Thames Tideway Tunnel
Thames Water Utilities Limited

Application for Development Consent

Application Reference Number: WWO10001

Sustainability Statement

Doc Ref: **7.07**

Appendix B.16

Shad Thames Pumping Station

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

Hard copy available in

Box **48** Folder **B**
January 2013

Thames Tideway Tunnel

Creating a cleaner, healthier River Thames

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Appendix B: Site-specific appraisal

B.16 Shad Thames Pumping Station

Type of site:	System modifications
Description of proposals:	The site is located in the London Borough of Southwark. It comprises the Thames Water Shad Thames Pumping Station and adjacent land including a section of Maguire Street. The proposed modification works would allow control of the Shad Thames Pumping Station CSO without connection to the main tunnel.

Water quality
Maintain and enhance river water quality

Appraisal
The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- No in-river works are proposed at the site. Consequently, the development would not affect river water quality.
- Contamination through surface water run-off would be mitigated against through appropriate site drainage as outlined in the *CoCP* eliminating the pathway for pollutants into the river.
- Modification works at the site would allow control of the Shad Thames Pumping Station CSO which would reduce the spill frequency from 15 times to 4 times per year. The yearly volume of sewage entering the river would be reduced from 92,000m^3 to 72,000m^3 and would lead to a reduction of sewage derived litter from 23t to 18t per year. The proposals would support the objective by enhancing water quality.

In summary, river water quality would not be affected during construction and enhanced during operation.

Further details can be found in the *Environmental Statement* and the *CoCP*.

Biodiversity
Maintain and enhance biodiversity

Appraisal
The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- Introduced shrub, hardstanding and buildings of low ecological value would be cleared of the site for construction. Notable species would not be affected by this loss of habitat. Trees removed from the site would be replaced after completion of the works.
- Bat and bird nesting boxes would be installed on site to provide additional habitat.

- Aquatic diversity would not be influenced during construction as there would be no in-river construction activity.
- Control of the Shad Thames Pumping Station CSO and the reduced amount of sewage and sewage derived litter entering the ecosystem would have beneficial effects on aquatic diversity. Dissolved oxygen concentrations would be improved and sediment nutrient levels reduced. Consequently habitat quality and biodiversity would be enhanced during operation.

In summary, terrestrial biodiversity would be maintained during construction and operation of the development. Aquatic biodiversity would not be affected during construction as no in-river works are proposed at the site. Control of the CSO would enhance habitat quality and be beneficial to local aquatic biodiversity.

Climate change mitigation

Maximise energy efficiency and minimise the carbon footprint of the project

Appraisal

This objective is most appropriately appraised at the project level, as opposed to the site level. This is because whilst there are variations in energy and CO_2 emissions between sites, in general, these are representative of the different types of site proposed (eg, drive site, CSO interception). The individual sites do not provide an appropriate measure of how far this sustainability objective has been achieved. This is detailed within the *Energy and Carbon Footprint report*.

Procedures to maximise energy efficiency and minimise the carbon footprint of the scheme would be implemented through project-wide initiatives, and not specifically at the site level. Energy Management Plans would be implemented through the *CoCP* which, alongside Thames Water's proposals to account for carbon emissions throughout the construction process, would assist in the management of emissions arising from the sites.

Energy and emissions are discussed in the thematic appraisal within the climate change mitigation section (see Appendix A). Additional details are also provided within the *Energy and Carbon Footprint report*.

Whilst predominantly addressed at the project-wide level, at the site level it is anticipated that the proposals would broadly support the objective. The following broad issues are anticipated to arise at the site:

- Greenhouse gas emissions resulting from construction materials at the site would be approximately 910t CO_2e. During the construction phase approximately 40t CO_2e would result from logistics.
- Modification works at the site would allow control of the Shad Thames Pumping Station CSO without having to connect it to the main tunnel. This would minimise concrete and energy requirements associated with tunnelling works at the site. The proposals would support the objective as the carbon footprint would be reduced at a site level.

Further details can be found in the *Energy and Carbon Footprint Report* and the *Site Selection Report*.

Change adaptation and flood risk

Maximise resilience and adaptability to change;
Take account of flood risk in the design of sites

Appraisal
The objective on resilience and adaptability to climate is predominantly considered at a project-wide level due to relevant changes in population and climate occurring at regional level rather than specifically at a site level (see Appendix A).

However, at the site level the proposals would support the objectives to maximise resilience and adaptability to climate change, and take account of flood risk in design. Particular issues of relevance to the site appraisal include:

- The site is at high risk of fluvial and tidal flooding from the River Thames. However, flood defences would not be affected by the development and an emergency plan would be in place during construction. Further, there would be no increase in flood risk from groundwater as the development would not impact groundwater sources.
- Surface water would be discharged to the existing drainage system. The modification works would not influence the operation of site and therefore there would be no increased risk in sewer flooding.
- The development at the site would not lead to an increase in hard standing and therefore there the risk of urban heat would not be increased.

In summary, there would be no increase in flood risk from any sources and no increase in the risk of urban heat. An emergency plan would be in place for tidal and fluvial flooding.

Further information can be found in the *Environmental Statement, Site Selection Report* and the *CoCP*.

Excavated materials and waste management

Minimise waste arisings and its impacts on the environment and communities and to promote re-use, recovery, recycling and beneficial use

Appraisal
The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- Modification works at the site would lead to approximately 550t of excavated materials consisting of London clay. The materials would be managed in accordance with the *Excavated material and waste strategy* (see *Environmental Statement* Vol 3 Appendix A) that seeks to maximise the beneficial re-use of material.
- The proposed works at the site would allow the control of the Shad Thames Pumping Station CSO without connection to the main tunnel. The amount of waste arising would be minimised, consequently, the objective would be supported.
- It is estimated that 61t of construction waste would arise at this site. This would be managed through measures set out in the *CoCP*, including the application of a site waste management plan to maximise re-use, recovery, recycling and beneficial use in accordance with the waste hierarchy.
- An existing facility and two associated flood slabs adjacent to the building would need to be removed. These structures are at high risk of containing asbestos. As defined in the *CoCP* and in compliance with HSSE standard, asbestos would be managed and removed in a manner that would not pose a risk on the local community. The removal of asbestos from the site would be beneficial for site workers and the environment

In summary, modification works at the site would minimise the amount of excavated materials and generated construction waste. Arising waste would be diverted from landfill by promoting beneficial re-use, recovery, recycling and beneficial use. Removal of structures with high potential of containing asbestos would be beneficial to site workers and the environment and would take place without posing a risk to the community.

Further details can be found in the *Environmental Statement, Excavated material and waste strategy* (see *Environmental Statement* Vol 3 Appendix A) and the *CoCP*.

Resources and raw materials

Promote the sustainable use of resources

Appraisal

The objective to promote the sustainable use of resources is most appropriately appraised as a project-wide issue, rather than specifically at the site level. Whilst it will be important to work towards the objective through ongoing considerations towards the further design of sites, the major opportunities will arise by taking interventions across the project as a whole.

A significant volume of materials would be required to support construction. The concrete required is central to the durability of the tunnel and therefore the scope for promoting the sustainable use of resources is limited by engineering requirements. A range of measures are proposed at the project level which support the objective and which would assist to promote the sustainable use of resources. Further details are available in the project-wide appraisal within the resources and raw materials section (see Appendix A).

Whilst largely addressed at the project-wide level, at the site level, the proposals would support the objective. The following broad considerations are relevant to the sustainability at the site level:

- Modification works at the site would allow control of the CSO without connection to the main tunnel. This would greatly reduce the amount of resources and raw materials needed
- It is estimated that 8,000L of water would be used every 24 hours during the peak construction period in 2019. This is largely accounted for 4,000L/d required for grout/concrete and 3,000L/d needed for mitigation measures such as dust suppression and washdown. The water requirements are within the available water for London, as estimated in Thames Water's Resource Management Plan. Consequently, the volume of water needed is considered to be sustainable.
- The operation of the site is not anticipated to present a large demand for materials, with the exception of those required in routine maintenance.

In summary, modification works at the site would minimise the requirements for resources and raw materials. The amount of water needed during construction is considered to be sustainable. Consequently, the proposals would support the objective.

Further details can be found in the *Environmental Statement* and the *CoCP.*

Population, human health and equality

Ensure health and safety, and support the well-being of communities in which the project operates;
Encourage equality and sustainable communities

Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- The construction at the site would last approximately 1.5 years and the site would operated at standard operating hours.
- Measures set out in the *CoCP* seek to minimise construction noise. However, some surrounding receptors would be affected during construction, as no further on-site mitigation would be possible. Compensation would be in place where applicable to offset such effects. This would ensure health and safety but would not neccesarilly support well-being.
- Low vibration techniques as outlined in the *CoCP* would seek to minimise vibration resulting from the construction. If adopted, these measures would minimise significant adverse effects. Compensation measures would be in place where applicable should on-site mitigation not be feasible. This would ensure health and safety but could compromise well-being should relocation be required.
- The site lies within the London Borough of Southwark AQMA. Measures set out in the *CoCP* would ensure that health and safety not be compromised through the construction works. Low NO_x emission plant would provide further mitigation.
- The removal of buildings at high risk of containing asbestos would be beneficial to workers at the site.
- The number of days recreational river users would be exposed to pathogens would be reduced from 60 to 16 days per year. This would support health, safety and well-being of river users during operation.
- Encouraging equality and sustainable communities is predominantly addressed at the project-wide level. However, extensive public consultation has been undertaken to take into account the community's views on the proposals at the site. This has been considered in conjunction with engineering, environmental, planning and cost issues to achieve a balance between vying interests. Consequently, it is considered that the proposals support the objective of equality and sustainable communities.

In summary, health and safety within the community would not be compromised by the development. Compensation would be available for receptors affected by noise and vibration during construction, where applicable. Whilst this would ensure health and safety it could compromise well-being should relocation be necessary. Health and safety of workers at the site would be supported through the removal of buildings at high risk of containing asbestos. The number of days that recreational river users are exposed to pathogens would be reduced during operation. Consequently, the proposals would support the objective.

Further information can be found in the *Environmental Statement* and the *CoCP*.

Economy

Promote a strong and stable economy

Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- A maximum of 24 workers would be employed at any one time at this site during construction. This employment opportunity would support the objective for a strong and stable economy.

Further details can be found in the *Environmental Statement.*

Environmental protection and enhancement

Minimise significant adverse environmental effects relating to air quality, noise and vibration, and lighting from construction and operation of the Thames Tideway Tunnel;
Protect and enhance the character of landscapes and townscapes;
Protect and conserve the historic environment.

Appraisal

The proposals would support the objective, albeit with some restrictions relating to noise and vibration. The proposals would support the objective of protecting the townscape once the construction works have been completed. The proposals would not support the objective of protecting and conserving the historic environment. Particular issues of relevance to the site appraisal include:

Environmental effects

- The site is located within the London Borough of Southwark AQMA. There would be no significant adverse environmental effects relating to air quality as mitigation measures such as dust suppression, washdown and low NO_x emission plant would be in place.
- Though mitigation measures set out in the *CoCP* seek to minimise significant adverse environmental effects relating to noise some receptors would experience significant effects during construction. Further on-site mitigation would not be feasible. Measures such as double glazing and other compensation would be in place, where applicable, to offset these effects.
- The *CoCP* suggests the use of low vibration techniques to minimise significant adverse effects. However, it cannot be guaranteed that these measures would be applicable at the site.
- Measures set out in the *CoCP* would minimise light pollution. No significant adverse environmental effects regarding lighting would arise.
- The proposals would support the objective as all possible measures to minimise significant adverse environmental effects would be in place.

Landscape and townscape

- The presence of construction activity and equipment along with the demolition of existing buildings would lead to changes in the character of the site and the immediate setting of the Tower Bridge Conservation Area.
- These changes would be of temporary nature and restricted to the construction period. A replacement building of similar size and character would be provided. Above ground structures would be located within the Shads Thames Pumping Station and would not change the character of the surrounding townscape in operation. Consequently, the proposals would support the objective with the exception of temporary changes during the construction period.

Historic environment

- This is located within the Tower Bridge Conservation Area and within the Borough, Bermondsey and River Archaeological Priority Zone. The Grade II listed Wheat Wharf is located adjacent to the site. There would be temporary changes to the historic character and setting of these features during construction.

- Demolition works at the Shad Thames Pumping Station would be necessary for the construction. Archaeological recording to English Heritage Level 1/2 prior to the construction would ensure preservation by record.
- There is potential for buried assets on site. These would be protected and conserved through mitigation measures outlined in the *CoCP* such as environmental sampling and archaeological watching briefs. Consequently the proposals would support the objective.
- The removal of old structures and installation of new structures would result in changes of the historic environment during operation. However, the setting of St Saviours Dock Conservation Area would be enhanced through the removal of the existing wharf at the Chambers Wharf site.

In summary, significant adverse environmental effects relating to air quality, noise and vibration and lighting would be mitigated through measures set out in the *CoCP*. However, there would be significant adverse effects relating to noise and possibly to vibration on some receptors during construction, which could only be offset through compensation. The character of the site and the surrounding townscape would be affected during the construction period but would re-instated during operation. The historic environment would be altered during construction and operation. This would be beneficial to the setting of the St Saviours Dock Conservation Area. Historic assets would be preserved by record. However, the proposals would not fully support the objective regarding the historic environment.

Further information can be found in the *Environmental Statement, Design Principles* and the *CoCP*.

Land use

Efficient and sustainable use of land and buildings

Appraisal

The proposals would support the objective. Particular issues of relevance to the site appraisal include:

- Modification works would take place at the existing Shad Thames Pumping Station. This would make efficient use of previously developed land and existing infrastructure. Consequently, the proposals would support the objective.

Further details can be found in the *Environmental Statement* and the *Site Selection Report*.

Sustainable transport

Minimise the detrimental impacts associated with the transport of construction materials and waste on communities and the environment, by prioritising the use of sustainable transport

Appraisal

The proposals would support the objective by promoting the use of sustainable transport where practicable and by minimising detrimental impacts associated with transport. Particular issues of relevance to the site appraisal include:

- No river services are available at the site. Therefore it would not be possible to use barges for the transport of materials. However, the proposals seek to minimise detrimental impacts relating from transport through measures such as route selection. Approximately 14 HGV movements would be required during the peak construction period, which would last 1 month. It is estimated that 6 HGV

movements would be required on average throughout the construction period.

- The PTAL for the site has been classified as 3, indicating a moderate level of accessibility via public transport. Through measures set out in the *CoCP* such as only allowing vehicles necessary to undertaking works on site none of the workers would travel to the site by car. This minimises detrimental effects on the environment and communities associated with additional transport.
- The objective refers to impacts associated with transport during the construction period and is therefore not applicable during operation.

In summary, the proposals would support the objective as they promote public transport and minimise detrimental impacts on the environment and communities through measures set out in the *CoCP.*

Further information can be found in the *Environmental Statement* and the *CoCP*.

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