

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Sustainability Statement

Doc Ref: **7.07**

Appendix B.5

Dormay Street

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.5 Dormay Street

<p>Type of site:</p>	<p>CSO site, long connection tunnel drive site</p>
<p>Description of proposals:</p>	<p>The site is located in the London Borough of Wandsworth. The Frogmore connection tunnel would be constructed from the site to the main tunnel at Carnwath Road Riverside and King George's Park. The Frogmore Storm Relief – Bell Lane Creek CSO would be intercepted at the site.</p>
<p>Water quality Maintain and enhance river water quality</p>	
<p>Appraisal The proposals would support the objective. Particular issues of relevance to the site appraisal include:</p> <ul style="list-style-type: none"> • The site does not lie within a source protection zone. The drop shaft would penetrate through the upper, but not the lower aquifer. No dewatering would be required and thus no discharge to the river would be needed. Consequently, no pollution pathway would be created. • Surface water run-off could create a pathway for pollutants into the river. Appropriate site drainage as outlined in the <i>CoCP</i> would eliminate this pathway. Consequently river water quality would be maintained during construction. • Once operation the interception of overflow discharge from the Frogmore Storm Relief - Bell Lane Creek CSO would result in a reduction of spill frequency from 32 times to once per year. The yearly discharge volume would be reduced from 18,000m³ to 500m³ consequently leading to a reduction in sewage derived litter entering the river from 4t to 0.1t. River water quality would therefore be enhanced during operation. <p>In summary, the proposals would support the objective as river water quality would be maintained during construction and enhanced during operation.</p> <p>Further information can be found in the <i>Environmental Statement</i> and the <i>CoCP</i>.</p>	
<p>Biodiversity Maintain and enhance biodiversity</p>	
<p>Appraisal The proposals would support the objective. Particular issues of relevance to the site appraisal include:</p> <ul style="list-style-type: none"> • Trees, dense shrub and ephemeral/short perennial and tall ruderal vegetation would be cleared from part of the site during construction. The loss of habitat would be small and temporary as replanting would be provided during at the end of construction. • An inter-tidal terrace would be constructed along a section of the riverwall on the 	

southside of Bell Lane Creek

- The loss of habitat would not affect populations of notable species. Lighting and noise and vibration resulting from the construction would not disturb local populations of bats, breeding or nesting birds. Consequently, terrestrial ecology would be maintained throughout construction.
- Following installation of a temporary Bailey Bridge to link the northern and southern parts of the site, a small area of intertidal habitat is likely to be lost as the bridge would shade the river. Vegetation would be removed from the northern bank of the site. The loss of habitat through shading of intertidal habitat and clearing of overhanging vegetation would not lead to changes in aquatic biodiversity.
- Spillage of material and pollutants from the Bailey Bridge could have detrimental effects on habitats, particularly on feeding and spawning habitats of fish. The proposals would support the objective under the assumption that measures set out in the *CoCP* to minimise the risk of spillage would be successful.
- Once operational there would be direct positive effects on aquatic biodiversity due to the reduced amount of sewage and sewage derived litter entering the ecosystem. This reduction would lead to an improvement of dissolved oxygen concentrations and reduce sediment nutrient levels, creating conditions which may help to improve the quality of aquatic habitats and enhance biodiversity.

In summary, terrestrial ecology would be maintained during construction and operation. The temporary loss of vegetation would be replaced once construction is complete. Under the assumption that no spillage of materials and pollutants from Bailey Bridge would occur aquatic ecology would be maintained during the construction period. The reduction of sewage and sewage derived litter entering the ecosystem would enhance aquatic biodiversity.

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

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 CO₂ 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 3,600t CO₂e. During the construction phase approximately 350t CO₂e and 1,800t CO₂e would result from logistics and construction (TBM, plant and machinery operation, lighting and welfare facilities) respectively.

- Operational lighting would be restricted to low level lighting at the kiosk doors activated by a directional motion control switch, minimising energy requirements.
- The site would make use of passive ventilation in operation. Energy requirements for venting would be minimised and efficiency of ventilations points maximised.

In summary, the proposals would support the objective as they minimise energy requirements and maximise energy efficiency.

Further details can be found in the *Environmental Statement* and the *Energy and Carbon Footprint 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 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 lies within a high probability flood zone and is at risk of tidal flooding from the tidal Thames and the Bell Lane Creek as well as at risk of fluvial flooding from the River Wandle.
- Flood defences would be maintained and monitored during construction and repaired where necessary to maintain current crest levels. The flood risk would remain unchanged through the development.
- Surface water drainage in line with the CoCP would ensure that flood risk would not be increased by the development. Surface water run-off would be minimised through provision of a planted brown roof upon the electrical and control kiosk and discharged into Bell Lane Creek during operation.
- The site is not at risk of groundwater flooding. Sheet piling would prevent ground water inflow into the site. Monitoring of groundwater levels would be in place.
- As the Frogmore Storm Relief – Bell Lane Creek CSO would remain operational during construction there would be no increased risk of sewer flooding. Sewage would be intercepted and diverted into the Frogmore Connection tunnel during operation.
- The site is not located within the Central Activity Zone but lies within an area deficient of open space. There would be no increase in hard standing resulting from the development and the site is adjacent to Bell Lane Creek and the River Wandle. This would alleviate urban heat effects and maximise adaptability and resilience to future changes in temperature.

In summary, the proposals support the objective as flood risk has been considered in design development and there would be no increase in flood risk from any source.

Resilience and adaptability to future changes and temperature would be given as the site is located adjacent to water bodies.

Further details 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:

- A drop shaft with an approximate internal diameter of 12m and a depth of 24m would be excavated at the site. The site would also serve as a long connection tunnel drive site. It is estimated that 32,000t of excavated material would arise at the site, consisting mainly of London clay (29,000). The material would be managed in accordance with the *Excavated material and waste strategy* (see *Environmental Statement Vol 3 Appendix A*) which seeks to maximise beneficial use.
- Approximately 430t of construction waste would arise at the site. It is estimated that 18t of welfare waste would arise at the site per year during the construction period. This waste would be managed in accordance with the waste hierarchy which seeks to maximise re-use, recovery, recycling and beneficial use.
- Existing buildings, a weighbridge and walls on the worksite would need to be demolished and removed for the construction. There is high potential for asbestos being present in these structures. 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 the environment and the community.
- Operational waste would result from maintenance of the air management unit and would have limited bearing on the objective.

In summary, the proposals would support the objective as they seek to divert material and waste from landfill by promoting re-use, recovery, recycling and beneficial use in accordance with the waste hierarchy. The removal of structures containing asbestos would be conducted in a safe manner and would be beneficial to the environment and the community. The objective would not be affected through operation at the site.

Further information can be found in the *Environmental Statement*, the *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 would be important to work towards the objective through ongoing considerations towards the further design of sites, the major opportunities would arise by taking interventions across the project as a whole.

A significant volume of materials would be required to support construction. The materials required are 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 within the resources and raw materials section (Appendix A).

The following broad considerations are relevant to the sustainability at the site level.

- It is estimated that 32,500 litres of water would be used every 24 hours during the peak construction period between 2017 and 2018. This would largely be accounted for by water required for shaft and tunnel grout/concreted (20,000L/d) and mitigation measures such as washdown and dust suppression (8,000L/d). The water requirements are within the available water for London as estimated in the Thames Water's Resource Management Plan. The amount of water required is considered sustainable.

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

Population, human health and equality

Ensure the 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 would last approximately 3 years with standard and continuous working hours in operation. Measures set out in the *CoCP* would ensure health and safety within the community and would support the well-being.
- Health, safety and well-being within the community would not be compromised by noise and vibration resulting from the construction.
- The site lies within the London Borough of Wandsworth AQMA. Measures set out in the *CoCP* would ensure that health and safety would not be influenced by the development.
- The number of risk days in which recreational river users would be exposed to pathogens would be reduced from 128 days to 4 days per year. This would be beneficial to health, safety and well-being of river users.
- Structures with a high potential of containing asbestos would be removed from the site. This would ensure health and safety of workers at the site and within the community.
- 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, the proposals would support the objective. Health and safety within the community would be ensured during construction. Exposure of recreational river users to pathogens would be reduced through interception of the CSO. The removal of asbestos would be beneficial to health and safety of workers at the site and the community.

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 70 workers would be employed at any one time during construction.
- There would be a temporary restriction in the supply of employment land due to the development. However, the proposals would support the objective when considering the number of jobs created on site during the development.

Further information 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. Particular issues of relevance to the site appraisal include:

Environmental effects

- Measures set out in the *CoCP* would minimise adverse environmental effects relating to air quality, noise and vibration to a not significant level. Further there would be no significant adverse environmental effects resulting from lighting at the construction. Consequently the proposals would support the objective.

Landscape and townscape

- The site would temporarily be altered through demolition of buildings, clearance of vegetation and the presence of construction activity and equipment.
- The setting of the surrounding area would likewise be altered during construction.
- These changes would be temporary and restricted to the construction phase. Changes would be minimal once the site is in operation and the construction equipment has been removed.

Historic environment

- The site lies within a locally designated Archaeological Priority Area. There are no nationally designated assets located on site. A 19th century barge bed and boundary wall are located on the site. The Grade II listed Wentworth House lies in the proximity of the site.
- The existing river walls on the south side of Bell Lane Creek may be altered or modified as part of the works. An English Heritage Level 1 survey recording would form preservation by record.
- There is some potential for buried assets to be present on site. Targeted archaeological investigation and recording as well as archaeological watching briefs would ensure preservation by record should buried assets be encountered on site during construction.
- Presence of construction activity and equipment would lead to changes in the historic environment and in the setting of surrounding assets. However, these changes would be temporary and the proposed development would be beneficial to the character, appearance and setting of some historic assets and conservation areas during operation.

Further information can be found in the *Environmental Statement* 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:

- The proposals would make use of existing brownfield which would consequently eliminate the need for development on greenfield. Consequently, the proposals would support the objective as they would make efficient use of previously developed land.

Further information 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. Particular issues of relevance to the site appraisal include:

- The site Public Transport Accessibility Level (PTAL) is classified as 5, indicating very good accessibility of the site via public transport. Measures set out in the *CoCP* such as only allowing vehicles required for the construction on site would promote public transport.
- It has been estimated that on average 16 HGV movements would be generated at the site each day. During peak construction there would be approximately 50 HGV movements per day over a period of four months. The *CoCP* sets out measures such as provision of a traffic management plan to minimise detrimental impacts associated with the construction on communities and the environment.

In summary, the proposals would support the objective as they promote sustainable transport where possible and seek to minimise detrimental impacts on the community and the environment.

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

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