology, surface water, air quality and noise. The site was also suitable as a reception shaft site from the perspective of ecology.

L.2.49 This site was considered less suitable for both site sizes from the perspective of flood risk and land quality. The site was also considered less suitable as a split main shaft site from the perspective of ecology.

L.2.50 Overall, the site was considered suitable, subject to further investigation of whether flood risk, land quality, ecology, air quality and noise impacts can be adequately mitigated.

L.2.51 **Socio-economic and community:** The site was considered less suitable for use as a split main tunnel drive site as, although the use is unlikely to have a significant impact upon the local community, there may be livelihood implications for operators and employees of the businesses likely to be lost or require relocation from the Tideway Industrial Estate. Mitigation is likely to involve discussions around relocation and/or compensation.

L.2.52 The new material jetty and excavated materials loading jetty proposed for the split main tunnel drive site may affect the use of the existing jetty to the east of the site, which has mooring posts and residential boats, and the jetty for the concrete batching plant adjacent to the site to the west. Mitigation may involve discussions around relocation of jetties and mooring posts, and/or disruption to neighbouring residential boats. Mitigation may also be required to reduce the potential for impact upon the Thames Path and to residential properties to the east of the site.
L.2.53 This site was considered **suitable** for use as a main tunnel reception/intermediate site, as its use is unlikely to have a significant impact upon the local resident community, due to the industrial and commercial land uses around the site. However, there may be livelihood implications for operators and employees of the warehouse, which is likely to be lost or require relocation. Mitigation is likely to involve discussions around relocation and/or compensation.

L.2.54 There is also the potential for works to impact upon the houseboats moored opposite the site to the east and upon the Thames Path. Mitigation may be required to maintain their access and reduce potential impacts.

L.2.55 **Property:** The combined site S73WH and S79WH was considered **not suitable** for a split main tunnel drive site due to likely substantial acquisition costs. In addition to the high land value and multiple compensation claims for business disturbance are to be anticipated.

L.2.56 Site S73WH was considered **suitable** as a main tunnel reception/intermediate site, although this is likely to be a relatively expensive option.

**S72WH: Cringle Street**

L.2.57 Site S72WH, also known as Cringle Wharf, is situated on land currently used as a materials depot within Nine Elms Industrial Area in the London Borough of Wandsworth.

L.2.58 The site is being considered as a main tunnel reception/intermediate site.

L.2.59 **Engineering:** This site was assessed as **suitable** for use as a main tunnel reception/intermediate site because of its good size and proportions and good access possibilities. The location of the site allows the alignment diversion of the main tunnel from the centre of the river to be minimised.

L.2.60 **Planning:** This site was considered **suitable** for use as a main tunnel reception/intermediate site. There are few planning designations that are applicable to the site and it is considered that, with appropriate mitigation measures, these designations are unlikely to be unacceptably impacted upon. The implications of using the site without incorporating river-based transport or associated infrastructure would require further investigation in terms of its compliance with the safeguarded wharf designation.

L.2.61 **Environment:** Overall, the site was assessed as **suitable** for use as a main tunnel reception/intermediate site, although mitigation would be required to enable the site to be used. Based on current information, the site was considered **suitable** from the perspective of transport, archaeology, built heritage, townscape, hydrogeology, surface water, ecology, air quality and noise.

L.2.62 This site was considered **less suitable** from the perspective of flood risk and land quality. However, overall, the site was considered suitable, subject to further investigation of whether flood risk and land quality can be adequately mitigated.
L.2.63 **Socio-economic and community:** This site was identified as **suitable** for use as a main tunnel reception/intermediate site. It seems likely that the greatest impact of the site’s use would be the loss or relocation of the depot currently located onsite. Mitigation may be required to ensure the refuse transfer station adjacent to the site to the west and the warehouse adjacent to the site to the east are not significantly impacted upon. Mitigation may also be required to ensure the houseboats moored to the east of the site, the job centre and Brook Court are not significantly affected by the construction works and associated vehicle movements.

L.2.64 **Property:** This site was assessed as **suitable** for use as a main tunnel reception/intermediate site. It appears likely that use of this site is would have less of an impact than other nearby sites that are included for potential development. However, the cost of acquisition is likely to be relatively expensive, regardless of whether the business is relocated or extinguished.

*S74WH with either S72WH or S73WH or S79WH: Industry/warehouses, Tideway Walk*

L.2.65 The sites under consideration were S72WH, S73WH, S74WH, S79WH and S80WH, all located within the Nine Elms area of the London Borough of Wandsworth. All sites combined are bounded by Cringle Dock to the west, Nine Elms Lane to the east and the River Thames to the north.

L.2.66 Site S72WH was being considered as a split main tunnel double drive site in conjunction with sites S73WH, S74WH, S79WH and S80WH.

L.2.67 **Engineering:** Assessed this site as **suitable** for use as a split main tunnel double drive site because of its size/proportions and access possibilities. Wharfage/jetty facilities are critical for this site because of the likely material volumes from a double drive site. Demolition works are required to accommodate the relevant temporary works, and Heathwall Pumping Station would have to be protected and maintained during the construction works.

L.2.68 **Planning:** Considered the site as **suitable** for use as a split main tunnel double drive site. There are few planning designations that are applicable to the site and it is considered that, with appropriate mitigation measures, these designations are unlikely to be unacceptably impacted upon. The proposal site would result in the loss of employment space and the relocation of lost facilities may be required to comply with LPA policy.

L.2.69 Consideration needs to be given to any necessary mitigation measures that would protect the amenity of local residents from noise, dust and site activity, and the potential relocation of adjacent houseboats. It is also necessary to determine the impact and potential for mitigation for the existing safeguarded wharves, as well as location and potential impacts of proposed jetty and conveyor facilities.

L.2.70 **Environment:** Overall, the site was assessed as **suitable** for use as a split main tunnel double drive site, although mitigation would be required to enable the site to be used. Based on current information, the site was
assessed as **suitable** from the perspective of transport, archaeology, built heritage, townscape, surface water, and air quality.

L.2.71 This site was considered **less suitable** from the perspective of ecology, hydrogeology, flood risk, noise and land quality. Overall, the site is considered **suitable**, subject to further investigation of whether ecology, hydrogeology, flood risk, noise, land quality and potentially townscape impacts can be adequately mitigated.

L.2.72 **Socio-economic and community:** Assessed the site as **less suitable** for use as a split main tunnel double drive site, as there are a number of potential impacts on the local community and economy.

L.2.73 The greatest potential impact appears likely to be from the loss of, or need to relocate, the various industrial and commercial facilities on site. In this respect, use of the site may affect the local economy through the loss of a relatively large number of businesses in one area. There may be livelihood impacts on local workers and operators through loss of these facilities. It also appears likely that a river-dwelling community living in the houseboats moored adjacent to site S79WH would face the loss of their homes or major disruption associated with the need to relocate.

L.2.74 The use of site also appears likely to require diversions or other changes to a section of the Thames Path, which was found to be a well-used, pleasant riverside environment in a predominantly industrial area.

L.2.75 **Property:** Considered this site **not suitable** for use as a split main tunnel double drive site, due to significant acquisition costs.

**S79WH: Warehouses, Tideway Walk**

L.2.76 Site S79WH incorporates the Tideway Industrial Estate, industrial buildings and warehousing, as well as general purpose areas for loading/unloading and parking, all within the Nine Elms Industrial Area of the London Borough of Wandsworth. The proposed site is bounded by Kirtling Street to the west, Nine Elms Lane to the southeast and the River Thames to the north.

L.2.77 The site was considered as a main tunnel reception/intermediate site.

L.2.78 **Engineering:** Assessed this site is **suitable** for use as a main tunnel reception/intermediate site because it is of a good overall size, has good road access with a short route to the TLRN and allows shaft construction on the river frontage. The site does, however, require significant demolition.

L.2.79 **Planning:** The site was assessed as **suitable** for use as a main tunnel reception/intermediate site. There are few planning designations that are applicable to the site, and it is considered that, with appropriate mitigation measures, these designations are unlikely to be unacceptably impacted upon. The proposed site would result in the loss of employment space and the relocation of lost facilities may be required to comply with LPA policy.
L.2.80 Consideration needs to be given to any necessary mitigation measures that would protect the amenity of nearby houseboat residents from noise, dust and site activity.

L.2.81 **Environment:** Overall, the site was assessed as **suitable** for use as a main tunnel reception/intermediate site, although mitigation would be required to enable the site to be used.

L.2.82 Based on current information, the site was considered **suitable** from the perspective of transport, archaeology, built heritage, townscape, surface water, ecology, air quality and noise. This site was considered **less suitable** from the perspective of flood risk, hydrogeology and land quality.

L.2.83 Overall, the site was considered **suitable**, subject to further investigation of whether potential flood risk, hydrogeology and land quality impacts can be adequately mitigated.

L.2.84 **Socio-economic and community:** Assessed the site as **less suitable** for use as a main tunnel reception/intermediate site, as significant mitigation would be required to address the impact on the businesses located on the Tideway Industrial Estate and the residents of the houseboats moored adjacent to the site.

L.2.85 Mitigation is likely to require discussions around relocation and/or compensation. A diversion of the Thames Path is likely to have an impact on various user groups including local workers and residents, as well as occasional users from a wider catchment, including nature or river enthusiasts. Finding acceptable diversions to the path may be complicated as the area is primarily covered with large industrial developments.

L.2.86 **Property:** This site was assessed as **not suitable** for a main tunnel reception/intermediate site, due to significant acquisition costs.

**S79WH with S80WH: Tideway Walk and TWUL Pumping Station**

L.2.87 Sites S79WH and S80WH are both located within the Nine Elms Industrial Area of the London Borough of Wandsworth.

L.2.88 Site S79WH incorporates the Tideway Industrial Estate, a concrete batching plant and other industrial buildings and warehousing, as well as general purpose areas for loading/unloading and parking. The proposed site is bounded by Kirtling Street to the west, Nine Elms Lane to the southeast and the River Thames to the north.

L.2.89 S80WH is Thames Water’s Heathwall Pumping Station and Middle Wharf, which is a designated safeguarded wharf and was formerly used as a concrete batching plant.

L.2.90 S79WH was being considered as a split main tunnel drive site (with S80WH and C17XB, which is Middle Wharf so it overlaps half of S80WH) with the CSO interception of both the Heathwall Pumping Station CSO (CS16X) and the South West Storm Relief Sewer CSO (CS17X). The site selection process to identify a preferred site to intercept these CSOs is covered separately in Appendix M.
L.2.91 **Engineering:** Assessed this site as **suitable** for use as a split main tunnel drive site with two CSO interceptions, because it is a good size with reasonable proportions and good access possibilities with potential wharfage/jetty facilities. Demolition works would be required to accommodate the relevant temporary works, and Heathwall Pumping Station would need to be protected and maintained during the construction works.

L.2.92 **Planning:** Considered the site is **suitable** for use as a split main tunnel drive site with two CSO interceptions. It is considered that, with appropriate mitigation measures, the designations applicable to the site are unlikely to be unacceptably impacted upon. The proposal site will result in the loss of employment space and the relocation of lost facilities may be required to comply with LPA policy.

L.2.93 Consideration needs to be given to any necessary mitigation measures that would protect the amenity of local residents from noise, dust and site activity, and the potential to relocate the existing moored houseboats on the site. It will also be necessary to determine potential impacts on the existing safeguarded wharf and appropriate locations of the two proposed jetties, to ensure the site layout arrangements are acceptable.

L.2.94 **Environment:** Overall, the site was assessed as **suitable** for use as a split main tunnel drive site with two CSO interceptions. Based on current information, the site was considered **suitable** from the perspectives of transport, archaeology, built heritage and townscape, surface water, air quality and noise. This site was considered **less suitable** from the perspectives of groundwater, ecology, flood risk and land quality.

L.2.95 Overall, the site was considered **suitable**, subject to further investigation of whether groundwater, ecology, flood risk and land quality impacts can be adequately mitigated.

L.2.96 **Socio-economic and community:** Assessed the site as **suitable** for use as a split main tunnel drive site with two CSO interceptions. However, there are likely to be significant impacts on the businesses operating out of the premises likely to be lost as a result of the site’s use. In addition, a number of houseboats appear likely to require relocation, as their mooring is likely to be lost or face significant disruption as a result of the proposed site configurations. Mitigation is likely to involve discussions around relocation and/or compensation.

L.2.97 Diversions to the Thames Path, or any other change to the well-used riverside open space adjacent to the site on the north, are likely to have an impact on various user groups, including local residents and local workers, as well as occasional users from a wider catchment, including nature or river enthusiasts. Finding acceptable diversions to the path may be complicated, as mitigation may be difficult in this area, which is primarily covered with large industrial developments.

L.2.98 Use of the site is also likely to be disruptive to the commercial and industrial businesses in the vicinity and could impact on the residential development to the east of the site.
L.2.100 Property: Considered this site to be not suitable for use as a split main tunnel drive site with two CSO interceptions, due to significant acquisition costs.

S87WH: Warehouse, Post Office Way

L.2.101 Site S87WH is situated within the site previously occupied by the publishers TSO, located within the Nine Elms Industrial Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the Post Office Sorting Office depot. The site is presently vacant and comprises a large complex that consists of a six-storey office block and several low-rise storage and distribution warehouses.

L.2.102 The site is being considered as a main tunnel drive and reception/intermediate site.

L.2.103 Engineering: This site was assessed as less suitable for use as either a main tunnel drive or reception/intermediate site because of the high level of demolition required. In addition, its location with respect to the river would require the main tunnel to deviate significantly from the centre line of the river, and the overflow culvert would need to cross the busy Nine Elms Lane. The site is also in close proximity to a number of warehouses, the stability of which may be affected by the shaft. For use as a main tunnel drive shaft, the provision of jetty facilities would be difficult, with a number of constraints, and the need for overhead conveyors to transport the material to and from the site over the busy Nine Elms Lane.

L.2.104 Planning: The site was considered to be less suitable for use as a main tunnel drive site but suitable for use as a reception/intermediate site. There are existing industrial activities close to the residents at Elm Quay Court that will already impact upon the residential amenity. However, the amenity for certain residents overlooking the proposal site may be further affected. Use of the proposal site may also have an adverse impact resulting from noise, dust and site traffic, and mitigation would be required. These impacts on residential properties are likely to be greater for the main drive shaft rather than the reception/intermediate site option, due to reduced scope for site development away from these properties.

L.2.105 The potential impacts arising from the use of the site as a reception/intermediate site are considered fewer than in the case of the main tunnel drive site and are likely to be able to be mitigated. In the case of both proposed options, the implementation programme and potential conflicts with the proposed American Embassy on the adjacent site are uncertain at this stage, and will require further consideration and ongoing monitoring.

L.2.106 Environment: The site was considered to be less suitable for use as a main tunnel drive site. The site was considered suitable from the perspectives of archaeology, built heritage and townscape, surface water and air quality but less suitable from the perspectives of transport, hydrogeology, ecology, flood risk, noise and land quality.

L.2.107 The site was assessed as suitable for use as a main tunnel reception/intermediate site, although mitigation will be required to enable the site to
be used. Based on current information, the site was considered **suitable** from the perspective of transport, archaeology, built heritage, townscape, surface water, ecology, air quality and noise. This site was considered **less suitable** from the perspective of flood risk, hydrogeology and land quality.

L.2.108 **Socio-economic and community:** This site was assessed as **suitable** for use as either a main tunnel drive or reception/intermediate site. Its use may impact on the Elm Quay Court residential development opposite the site to the north, due to the proximity to the jetty for loading excavated materials and the general proximity to the site. Mitigation may therefore involve discussions around minimising such disruption. Given the general industrial and commercial nature of the area, further significant impacts on the local community appear likely to be minimal.

L.2.109 **Property:** Considered the site as **suitable** for use as either a main tunnel drive or reception/intermediate site, at significant but acceptable cost. The advantage of the site is that it is a significant size, currently unoccupied and lies in an area identified for regeneration. However, there are potential issues of Crown ownership which require further investigation and it would be necessary to acquire access rights for jetties and for the overflow culvert which will add to the acquisition cost.

**S04WR: Open space, Grosvenor Road**

L.2.110 The site S04WR is an area of open space known as Pimlico Gardens, located in the London Borough of Westminster.

L.2.111 The site was considered for use as a main tunnel reception/intermediate site.

L.2.112 **Engineering:** This site was considered **less suitable** as a main tunnel reception/intermediate site because it is narrow. In addition, two single-storey buildings would require demolition. It does, however, benefit from good road access.

L.2.113 **Planning:** Assessed the site as **less suitable** for use as a main tunnel reception/intermediate site. The site is subject of a number of onsite and adjacent sensitive receptors, such as a public open amenity space, a conservation area, listed buildings and residential properties. The site area is compact and therefore offers very little flexibility in terms of the siting of construction works at a distance from these receptors, and may even be too small for use if the approved planning application for redevelopment of the existing restaurant building is implemented. Mitigation, reduced hours of construction and the reprovision of lost onsite facilities may be required by the LPA. However, visual impacts from the loss of mature trees may be difficult to mitigate against.

L.2.114 **Environment:** Overall, the site was considered potentially **suitable** as a main tunnel reception/intermediate site.

L.2.115 Based on current information, the site was assessed as **suitable** from the perspective of transport, archaeology, surface water, ecology and flood risk. This site was considered less suitable from the perspective of built heritage, townscape, hydrogeology, air quality, noise and land quality.
Socio-economic and community: Assessed this site as less suitable for use as a main tunnel reception/intermediate site from a community impacts perspective. The proposed site is located in an area of open space (Pimlico Gardens) and on a community facility (Westminster Boating Base), and is adjacent to tennis courts. The use of the site appears to lead to loss of the gardens and boating base, which may have a relatively severe impact on local open space users and recreational river users. Mitigation may involve discussions around relocating these facilities.

The works and remaining permanent structure are likely to disrupt use of the gardens and access to the river. Revenue from the use of the boating base and park for event hire and filming locations may be lost, at least temporarily, as a result of the works. Here, mitigation may involve sensitive discussions around suitable relocation and/or compensation.

In addition, the site is likely to cause disruption to the residential development and gardens opposite, particularly those dwellings that overlook the park and river. Mitigation may involve discussions around project timescales, operating times, minimising noise, and view masking.

Property: Considered the site as suitable for use as a main tunnel reception/intermediate site from a property perspective. The acquisition cost should be acceptable; however, a special parliamentary procedure may be needed to acquire it, which could cause unacceptable delays to the project. The construction site appears to take part of number 135 Grosvenor Road, which has planning permission for residential redevelopment. If possible, the construction site arrangement should be amended to avoid that property and a potentially significant compensation claim.

S11WR: Foreshore, adjacent to Riverwalk House and Vauxhall Bridge

The site S11WR is located adjacent Vauxhall Bridge on the foreshore of the River Thames in the City of Westminster

The site was being considered as a main tunnel reception/intermediate site.

Engineering: Considered the site as less suitable for use as a main tunnel reception/intermediate site because it is narrow and not conducive to an efficient working layout. It would also require extensive temporary works, including river protection, to create sufficient space for the construction phase.

Planning: Assessed the site as less suitable for use as a main tunnel reception/intermediate site. The site is subject of a number of onsite and adjacent designations and sensitive receptors, such as a conservation area and a nature conservation area of metropolitan importance, as well as residential and employment properties. Mitigation would be required to reduce visual, general amenity and setting impacts on these designations.

Further to this, the site area is compact and therefore offers very little flexibility in terms of siting the construction works at a distance from
sensitive receptors, such as the adjacent office building. Mitigation and reduced hours of construction may also be required to avoid unacceptable adverse impacts on amenity.

L.2.125 **Environment:** Overall, the site was considered to be **less suitable** for use as a main tunnel reception/intermediate site. The site was considered **suitable** from the perspectives of transport, archaeology and noise but **less suitable** from the perspectives of built heritage, townscape, water resources (hydrogeology and surface water), ecology, air quality, land quality and flood risk.

L.2.126 Overall, the site is considered **less suitable**, and further investigation would be required as to whether built heritage, townscape, water resources (hydrogeology and surface water), ecology, air quality, land quality, flood risk, and potential noise impacts could all be adequately mitigated.

L.2.127 **Socio-economic and community:** Considered this site as **less suitable** for use as a main tunnel reception/intermediate site. Use of the site appears likely to severely impede the use of Riverside Walk Gardens during operations, including disruption to the view of the river, and creation of cumulative noise impacts with Milbank Road. Mitigation may involve discussions around the time span of operations. Remnant structures in the foreshore are likely to remain as visual clutter when seen from Riverside Walk Gardens.

L.2.128 Riverwalk House, housing for the Government Office for London, a PR company, Media Trust, and the Community Channel company directly overlook the proposed main works area of the site. Therefore, works are likely to affect noise levels in the office block. Also, residential properties and a public house across the four-lane wide Milbank may experience limited noise disruption. Mitigation may involve discussions around operating times and minimising noise impacts.

L.2.129 **Property:** Considered this site as **suitable** for use as a main tunnel reception/intermediate site. It is an undeveloped area of foreshore and the acquisition cost should be acceptable. However, a special ministerial procedure may be needed to acquire it, which could cause delays to the project. Early discussions should be held with the PLA to establish whether it would agree to the acquisition

**Identification of the preferred site**

L.2.130 Consideration of the main tunnel sites up until short list stage principally focussed on each as an individual site in isolation from the assessment of tunnel drive and alignment options (ie, how the tunnel will be constructed and the route it will take). However, due to the nature of the scheme, it is necessary to select a package of main tunnel sites, paying attention to how they will work in combination and in relation to the tunnel alignment and CSO connections.

L.2.131 The *Engineering Options Report* describes the process of identifying the tunnelling options, taking into account engineering requirements. The main points are summarised below.
L.2.132 The engineering team took into consideration possible drive options – the combination of ways in which the tunnel could be constructed by ‘driving’ between combinations of shortlisted main tunnel sites – paying particular attention to changes in ground conditions and the requirement for different types of tunnelling machines, construction risks and timescales.

L.2.133 To manage the total number of combinations of tunnel drive and reception/intermediate site options, which together make up a ‘drive option’, the available shortlisted main tunnel sites were grouped together in zones. The zones were based on the geographical locations of the sites along the line of the River Thames as shown in Figure A11.2 below. The zones were numbered and named for convenient referencing as shown in the figure.

**Figure L.1 Location of site zones**

![Location of site zones](image)

L.2.134 Our preferred route for the main tunnel runs from west London to Abbey Mills Pumping Station and involves zones S1 to S7 and Zone S11. Zones S8 to S10 were only required for the previously considered River Thames and Rotherhithe routes, which are not our preferred option, so are not considered further in this appendix.

L.2.135 Multidisciplinary workshops were held to identify the most suitable main tunnel shortlisted site within each zone, taking into account the conclusions reached in the SSRs, as described above.

L.2.136 The distance between potential sites in this zone and the next set of potential sites to the east (Zone S6 Shad) is such that a main tunnel site in this zone is required to ensure maximum recommended tunnelling distances are not exceeded. There is also a change in geology at zone S5, which means it is desirable to have a main tunnel site in this location. The drive options for the central section of the tunnel were also constrained by the fact that the only potentially available main tunnel sites identified in zones S6 to S7 were assessed as only suitable for a main tunnel reception/intermediate site. This meant that either a main tunnel drive site or main tunnel double drive site (ie, driving the main tunnel in two directions from one site) would need to be identified in Zone S5. Therefore, at this stage all the sites in Zone S5 identified as only suitable for main tunnel reception/intermediate sites were discounted.
The decision was then whether to use a site in Zone S5 as a double drive site (to drive the tunnel both east and west) or, alternatively, to use the site as a single drive site to drive the tunnel in one direction only, while receiving from the other direction.

As a consequence, the following two site options were identified as the preferred sites for Zone S5 from which to construct the central sections of the main tunnel:

- Option 1: S79WH with S80WH: Tideway Walk (suitable for use as a main tunnel drive site).
- Option 2: S79WH with S80WH with S72WH, S73WH and S74WH: Tideway Walk (suitable for use as a double main tunnel drive site).

These sites at Tideway Walk were identified as the preferred site options for developing a shaft to construct the central sections of the main tunnel for a number of reasons, which are summarised below:

- The preference for S79WH and S80WH offers the opportunity to combine the requirements of the main tunnel drive works with those of the CS16X Heathwall Pumping Station interception and CS17X South West Storm Relief interception, thereby minimising CSO works into one site.
- The other drive site possibilities (including S61WH: Battersea Park and S68WH: Battersea Power Station) are further from the Heathwall Pumping Station and South West Storm Relief sewers and therefore increase the scope of works required to connect these CSOs to the main tunnel.
- The preferred sites are close to the river, which means that the main tunnel alignment deviation from the centre of the river is minimised, reducing potential for third-party impacts.
- The access and transport to the preferred site is very good with respect to road, while access to the river is a little more restricted but possible. This would require the installation of jetties to the eastern end, which would need to be designed to minimise the impact on both Middle Wharf and RMC Battersea Wharf. These areas are protected as safeguarded wharves.
- The shaft sites S72WH, S73WH, S74WH, S79WH and S80WH are all clustered together within an overall area of industrial character consisting of warehouse buildings, depots and office accommodation.
- The five sites (S72WH, S73WH, S74WH, S79WH and S80WH) cover an area of approximately 35,000m². The combined sites are considered suitable from the perspective of engineering, planning and environment, but less suitable from a property and community perspective. The combined sites fall within a number of designated areas of the Wandsworth Unitary Development Plan, including the Nine Elms Opportunity Area, an archaeological priority area, Thames Policy Area and a safeguarded wharf. The closest sensitive receptors are two moorings on the immediate river frontage of site S79WH.
Appendix L – Kirtling Street (formerly Tideway Walk)

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currently in use by a small residential boating community. There are a number of existing jetty facilities along the river foreshore associated with the combined sites. There is road access from Kirtling Street and Cringle Street, which is a short distance from the A3205 (Nine Elms Lane).

- It is considered that the constraints identified in relation to sites S72WH, S73WH, S74WH, S79WH and S80WH could be addressed with appropriate mitigation measures and that no substantive conflict with planning policy would result. However, serious concerns remain in property terms and with respect to acquisition costs for these sites, the proposed developments that may commence and the likely multiple land ownership and rights. This concern exists to a lesser or greater extent for all the sites considered, although the type of land acquisition concerns differ for S61WH: Battersea Park, which was least favourable for planning, environmental and community considerations.

L.2.140 A series of comparisons were then made to determine how best to use the potential sites identified across all the zones to construct the main tunnel.

L.2.141 The outcome of these comparisons was that S79WH with S80WH was identified as the preferred site in Zone S5, as the tunnel strategy required only a single drive shaft for the main tunnel in this zone. This site would also be used to connect the Heathwall Pumping Station CSO to the main tunnel as the CSO is in close proximity and the vortex drops could be housed within the main shaft.

L.2.142 At the same time, site S17RD: Barn Elms Sports Centre was identified as a preferred drive site for the main tunnel in zones S1 to S4 (see Appendix G) and S54SK: King’s Stairs Gardens as a preferred reception/intermediate site for the main tunnel in Zone S6 (see Appendix R).

L.3 Review of site selection following phase one consultation

Phase one consultation responses

L.3.1 As part of the site selection methodology, all feedback received during the phase one consultation was reviewed and taken into account in the development of our scheme for phase two consultation.

L.3.2 The main issues and concerns raised during phase one consultation in relation to the Tideway Walk site are summarised below.

L.3.3 The main issues raised included:

- impact on boat moorings and community severance
- impact on residential amenity
- impact on the planned regeneration of the area
- design of the permanent proposals for the site
- impact on Cringle Dock Wharf.
L.3.4 The main comments received in support included:
- it is a brownfield and industrial site and area
- it would have less impact on the existing heritage than the alternatives
- it has good transport infrastructure and would allow transport of material by barge
- reduced impact on residential amenity compared to the alternatives
- proposals for site after construction considered acceptable.

L.3.5 More detail on the consultation responses relating to this site and our response to the comments received are provided in the Report on phase one consultation.

Back-check process

L.3.6 Our site monitoring found that our preferred main tunnel site at Tideway Walk was no longer available for use. Site S79WH has planning permission for a residential development and demolition work has started on site. We therefore carried out a ‘back-check’ to find an alternative site\(^1\) and to review our drive options for Zone 5.

L.3.7 This ‘back-check’ involved a targeted repeat of each relevant stage of our site selection process (as detailed in the Site selection methodology paper) to find the most suitable main tunnel site in Zone S5.

L.3.8 As already noted, it is desirable to have a main tunnel drive site in this zone. This need to identify a new main tunnel drive site in this zone and others in zones S0 to S4 and S6 to S7 also provided an opportunity to review the tunnelling strategy for the central sections of the tunnel.

Engineering assumptions

L.3.9 As part of the back-check process, the engineering assumptions which had been used during the initial phase of site selection were reviewed to see if any of the design developments or new technical information altered any of the original assumptions.

L.3.10 The outcome of this review was that for zones S0 to S5 (covering the section of the tunnel to be constructed predominantly in London Clay), the size of construction site required for a main tunnel drive site was reduced from 18,000m\(^2\) to 15,000m\(^2\). This important change allowed the back-check process to review sites previously considered too small for a main tunnel drive site. At the same time, it was established that the size of site required for a double drive site (ie, tunnelling in two directions concurrently from one shaft) should be 20,000m\(^2\).

L.3.11 The following section outlines the results from each stage of the back-check process.

\(^1\) It should be noted that S80WH is the same site area as our phase two consultation site C16XB to intercept Heathwall Pumping Station CSO and South East Storm Relief CSO (see Appendix M for details). At the SSR stage, described later in this section, we only consider S80WH with S86WH and S94WH to provide both these potential sites with access to the River Thames.
Assessment of the back-check long list

L.3.12 The original long list sites for main tunnel drive shaft sites in Zone S5 contained 157 sites. These sites were reviewed alongside any newly identified sites to determine the ‘scope’ of the back-check exercise (ie, which sites would be subject to reassessment as a result of the relevant change of circumstances or new information that had emerged). The result of this scoping exercise found we needed to reassess the following 12 sites:

- S61WH: Battersea Park
- S68WH: Battersea Power Station
- S72WH: Cringle Street
- S86WH: Post Office, Nine Elms Lane
- S03WR: Foreshore, Grosvenor Road
- S04WR: Open space, Grosvenor Road
- S11WR: Foreshore, adjacent to Riverwalk House and Vauxhall Bridge.

L.3.13 In addition, the following new sites were added to the back-check long list:

- S92WH: Part of Battersea Power Station (previously part of S68WH and S69WH)
- S93WH: Kirtling Street (previously S73WH with S74WH and S75WH)
- S94WH: Post Office Way (previously S87WH and part of S88WH)
- S95WH: Depots, Ponton Road (previously part of S89WH and all of S90WH).

L.3.14 All the other sites on the original long list were scoped out as there had been no change in circumstances necessitating a reappraisal. The potential group of sites listed above were put on the back-check long list. It should be noted that at this stage, consideration was also given to alternative sites suggested by consultees.

L.3.15 Sites S69WH, S73WH, S74WH, S75WH, S87WH, S88WH, S89WH and S90WH were withdrawn as these were replaced by the new sites, as detailed above.

L.3.16 The back-check long list sites were then assessed against the engineering, planning, environment, community and property considerations set out in Table 2.2.

L.3.17 The table below summarises the outcome of the ‘back-check’ assessment of the back-check long list of sites. Sites which were assessed as being the least constrained when considered against Table 2.2 considerations passed to the next stage of assessment. This did not necessarily mean that these sites would ultimately be judged as suitable, but that no significant constraints were identified in relation to the high-level considerations addressed at Table 2.2. Sites that were judged to be more constrained were not recommended to be passed to the back-check short
list for more detailed assessment. The main rationale for the exclusion of these sites at this stage is summarised below.

L.3.18 For sites not excluded at this stage, we then determined how these sites would be assessed at the Table 2.3 assessment based on size. For some sites, this also included examining neighbouring sites to see if they could be used together.

**Table L.1 Long list to draft short list for main tunnel sites in Zone S5 (Table 2.2 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/ description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>S61WH</td>
<td>Battersea Park</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S68WH</td>
<td>Battersea Power Station</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S72WH</td>
<td>Cringle Street</td>
<td><strong>Recommendation:</strong> To draft shortlist as a split main tunnel site and reception/intermediate site with S93WH. Also to be considered as a reception/intermediate site on its own.</td>
</tr>
<tr>
<td>S86WH</td>
<td>Post Office, Nine Elms Lane</td>
<td><strong>Recommendation:</strong> To draft shortlist as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S92WH</td>
<td>Part of Battersea Power Station</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S93WH</td>
<td>Kirtling Street</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S94WH</td>
<td>Post Office Way</td>
<td><strong>Recommendation:</strong> To draft shortlist as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S95WH</td>
<td>Depots, Ponton Road</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S03WR</td>
<td>Foreshore, Grosvenor Road</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S04WR</td>
<td>Open space, Grosvenor Road</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S11WR</td>
<td>Foreshore, adjacent to Riverwalk House and Vauxhall Bridge</td>
<td><strong>Recommendation:</strong> To draft shortlist as a main tunnel reception/intermediate site.</td>
</tr>
</tbody>
</table>
NB. The Site ID and Site name/description were used as an internal mechanism to record and describe the site but may be updated if necessary.

L.3.19 Full details are provided in back-check Table 2.2 assessment tables and accompanying plans.

L.3.20 Of the 11 sites identified, all 11 were assessed as potentially suitable and passed to the draft short list. None were eliminated as being unsuitable.

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

L.3.21 The 11 back-check draft shortlisted sites were then further assessed by the engineering, planning, environment, community and property disciplines, having regard to the considerations set out in Table 2.3 of the SSM.

L.3.22 The table below summarises the outcome of the ‘back-check’ assessment of the draft short list of sites. Sites which were assessed as being the least constrained when considered against Table 2.3 considerations were retained on the back-check short list to pass to the next stage of assessment. This did not necessarily mean that a site would ultimately be judged as suitable, but that no significant constraints were identified in relation to the considerations addressed at Table 2.3. Sites that were judged to be more constrained were not recommended to be retained on the back-check short list for more detailed assessment.

**Table L.2 Draft short list to final short list for main tunnel sites in Zone S5 (Table 2.3 assessment)**

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site name/description</th>
<th>Recommendation and rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>S61WH</td>
<td>Battersea Park</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S68WH</td>
<td>Battersea Power Station</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S72WH</td>
<td>Cringle Street</td>
<td><strong>Recommendation:</strong> Retain on short list as a split main tunnel site and reception/intermediate site with S93WH. Also to be considered as a reception/intermediate site on its own.</td>
</tr>
<tr>
<td>S86WH</td>
<td>Post Office, Nine Elms Lane</td>
<td><strong>Recommendation:</strong> Retain on short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S92WH</td>
<td>Part of Battersea Power Station</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
<tr>
<td>S93WH</td>
<td>Kirtling Street</td>
<td><strong>Recommendation:</strong> Retain on short list as a main tunnel site and main tunnel reception/intermediate site.</td>
</tr>
</tbody>
</table>
### Site ID | Site name/ description | Recommendation and rationale
--- | --- | ---
S94WH | Post Office Way | **Recommendation:** Retain on short list as a split main tunnel site with S80WH and a main tunnel reception/intermediate site.
S95WH | Depots, Ponton Road | **Recommendation:** Retain on short list as a main tunnel site and main tunnel reception/intermediate site.
S03WR | Foreshore, Grosvenor Road | **Recommendation:** Not to shortlist for consideration as a main tunnel site or a main tunnel reception/intermediate site.  
**Rationale:**  
- Engineering – Further investigation shows the location of the EDF cable that passes through the site would constrain the use of this site.  
- Property – The multiple leases may make acquisition complex. There is also potential high discretionary purchase cost.  
- Community – There are a significant number of sensitive receptors in close proximity of the site including residential, a nursery school, and recreation area.
S04WR | Open space, Grosvenor Road | **Recommendation:** Not to shortlist for consideration as a main tunnel site or a main tunnel reception/intermediate site.  
**Rationale:**  
- Engineering – Further investigation shows the location of the EDF cable that passes through the site would constrain the use of this site.  
- Property – The site is in multiple ownership and residents also have shared ownership of adjoining tennis courts, so the acquisition may be complex. Also there is likely to be a potential high discretionary purchase cost.  
- Community – There are a significant number of sensitive receptors within and close proximity of the site including community gardens, tennis courts and a boat club.
L.3.23 Full details are provided in back-check Table 2.3 assessment tables and accompanying plans.

L.3.24 Of the 11 sites on the back-check draft short list, eight were assessed as potentially suitable and passed to the final short list, while three were eliminated as being unsuitable.

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

L.3.25 Following back-check, the eight shortlisted sites identified for assessment at the next stage were:

Sites identified as suitable for use as main tunnel drive or reception/intermediate sites:

- S61WH: Battersea Park
- S68WH: Battersea Power Station
- S72WH: Kirtling Street (with Cringle Street) – split main tunnel site with S93WH.
- S86WH: Post Office, Nine Elms Lane – split main tunnel site with S80WH
- S92WH: Part of Battersea Power Station
- S93WH: Kirtling Street
- S94WH: Post Office Way – split main tunnel site with S80WH
- S95WH: Depots, Ponton Road.

L.3.26 A site suitability report (SSR) was prepared for the new back-check final short list sites and the SSRs for the phase one shortlisted sites were re-evaluated. The size of site required was reduced in line with the
revised engineering assumptions for a main tunnel drive site constructed in clay.

**S61WH: Battersea Park**

L.3.27 **Engineering:** The engineering assessment remained unchanged.

L.3.28 **Planning:** While a number of development plan documents have been adopted since the SSR was completed, the updated policies do not have an impact on the final planning assessment decisions.

L.3.29 **Environment:** The environment assessment remained unchanged.

L.3.30 **Socio-economic and community:** There is likely to be an impact on neighbouring residential properties which is not included in the previous assessment. However, the socio-economic and community recommendations remain **not suitable** for main tunnel double drive site and **less suitable** for main tunnel single drive and reception/intermediate sites.

L.3.31 **Property:** Site acquisition costs are likely to be very high if replacement land is required. The property assessment would be **less suitable** for a main tunnel double and single drive site due to high acquisition costs associated with providing replacement land. Acquisition costs are likely to be acceptable for a reception/intermediate site and the property assessment would therefore remain **suitable**.

**S68WH: Battersea Power Station**

L.3.32 **Engineering:** The engineering assessment remained unchanged.

L.3.33 **Planning:** While a number of development plan documents have been adopted since the SSR was completed, the updated policies do not have an impact on the final planning assessment decisions.

L.3.34 **Environment:** The environmental assessment remained unchanged.

L.3.35 **Socio-economic and community:** There is likely to be an impact on neighbouring residential properties which is not included in the previous assessment in the assessment. However, the socio-economic and community recommendations remain **suitable** for all site types.

L.3.36 **Property:** This site is now considered **less suitable** for use as a main tunnel double and drive site and a reception/intermediate site. The site appears to be in private ownership and should therefore present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However the site will command residential development value and the acquisition cost will be very high. If development commences, the site may no longer be available for acquisition, which represents a significant risk to the project.

L.3.37 It is important that any use of the worksite does not prejudice the wider redevelopment of the Battersea Power Station site. If the development was prejudiced, any acquisition may be opposed by London Borough of Wandsworth and the GLA, as well as Treasury Holdings. This would create a significant acquisition risk.
L.3.38 There is also a risk the acquisition cost could be significantly higher than currently estimated if noise and dust from works prevented development of the rest of the Battersea Power Station site.

S72WH/S93WH: Kirtling Street (with Cringle Street)

L.3.39 S72WH, also known as Cringle Wharf, is situated on land currently used as a materials ready-mix concrete depot. S72WH is relatively flat and rectangular in shape. The depot site connects to an existing jetty by means of an overhead conveyor structure. The majority of the site consists of outdoor storage areas for aggregates for use within a ready-mix operation.

L.3.40 S93WH is situated across three parcels of land currently occupied by industrial warehousing, a depot, a former petrol filling station and office buildings within the Nine Elms Industrial Area of the London Borough of Wandsworth. Kirtling Street and Cringle Street run through and around the construction site. The site is bounded by the River Thames to north.

L.3.41 This site is being considered as a main tunnel double and single drive site and a reception/intermediate site.

L.3.42 **Engineering:** This site was considered suitable for use as a main tunnel double or single drive site or a reception/intermediate site because the site is of a suitable size, is located on the riverside and is in a good location for the tunnel alignment. Furthermore, the shaft and jetty are located some distance from the houseboats at Nine Elms Pier and from the Riverlight development on the Tideway Walk site. The combined site is also large enough to accommodate the ready-mix concrete operator and for them to use the existing Cringle Wharf jetty.

L.3.43 **Planning:** On balance, the combined sites are considered suitable as a main tunnel double or single drive site or a reception/intermediate site, provided sufficient mitigation measures are employed to avoid unacceptable impacts on planning designations. While part of site S93WH is within the planning application boundary to redevelop the Battersea Power Station, this area forms the latter phases of the approved proposals, which is likely to be compatible with our construction timetable.

L.3.44 The site can be used either with or without the aggregates facility as this will be in accordance with its safeguarded wharf designation. Further consultation with the operator of the aggregates wharf may be required in order to avoid a conflict in operations and barge movements through the joint use of the jetty facility. Proposals for use of the jetty would also need to ensure the works do not negatively impact operations of the adjacent Waste Transfer Station to the west.

L.3.45 The increase in tunnelling activity and transport movements associated with a double drive would result in a higher level of noise, dust, lighting and traffic movements, with potentially twice as many transport movements as a single drive site. However, due to the location of the site within a wider industrial area designated for substantial future regeneration, the surrounding receptors are likely to experience disruption from the associated construction activity in any case. However, the
cumulative impacts of increased vehicle movements will need to be considered with the redevelopment proposals which come forward in the surrounding area, to ensure wider cumulative impacts are not experienced.

L.3.46 **Environment:** Overall, the site was considered to be **suitable** for use as a main tunnel double or single drive site or a reception/intermediate site.

L.3.47 Based on current information, the site was assessed as **suitable** from the perspective of transport, archaeology, built heritage, townscape, water resources (surface water), and flood risk.

L.3.48 This site was considered **less suitable** from the perspectives of water resources (hydrogeology), ecology, air quality, noise and land quality.

L.3.49 Overall, the site is considered **suitable**, but further investigation would be required as to whether water resources (hydrogeology), ecology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.50 **Socio-economic and community:** This site is considered **less suitable** for use as a main tunnel double or single drive site because its use appears likely to impact on a residential boat community moored to the east of the site. The impacts will be greatest if the site is used as a double drive site due to the greater scale of work due to the requirement for 24-hour working, the scale of work and the location of the extended jetty facilities which may cause some disruption on the houseboat community. The disruption caused by the use of jetties is likely to be reduced if the whole of site S72WH can be utilised.

L.3.51 The site is considered **suitable** for use as a reception/intermediate site as this option appears likely to cause less disruption to the boat community. Even though 24-hour working is still proposed, the scale of work is vastly reduced when compared to the other options so the impacts appear more likely to be able to be mitigated.

L.3.52 **Property:** The combined site is considered to be **less suitable** for use as a main tunnel double or single drive site or a reception/intermediate site. The site is in private ownership, therefore there are no significant procedural difficulties in acquiring the land using compulsory purchase powers. Furthermore, the site includes a protected wharf which prevents higher value uses, resulting in lower acquisition costs for that part of the site. However, the majority of the site will command residential development value. This will result in high acquisition costs. Also, if development commences, the site may no longer be available, which represents a risk to the project.

L.3.53 If the site is shared with the current wharf user, disturbance costs are likely to be lower as the business can continue to operate, but this will not make a significant difference to the overall acquisition cost. Therefore, the assessment remains suitable for all site options.

**S86WH: Post Office, Nine Elms Lane**

L.3.54 S86WH is situated within the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts on to Nine Elms Lane and is bounded to the west, south and east by
industrial uses, such as warehouses and depots, as well as the New Covent Garden Market. The site is currently occupied by the Royal Mail Sorting Office depot.

L.3.55 The site is considered for use as a main tunnel double or single drive site and a reception/intermediate site.

L.3.56 **Engineering:** Assessed the site as less suitable for use as a main tunnel double or single drive site or reception/intermediate site because of the likelihood of highly contaminated ground on site, and its distance from the river would require the main tunnel to deviate significantly from the river and pass south of Battersea Power Station under the redevelopment site and under a number of critical service tunnels along Nine Elms Lane. The provision of jetty facilities would be difficult, with a number of constraints, and the need for overhead conveyors to transport the excavated materials over Nine Elms Lane via site S80WH.

L.3.57 **Planning:** On balance, the site was considered less suitable for use as a main tunnel single main drive or reception/intermediate site. Use of the proposed site was seen as likely to have an unacceptable impact on the development potential of the surrounding area. Due to the main shaft being located away from the River Thames, the tunnel alignment would have to divert further inland and potentially affect the feasibility of future high-density and high-rise development opportunities above its alignment.

L.3.58 A main tunnel double drive site is also considered less suitable as it would have increased tunnelling activity and transport movements, and would require use of overhead conveyors. This is likely to result in an increased level of noise, dust, lighting and traffic movements, with potentially twice as many transport movements.

L.3.59 **Environment:** Overall, the site was considered to be less suitable for use as a main tunnel double or single drive site or reception/intermediate site. This was primarily due to the high potential for ground contamination of the site to have occurred as a result of the site’s previous use as a gas works. Known contamination issues include heavy metals, and the potential exists to encounter underground tanks on site and subterranean tar lagoons which were not mapped. Remediation costs are therefore likely to be extensive.

L.3.60 Based on current information, the site was considered suitable for all site options from the perspective of transport, archaeology, built heritage and townscape, flood risk and water resources (surface water). It is also suitable from the perspective of ecology for the reception/intermediate site option.

L.3.61 The site was considered less suitable for all site options from the perspective of water resources (hydrogeology), air quality, noise and land quality. It is also less suitable from the perspective of ecology for the single or double main tunnel drive site.

L.3.62 Should the site be selected, further investigation will be required as to whether hydrogeology, ecology, air quality, noise and land quality impacts could all be adequately mitigated.
L.3.63 **Socio-economic and community:** This site was considered **less suitable** for use as a main tunnel double or single drive site. This was predominantly because use of and access to the materials jetties associated with the site is likely to involve some construction related disruption to Elm Quay residents and the boat community moored in the vicinity of the existing pumping station.

L.3.64 The site is considered **suitable** for use as a reception/intermediate site as it appears unlikely that its use for this option would impact on the local community, especially in the context of the proposed redevelopment of the whole area.

L.3.65 **Property:** If the Royal Mail office on site is not operational, the site was assessed as **less suitable** as a main tunnel double or single drive site. The site is likely to command residential development value and the acquisition cost will be high. However, the site is considered **suitable** as a reception/intermediate site, with acceptable acquisition costs.

L.3.66 If the site remained operational for Royal Mail purposes, it would be considered **not suitable** on acquisition cost and risk grounds for all three options. However, Royal Mail has development aspirations for the site and therefore it is unlikely the operational use of the site will continue.

**S92WH: Part of Battersea Power Station**

L.3.67 The site forms part of the area identified for the Battersea Power Station redevelopment scheme within the Nine Elms area of the London Borough of Wandsworth.

L.3.68 The site is irregular in shape, with a river frontage, and accessible via Cringle Street and Kirtling Street.

L.3.69 The site is occupied by an existing district heating plant which serves the north side of the river, as well as general purpose hardstanding for parking, loading/unloading and storage. The central area of the site also contains the Grade II listed Battersea Power Station and the southern section includes areas cleared in connection with the power station redevelopment.

L.3.70 The site was being considered for use as a double or single main tunnel drive site and a reception/intermediate site.

L.3.71 **Engineering:** This site was considered **suitable** for use as a main tunnel single drive and reception/intermediate site but **less suitable** as a main tunnel double drive site because of the constrained site shape with the double drive option requiring a larger shaft leaving very limited access room around it. Although the site is directly by the river, which is good for the tunnel alignment, it will require the relocation of the ‘Dalkia’ district heating boiler building (for Dolphin Square) prior to the works commencing and is close to existing Thames Water shafts associated with clean water tunnels under the river, including the London Ring Main. Materials handling by river barge would have to be at the existing Battersea Power Station jetty, which may not be available.

L.3.72 **Planning:** On balance, the site was considered **less suitable** for use as a main tunnel double or single drive site or a reception/intermediate site.
Following discussions with the applicant, the land forming S92WH is being proposed as the construction site for the approved Battersea Power Station redevelopment works and is critical in order to implement the permission. It is therefore envisaged that the area proposed for the Thames Tunnel is unlikely to be temporarily used for a main tunnel site without delaying or preventing the redevelopment of a significant portion of the wider site or of the listed power station itself.

L.3.73 For a main tunnel double drive site, there is also a potential conflict of barge movements and use of the river, and the proximity of the existing Waste Transfer Station barge access.

L.3.74 **Environment:** Overall, the site was considered to be *less suitable* for use as a main tunnel double or single drive site or a reception/intermediate site. The site was considered *suitable* from the perspectives of transport, archaeology, surface water, hydrogeology, flood risk and noise. In the case of the reception/intermediate option, the site is also considered *suitable* from the perspective of ecology. The site was considered *less suitable* from the perspective of built heritage, townscape, air quality and land quality. In the case of the main tunnel double and single drive options, the site was also considered *less suitable* from the perspective of ecology. Overall, the site was considered *less suitable*, and further investigation will be required as to whether built heritage, townscape, ecology, air quality and land quality impacts could all be adequately mitigated.

L.3.75 **Socio-economic and community:** This site was considered *suitable* for use as a main tunnel double or single drive site or a reception/intermediate site.

L.3.76 At this stage, the use of the site appears unlikely to cause major levels of disruption to the local community. This, however, depends on the ability to relocate the district heating facility efficiently so as to ensure minimum break in service and that construction works are effectively screened from residential properties opposite the eastern and southern edge of the site.

L.3.77 **Property:** This site was considered *less suitable* for use as a main tunnel double or single drive site or a reception/intermediate site. The site appears to be in private ownership and should therefore present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site will command residential development value and the acquisition cost will be very high. If development commences, the site may no longer be available for acquisition, which represents a significant risk to the project.

L.3.78 It is important that any use of the worksite does not prejudice the wider redevelopment of the Battersea Power Station site. If the development was prejudiced, any acquisition may be opposed by LB Wandsworth and the GLA, as well as Treasury Holdings. This would create a significant acquisition risk.

L.3.79 There is also a risk the acquisition cost could be significantly higher than currently estimated if noise and dust from works prevented development of the rest of the Battersea Power Station site.
Appendix L – Kirtling Street (formerly Tideway Walk)

**S93WH: Kirtling Street**

L.3.80 Site S93WH is situated across three parcels of land currently occupied by an industrial warehousing, a depot, former petrol filling station and office buildings within the Nine Elms Industrial Area of the London Borough of Wandsworth. Kirtling Street and Cringle Street run through and around the construction site. The site is bound by the River Thames to the north.

L.3.81 The Cringle Street ready-mix concrete depot, an office building, Cringle Dock Waste Transfer Station and Thames Water Pumping Station are situated to the west of the site. The Tideway Industrial Estate, Nine Elms Lane and Royal Mail Sorting Office are situated to the east. New Covent Garden Market and properties located along Battersea Park Road are located to the south of the site.

L.3.82 The site was being considered for use as a main tunnel double or single drive site or a reception/intermediate site.

L.3.83 **Engineering:** This site was considered suitable for use as a main tunnel double or single drive site or a reception/intermediate site because the site is of a suitable size, is located on the riverside and is acceptable for the tunnel alignment. The provision of jetty facilities would though be difficult, as this will rely on using the area in front of the existing Nine Elms Pier and Cringle Wharf and/or using the pier itself, which would mean the relocation of a significant number, and possibly all, of the residential boats around Nine Elms Pier.

L.3.84 **Planning:** On balance, the combined sites are considered suitable as a main tunnel double or single drive site or a reception/intermediate site, provided sufficient mitigation measures are employed to avoid unacceptable impacts on planning designations. While part of the site is within the planning application boundary to redevelop the Battersea Power Station, this area forms the latter phases of the approved proposals, which is likely to be compatible with our construction timetable.

L.3.85 The use of jetties for a drive site would require the achievement of a much higher standard of mitigation to avoid unacceptable levels of impact on the amenity of the existing houseboats arising from 24-hour working, noise, dust, lighting and traffic movements. However, a number of houseboats may require temporary relocation.

L.3.86 The increase in tunnelling activity and transport movements associated with a double drive would result in a higher level of noise, dust, lighting and traffic movements, with potentially twice as many transport movements as a single drive site. However, due to the location of the site within a wider industrial area designated for substantial future regeneration, the surrounding receptors are likely to experience disruption from the associated construction activity in any case.

L.3.87 **Environment:** Overall, the site was considered to be suitable for use as a main tunnel double or single drive site or a reception/intermediate site.

L.3.88 Based on current information, the site was assessed as suitable from the perspective of transport, archaeology, built heritage, townscape, water resources (surface water), and flood risk.
L.3.89 This site was considered less suitable from the perspectives of water resources (hydrogeology), ecology, air quality, noise and land quality.

L.3.90 Overall, the site is considered suitable, but further investigation would be required as to whether water resources (hydrogeology), ecology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.91 **Socio-economic and community:** This site was considered less suitable for use as a main tunnel double or single drive site or reception/intermediate site because use of the site for any form of site in this location is likely to require the relocation of the residential boat community moored in the vicinity of the site. The impacts will be greatest if the site is used as either a double or single drive site due to the requirement for 24-hour working and the proposed location of the jetties. While the reception/intermediate site option may cause less disruption and the impacts are more likely to be able to be mitigated, a number of houseboats will still be in close proximity to the main shaft works area.

L.3.92 **Property:** This site was considered less suitable for use as a main tunnel double or single drive site or a reception/intermediate site due primarily to high acquisition cost. The site is in private ownership and therefore the freehold ownership should present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site will command residential development value and the acquisition cost will be high. Also, if development commences, the site may no longer be available for acquisition, which represents a risk to the project. The site is also part occupied by the Victoria and Albert Museum, which is a Crown interest that cannot be acquired by compulsory purchase, and therefore acquisition will need to be by agreement.

**S94WH: Post Office Way**

L.3.93 S94WH is situated within the site previously occupied by the publishers TSO, located within the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the Post Office sorting depot, and the east by the proposed American Embassy site. The site is currently vacant and comprises a large complex that consists of a six-storey office block and several low-rise storage and distribution warehouses.

L.3.94 The site was being considered for use only as a as a main tunnel single drive and reception/intermediate site as it is too small to accommodate the core and ancillary activities required for a main tunnel double drive site.

L.3.95 **Engineering:** This site was considered as less suitable for use as either a main tunnel single drive site or reception/intermediate site because of the likelihood of highly contaminated ground and underground structures, and its location with respect to the river would require the main tunnel to deviate significantly from the river and pass directly under Heathwall Pumping Station or the Tideway Industrial Estate. The provision of jetty facilities would be difficult, with a number of constraints and the need for overhead conveyors to transport the spoil over Nine Elms Lane via
S80WH. Also the location of this site means the alignment of the main tunnel would need to make a tight 124 degree turn.

L.3.96 **Planning:** On balance, the site was considered suitable for use as a reception/intermediate site. The site has good transport and access connections onto Nine Elms Lane and its industrial site context means the works are unlikely to have a detrimental effect on the amenity of the surrounding area.

L.3.97 On balance, the site is considered less suitable as a main tunnel single drive site. The use of overhead conveyors across Nine Elms Lane to manage the increased construction activity on the site, and the proximity of the jetties to residential properties at Elm Quay Court and the existing houseboat community, will have an unacceptable impact on amenity.

L.3.98 **Environment:** Overall, the site was considered to be less suitable for use as a main tunnel single drive site or reception/intermediate site. This was primarily due to the high potential for ground contamination of the site to have occurred as a result of the site’s previous use as a gas works. Known contamination issues include heavy metals, and the potential exists to encounter underground tanks on site and subterranean tar lagoons which were not mapped. Remediation costs are therefore likely to be extensive.

L.3.99 Based on current information, the site is suitable from the perspective of transport, archaeology, built heritage and townscape, flood risk and water resources (surface water). For the reception/intermediate option, the site is also considered suitable from the perspective of ecology.

L.3.100 This site is considered less suitable from the perspectives of water resources (hydrogeology), air quality, noise and land quality. For the single main tunnel drive option, the site is also considered less suitable from the perspective of ecology.

L.3.101 Overall, the site is considered less suitable, and further investigation would be required as to whether hydrogeology, ecology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.102 **Socio-economic and community:** This site was considered less suitable for use as either a main tunnel single drive site or a reception/intermediate site.

L.3.103 The use of this site and associated infrastructure appears likely to impact on residents of Elm Quay Court and the houseboat community in the vicinity. There is also the potential works in this location could impact on any future residents of the Tideway industrial development, the Royal Mail Sorting Office site and users of the US Embassy site.

L.3.104 **Property:** This site was considered less suitable as a main tunnel site or reception/intermediate site due to acquisition risk and high acquisition cost. The site appears to be in private ownership and therefore compulsory purchase of the site is possible. However, the site will command residential development value and the acquisition cost will be very high for the single drive option. Furthermore, if development
commences, the site may no longer be available for acquisition, which represents a significant risk to the project.

L.3.105 We have also received an initial objection in strong terms from the US Government to the use of this site, as it is adjacent to the new US Embassy site. If the US Government mounted an objection to the use of this site, this would represent a significant risk of failure to get confirmed compulsory purchase powers to acquire the site.

**S95WH: Depots, Ponton Road**

L.3.106 S95WH is situated within the Vauxhall Nine Elms Battersea Opportunity Area in the London Borough of Wandsworth. The proposed site fronts onto Nine Elms Lane and is bounded to the west by the proposed American Embassy site, the northeast/east by New Covent Garden Flower Market and by railway lines to south. The site largely comprises of a number of low-rise distribution depots and also includes an electricity substation and part of the South Bank Business Centre.

L.3.107 The site was being considered for use as a main tunnel double or single drive site and a reception/intermediate site.

L.3.108 **Engineering:** This site was considered suitable for use as a main tunnel double or single drive site or a reception/intermediate site because the site is large enough, is close to the river and the tunnel would not have to pass below any third-party structures. One disadvantage is that the river access is separated from the site by Nine Elms Lane, requiring the spoil conveyors to cross over Nine Elms Lane at high level, and materials having to traverse along Nine Elms Lane from Middle Wharf.

L.3.109 **Planning:** On balance, the site was considered suitable for a reception/intermediate site. The site has good transport and access connections onto Nine Elms Lane, and its industrial site context means the works are unlikely to have a detrimental effect on the amenity of the surrounding area.

L.3.110 However, the proposed site is considered less suitable as a main tunnel single drive site as this is likely to have an unacceptable impact on the residents of Elms Quay Court and Riverside Court, situated to the north of the site and fronting onto the River Thames. The proposed overhead conveyor belt that would transport excavated materials from the site to the jetty would pass between these two residential properties in close proximity. The barge movements to and from the jetty may also cause disturbance to the residents fronting the river.

L.3.111 The proposed main tunnel double drive option is considered not suitable. The planning considerations and impacts are considered to grow in significance for a double drive, with increased tunnelling activity and associated intensification of noise, dust, lighting and traffic impacts. These impacts are of particular concern in relation to the use of the overhead conveyors and the potentially significant impact on the residential amenity. A potential conflict in relationship between the construction site and the adjacent proposed US Embassy may also become more critical due to the additional construction activity associated
with a double drive concentrated onto the same site area proposed for a single main drive site.

L.3.112 Environment: Overall, the site was considered to be suitable for a main tunnel double or drive site or a reception/intermediate site. However, mitigation would be required to enable the site to be used.

L.3.113 Based on current information, the site was considered suitable from the perspective of transport, archaeology, built heritage and townscape, flood risk, water resources (surface water) and ecology.

L.3.114 The site was considered less suitable from the perspective of water resources (hydrogeology), air quality, noise and land quality.

L.3.115 Overall, the site was considered to be suitable, subject to further investigation of whether hydrogeology, air quality, noise and land quality impacts could all be adequately mitigated.

L.3.116 Socio-economic and community: This site was considered less suitable for use as a reception/intermediate site due to the potential impact on the residential properties located opposite and overlooking the site and, to a lesser extent, the commercial businesses operating out of the premises currently located on site and opposite to the northeast and southwest.

L.3.117 This site is considered not suitable for use as either a main tunnel double or single drive site due to the increased tunnelling work associated with these options. This will involve greatly increased material inputs and removal and require the use of materials jetties and conveyors, which it is proposed are located opposite two large residential developments and to the east of a houseboat community moored on the foreshore. In addition, a greater number of businesses operating out of premises on the site will require relocation and there is greater potential to impact on the surrounding business.

L.3.118 Property: This site was considered less suitable for use as a main tunnel double or single drive site or a reception/intermediate site. The site appears to be in private ownership and therefore the ownership should present no significant procedural difficulty in acquiring the land using compulsory purchase powers. However, the site will command residential development value and the acquisition cost will be high. There is also the potential for high discretionary purchase costs.

L.3.119 We have received a strong initial objection from the US Government to the use of this site as it is adjacent to the new US Embassy site. If the US Government mounted an objection to the use of this site, this would represent a significant risk of failure to get confirmed compulsory purchase powers to acquire the site.

L.4 Preferred site recommendation

L.4.1 Following the completion of the back-check process, a multidisciplinary workshop was held to select the most suitable main tunnel site in Zone S5 Battersea from the shortlisted sites, and then consider the drive options to determine the preferred site. This workshop took into account the SSR
findings, feedback received during the phase one consultation and interim engagement.

L.4.2 Figure L.2 shows the location of the preferred and shortlisted in Zone S5 Battersea.

Figure L.2 Preferred and shortlisted main tunnel sites

L.4.3 The workshop agreed that S72WH/S93WH: Kirtling Street (with Cringle Street) was the most preferred main tunnel site in Zone 5. Generally, the sites south of Nine Elms Lane (S86WH with S80WH, S94WH with S80WH and S95WH) are less suitable for a number of reasons. Foremost among these is the fact that the route to the river for the removal of excavated material is much more difficult than from the sites immediately adjacent to the River Thames. Battersea Park (S61WH) is a greenfield site, while Battersea Power Station (S68WH) is a brownfield site with planning permission of a major mixed-used development that is significant to the Nine Elms Opportunity Area.

L.4.4 In reviewing the drive options, it was also agreed by all disciplines that S72WH/S93WH: Kirtling Street (with Cringle Street) was the most suitable site and, following consideration of the drive options, that this site should be used as a main tunnel double drive site, meaning two TBMs would be launched into a shaft at this site to construct the central sections of the main tunnel. One TBM would drive the main tunnel in a westerly direction to S87HF: Carnwath Road Riverside and a second TBM would, at the same time, be used to drive the main tunnel in an easterly direction to S76SK Chambers Wharf.

L.4.5 On the basis of the assessments described above and professional judgement, it was agreed by all disciplines that S72WH/S93WH: Kirtling Street (with Cringle Street) should be the recommended phase two
preferred main tunnel site. This meant that we believed this to be the most appropriate site, subject to further engagement with stakeholders and further design development to verify this conclusion prior to phase two consultation.

L.4.6 In summary S72WH/S93WH: Kirtling Street (with Cringle Street) was identified as the preferred double drive main tunnel site because:

- the site at S72WH/S93WH: Kirtling Street (with Cringle Street) is brownfield land in a predominantly industrial area where large-scale redevelopment is being proposed within the Nine Elms Opportunity area

- S72WH/S93WH: Kirtling Street (with Cringle Street) has direct river access with a greater river frontage than site S93WH on its own, and much better compared to sites that would require crossing over Nine Elms Lane

- the wider area of river frontage allows for the construction of jetties and conveyors, which would result in improved barge access and could handle large seagoing vessels. There is also an opportunity to make use of the existing Cringle Wharf jetty. All of these arrangements would result in less impact on nearby houseboats and reduce the risk of potential relocation

- Greater London Authority recommended use of the site in its formal response to our phase one consultation. Also, Cringle Wharf is a safeguarded wharf and our proposed use would be consistent with this designation

- the main shaft can be located adjacent to the river, so the alignment of the main tunnel is unlikely to pass under any significant buildings

- the site forms part of the later stages of the Battersea Power Station redevelopment proposals and therefore offers the potential for complementary timescales of working

- use of this site also appears likely to cause less disruption to residents of Elm Quay than a number of the other options being considered, which would have required greater working in closer proximity to these properties.

L.4.7 While there are a number of reasons why Kirtling Street (with Cringle Street) was identified as our preferred site, there are a number of potential issues which we will need to address, particularly in relation to the Battersea Power Station development proposal, if this site is selected. These include potential acquisition problems and costs, the impact of the permanent structures required to operate the tunnel with the regeneration plans for the site, and conflicts with adjacent users.

L.4.8 In addition to identifying a suitable site in Zone S5, the back-check process also reviewed main tunnel shaft sites in zones S1 to S4 and S6 to S7, and the overall tunnelling strategy. The options for these zones were reviewed at the same multidisciplinary workshop as the Kirtling Street site.
L.4.9 This process identified S72WH/S93WH: Kirtling Street (with Cringle Street) as the preferred main tunnel double drive site in Zone 5. We also identified S87HF: Carnwath Road Riverside as the preferred main tunnel site in zones S1 to S4 (see Appendix G) and S76SK: Chambers Wharf as the preferred main tunnel site in zones S6 to S7 (see Appendix R).

L.5 Site development

L.5.1 Following the selection of Kirtling Street (with Cringle Street) as the recommended preferred site, further feedback from stakeholders and ongoing scheme development work have contributed to a number of further site changes.

Engagement with stakeholders

L.5.2 Engagement with stakeholders has been ongoing and has continued beyond the phase one consultation period. This has resulted in continual development of our proposals to take on board the comments made by stakeholders.

L.5.3 We have also engaged with community and interest groups through ongoing meetings and correspondence. Furthermore, we have had regular meetings and workshops with officers from the London Borough of Wandsworth, TfL, the Environment Agency and English Heritage with respect to developing the design and construction of our works and the scope of our environmental assessments. To ensure our design process is transparent, we undertook a series of design reviews, hosted and chaired by the Design Council CABE (formerly the Commission for Architecture and the Built Environment). The reviews for Kirtling Street were attended by the London Borough of Wandsworth and our pan-London stakeholders.

L.5.4 We have also undertaken two interim engagement events to present and discuss the potential suitability of Kirtling Street and Kirtling Street (with Cringle Street) as an alternative preferred site. These comments have been considered and details are provided in the Interim engagement report.

Construction layout

L.5.5 In response to stakeholder engagement, phase one consultation responses and scheme development, the construction layout of the site has been altered to minimise impact on the local community and environment and is guided by operational and functional requirements. Particular factors at this site that have influenced the layout are as follows:

- Consideration has been given to the relationship with neighbouring developments, effects on the local highway network and river access to nearby wharves.
- The site layout would permit the continued use of the concrete batching works or its removal.
Further information on the construction logistics and the site layouts for the construction and operational phases can be found in the *Kirtling Street site information paper*.

**Design**

Since this was selected as our preferred site, we have progressed the design for the permanent use and look of the Kirtling Street site, taking into account the ongoing engagement with the London Borough of Wandsworth and other technical consultees.

Full details of design development for the Kirtling Street site are provided in the *Design development report*.

**Phase two consultation**

A final preferred sites workshop was held in summer 2011 to verify the choice of preferred sites and to consider any outcomes of further engagement and scheme development. The conclusion reached was that S72WH/S93WH: Kirtling Street (with Cringle Street) should become the phase two consultation preferred site for a double drive shaft to construct the central sections of the main tunnel. For the purposes of phase two consultation, this site will be referred to as Kirtling Street.

Sites S87HF: Carnwath Road Riverside and S76SK: Chambers Wharf were also confirmed as main tunnel reception/intermediate sites to receive the TBMs used to construct the central sections of the main tunnel driven from S72WH/S93WH: Kirtling Street (with Cringle Street).

Phase two consultation will provide an opportunity for the public to comment on our revised preferred site and scheme for the Thames Tunnel, before we publicise our proposed application.