

Planning and Borough Development

Kensington Town Hall, Hornton Street, LONDON, W8 7NX

Executive Director Planning and Borough Development

Mr Jonathan Bore

Dermot Scanlon
London Tideway Tunnels
The Point (7th floor),
37 North Wharf Road
Paddington, London, W2 1AF

My reference: **Response to the EIA Scoping Report, Thames Tunnel Project**

Please ask for: Patricia Cuervo

20 April 2011

Dear Mr Scanlon,

**Thames Tunnel Project Scoping Opinion.
Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999.**

Thank you for your letter dated 7 March seeking this Council's views on the content of the Environmental Statement in relation to the Thames Tunnel Project.

This letter states our final scoping opinion. Please note that our comments have been arranged by topic and divided into Part A and Part B to reflect the structure of your scoping report.

We have received comments from the statutory consultees, the Environment Agency, Natural England and English Heritage which we endorse and have included as appendices at the end of this letter.

We would like to add the following points to be considered in the environmental statement:

Air Quality and Odour

Part A

Paragraph 4.2.6 states that the main focus of the construction dust assessment will be to minimise the dust escaping from the site using appropriate mitigation measures. Whilst mitigation is essential, it would be preferable if a strategy could be developed to prevent the dust from escaping in the first place.

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Baseline data collection

Paragraph 4.2.8

It says that 'Monitoring of particulate concentrations will also provide a baseline for the construction assessment'. We hope this refers to the new automatic monitoring to be carried out by Thames Water.

Proposed assessment methodology - construction

Paragraph 4.2.30

The following comments may be unnecessary, but as sufficient detail about construction dust monitoring is not yet available, we thought it prudent to raise these points now. We will be seeking real-time PM₁₀ monitoring to be carried out prior to (and during) construction. Trigger levels to alert the contractor when mitigation measures have failed to prevent dust nuisance are welcomed. However, we are not only concerned about dust nuisance, but the impact of works on health. We would advise setting two different PM₁₀ 'trigger' levels - one which acts as an alert and warns the contractor when levels are approaching concern and another where they trigger works to cease immediately until the source can be identified and mitigated against. We are pleased that Thames Water are considering making the data available to the public and urge you to make this a firm commitment.

Part B

Table 14.3 Construction methodology

We welcome the dispersion modelling, which will examine the effects of traffic, but will also require other pollution sources to be considered e.g. site plant and barges. All transport assessments would also need to be approved by our Highways and Transportation department before we would be able to approve the air quality assessment.

As mentioned previously, RBKC would like all identified mitigation measures to be collated in a Low Emission Strategy. Further information on this can be found in our Air Quality SPD.

Ecology (aquatic and terrestrial)

The Thames Tunnel Scoping Report was discussed in detail with the consultants and London Borough Ecologists at a Thames Tunnel Biodiversity EIA Workshop held on 22 March. All queries and concerns etc were addressed at this meeting.

We agree with the contents of the scoping report. The terrestrial and aquatic ecological aspects are being addressed. Survey work has been detailed, however, there is scope to obtain further data from organisation working on the Thames (as discussed at the above mentioned meeting).

The key points relating to the ecological aspects of the central Thames sites are:

- Mitigation / enhancement measures should be a mixture of on and off-site measures.
- Whilst the central section of the Thames perhaps has a lower intrinsic value it is important that the functionality is maintained therefore enhancements along the flood wall should be considered as well site specific enhancements which facilitate the movement of terrestrial ecology along the Thames.
- Any proposed on or off-site measures need to be sustainable or manageable.
- All data must be submitted to GiGL (Green space Information for Greater London).

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Historic Environment and Townscape and Visual

We agree with the scoping for the Historic Environment. However we would like to add the following comment.

Paragraph 4.5.10

Reference to PPS5, and the Local Planning Authority's Policies and Guidance should be included, along with English Heritage's Conservation Principles.

Land Quality

Part A

Proposed assessment methodology

Paragraph 4.6.9

A list of potential significant effects has been presented. There is no mention of potential issues resulting from the presence of ground gas. This should also be referred to at this early stage even if the risk is presumed to be low.

Paragraph 4.6.12

No land quality assessment is proposed for the construction or operational phases of the tunnel for the western part of the scheme. As a minimum, a written assessment is required to demonstrate the absence of risk. Testing of excavated material for re-use or disposal will also be required.

Part B

Cremorne Wharf

Baseline

It is acknowledged that the surrounding area was previously occupied by industrial operations (though not all sources have been listed), but then relates historic contamination at the site to two pollution incidents to controlled water. Contamination, if present, will also relate to former site uses in addition to these pollution incidents.

Construction: potential effects

Methodology: No further ground investigation is proposed to that already carried out. However, it is recommended that sediment samples are taken from the river bed. Until we have had the opportunity to review the investigations carried out so far, we are not able to state whether we accept that no further investigation works are required.

Operation: potential effects

If the public are able to get access to the foreshore site once it has been completed, then it will be necessary to demonstrate that any potential land contaminated issues have been dealt with and are no longer a risk. If this is the case, then the operational phase will need to be considered and should not be scoped out at this stage.

Chelsea Embankment

Methodology: No further ground investigation is proposed to that already carried out. However, it is recommended that sediment samples are taken from the foreshore at low tide. Until we have had the opportunity to review the investigations carried out so far, we are not able to state whether we accept that no further investigation works are needed.

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Operation: potential effects

Paragraph 14.3.11

This suggests that the public will have access to a new area of river frontage. It will therefore be necessary to demonstrate that any potential land contaminated issues have been dealt with and are no longer a risk. If this is the case, then the operational phase will need to be considered and should not be scoped out at this stage.

Noise and Vibration

Part A

Table 3.2 'Scoping Review' states that operational vibration can be scoped out of the EIA and says:

"Potential operational effects are likely to be limited to any perceptible noise from ventilation equipment, exhausting of air and the cascade of material down the drop shafts" It also states that all operational vibration can be scoped out because these effects are not anticipated.

During operation there is the potential for ground borne noise or regenerated noise from vibration affecting adjacent sensitive buildings. Re-generated noise from vibration can be present without perceptible vibration. Sources of this vibration can be fans or pumps and other plant and equipment. Operational vibration and ground borne noise generated by plant and equipment should be assessed and designed out, not scoped out. Material cascading down the shaft has the potential to generate vibration from impact at the bottom of the shaft and this should also be considered (this is stated in paragraph 4.7.35). When impacts are considered to be not *"likely"* or *"not anticipated"* we do not consider this sufficient for these impacts to be dismissed altogether. These impacts should be included in the EIA, assessed, and then, if appropriate, be eliminated.

Paragraph 4.7

The spatial scope for ground borne noise and vibration impacts is limited to those residential buildings within 65m of the tunnel crown. Other very sensitive buildings such as operating theatres have a 200m spatial scope.

Paragraph 4.7.15

This paragraph states: *Therefore, it is proposed that spatial scope of the ground borne noise and vibration assessment is limited to residential receptors within 65m radial distance of the Thames Tunnel crown.*

Evidence that this is a correct spatial cut off should be included in the EIA.

We would have expected reference to significance criteria for construction noise and vibration to be included in the EIA (Annex E - BS 5228). Additionally at Environment Group meetings already held discussion has included the methodology and protocol for prior consent applications via s61 Control of Pollution Act. Reference to s61 procedure should be included within the EIA.

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Part B

Table 14.1

It says that both construction and operational noise and vibration will be scoped in for both sites and that all noise and vibration from tunnel operation is scoped out. There is a problem correlating this with table 3.2 which states all operational vibration at these two sites is scoped out.

We will require the operational noise and vibration significance criteria and assessment and degree of mitigation to be in accordance with our Noise SPD, in particular with regard to the application of BS4142.

The scoping of the assessment for our sites says that, during operation, only noise generation from water cascading through the drop shafts need be considered. However, as commented above, there is potential for ground borne noise or regenerated noise from vibration affecting adjacent sensitive buildings. Re-generated noise from vibration can be present without perceptible vibration. Sources of this vibration could be fans or pumps or other plant and equipment. Potential operational vibration and ground borne noise generated by plant and equipment should be assessed and designed out, not scoped out, (see other comments above).

Cremorne Wharf Foreshore

Table 14.2

With regard to Chelsea Wharf although construction noise effects are scoped in, vibration is not. Both noise and vibration need to be considered.

Chelsea Embankment Foreshore

Table 14.3

Although the scoping report considers that noise effects from construction are unlikely to impact on Chelsea Bridge Road, for the sake of clarity the appropriate assessment of noise propagation to this street should be included in the EIA

Socio-economics

Part A

Proposed assessment methodologies

In terms of general comments, paragraph 4.8.21 refers to a social and economic policy review being produced which will consider relevant policy and site specific allocations at various levels including locally (borough). It is presumed that this will not only consider the evidence bases of the relevant Core Strategy, but also the policies themselves, rather than an over reliance on the relevant London Plan policy. In a similar vein the content of local supplementary documents will be important. In terms of socio – economics, general training contributions which are linked to local employment, the contents of our Planning Obligations SPD (adopted August 2010) will be relevant. Other Supplementary Planning Documents, such as ‘Noise’ will also be relevant regarding different aspects of the Tunnel work.

Part B

Table 14.2

With regard to socio-economics the possible impact on the Thames Path should be included in the scoping.

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Transport

Part A

Paragraph 2.12.3

It states that river transport will be considered where it is 'economic and practicable'. Road transport will invariably be cheaper but causes much greater impacts on the local environment and the environment more generally. These impacts may well be unacceptable. Therefore the word 'economic' should be removed leaving the word 'practicable'. The impact of using road transport on the viability of the scheme will clearly form part of the consideration of the practicability of river transport in any case.

Paragraph 4.10.39

There is no reference to use of the new river foreshore at the Wharf for public access as part of the Thames Path. This should be included.

Part B

Paragraph 14.2.15

There is no reference to the Thames Path in 'operational' stage. This is important as it is unlikely to be any other future opportunities to bridge the gap in the Thames Path at this location.

Table 14.2

The area through which construction traffic would have to pass also includes a school and a residential area that already has a very high number of HGV movements because of the waste transfer site, the car pound and the construction works at the Power Station on Lots Road. This needs to be considered when the impact of introducing yet more HGV traffic is assessed. There is a weight restriction on Chelsea Harbour Drive and no access for general traffic underneath the West London Line.

Table 14.3

In terms of the proposals to remove mature trees from Chelsea Embankment to aid visibility we would like to stress that the access point should be located and designed to maximise visibility, without felling trees.

The provision of car parking within Royal Hospital Gardens is unlikely to be acceptable.

The table also refers to a road closure for west bound traffic on Chelsea Embankment. Although we have accepted that a road closure is likely to be necessary we cannot agree the direction without traffic surveys and proper consideration of the impact on the broader road network. It may be that a tidal road closure (i.e. to westbound in the AM and eastbound in the PM) would be the best option.

Water Resources (groundwater and surface water)

We agree in principle with the comments made for both sites in relation to water resources, but we will defer to the Environment Agency for advice and detailed comments.

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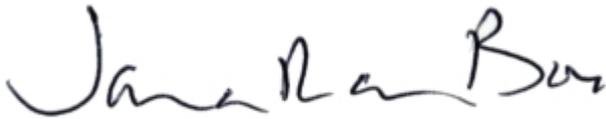
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Waste

We support the Environment Agency's comments about the importance of waste. We consider that waste should be included in the EIA Scoping report and the Environmental Assessment.

Please do not hesitate to contact the officer Patricia Cuervo if you have any queries regarding this matter.

Yours sincerely,

A handwritten signature in black ink that reads "Jonathan Bore". The signature is written in a cursive style with a large initial 'J' and 'B'.

Jonathan Bore
Executive Director Planning and Borough Development.

Appendix A: Letter Response from English Heritage



ENGLISH HERITAGE

Patricia Cuervo
Royal Borough of Kensington & Chelsea

Our ref:
Your ref:

BY E-MAIL: Patricia.Cuervo@rbkc.gov.uk

Telephone 020 7973 3771
Fax

14 April 2011

Dear Ms Cuervo

Royal Borough of Kensington & Chelsea: Scoping Opinion under Environmental Impact Assessment Regulations 1999 - Thames Tunnel Scoping Report

As the Government's adviser on all matters pertaining to the historic environment and a consultation body for the purposes of Regulation 10(4) of the Town and Country (Environmental Impact Assessment) (England and Wales) Regulations 1999 ("the EIA Regulations"), English Heritage writes to inform the City of Westminster's Scoping Opinion on the Environmental Statement for the Thames Tunnel.

English Heritage supports the development of the Thames Tunnel in principle, and is working closely with Thames Water towards avoiding and minimising adverse impacts of this development on London's historic environment.

English Heritage has reviewed the Scoping Report provided by Thames Water. We concur with the scoping in, as matters for assessment in the Environmental Statement, of the historic environment and townscape and visual impacts for both the construction and operation phases of the Thames Tunnel in relation to the preferred sites at Cremorne Wharf and Chelsea Embankment.

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We regret that it has not been possible in the time provided to prepare detailed comment on the site specific information provided by Thames Water. However, it is clear to English Heritage that the matter of assessing the impacts on the setting of heritage assets is not as yet addressed sufficiently clearly. It is English Heritage's preference that setting be considered part of the historic environment assessment. We consider that there is a range of international and national planning policy guidance and legislation that makes clear the importance of setting to establishing and assessing the significance of a heritage asset.

As you may be aware, we are reviewing responses to a consultation on our draft document *The setting of heritage assets: English Heritage Guidance* and we are due to produce a finalised version of this in the summer when the Environmental Statement is due. Thames Water is aware of the need to establish more certainty around this issue and it is our hope that an assessment methodology for setting can be agreed in order to appropriately inform the preparation of the Environmental Statement.

In the matter of mitigation, English Heritage notes that suggestions have been made in the Scoping Report. English Heritage considers that there are a broad range of mitigation measures that are relevant in the context of the development and consequently we wish to make clear that we do not consider those suggestions to be in any way definitive and that, as Thames Water have largely indicated, mitigation will need to be determined after a fuller assessment of the environmental impacts.

English Heritage has assumed that the breaking of ground for the tunnels is included in the construction of the main shaft or CSO shaft scoping indications, and we are therefore content with scoping decisions made in respect of the tunnels in respect of the historic environment and townscape and visual impacts.

Apart from the setting issue outlined above, English Heritage is content with the methodologies described in Part A for the assessment of the historic environment and townscape and visual impact.

We trust this advice is of assistance in the preparation of your scoping opinion. We would be glad to discuss any element of it with you should you deem this to be of use. To this end, I may be contacted in English Heritage's London Regional office on Monday-Thursday.

Yours sincerely



Claire Craig
Planning Adviser (London)
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Appendix B: Letter Response from Natural England

Date: 7th April 2011
Your ref:
Our ref: 18777



Claire Gibbons
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Thames Tideway Tunnel: EIA Scoping Report

Dear Claire,

Many thanks for consulting Natural England on the above. Overall we are happy that scope of the report is comprehensive for those subjects within our remit and we look forward to reviewing the eventual EIA in due course. If there is anything that you wish to discuss in the interim please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in dark ink that reads "D Coath". The signature is written in a cursive style with a small flourish at the end.

Dominic Coath
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Appendix C: Letter Response from the Environment Agency

creating a better place



Date: 4 April 2011

Dear Ms Cuervo

Scoping Report for the Thames Tunnel Project

Sites from Acton to Beckton

We have received a consultation from Thames Water, dated 7 March 2011, consulting us on the Scoping Report for the Thames Tunnel Project.

We support the need for the Thames Tunnel as the second phase of the solution to London's combined sewer overflow problem and as a key part of London Tideway Improvements.

We are keen to work with Thames Water and yourselves to ensure that the Thames Tunnel maximises environmental benefits, identifies opportunities and uses innovative solutions to address potential impacts. In our response to the Thames Tunnel (Phase I) consultation we provided Thames Water with a set of general principles. These principles cover the design, construction and operational phases of the project and if followed, would enable Thames Water to avoid or minimise impact on the environment and propose suitable mitigation and compensation where adverse impacts are unavoidable. The general principles are given in Annex A.

It is our view that adherence to these principles must be demonstrated within the planning process. The Environmental Statement and its accompanying documents are fundamental to this.

We have reviewed the Scoping Report submitted and have further comments to make regarding Flood Risk, Waste, Ecology, Land Quality and Water Resources to ensure that the environmental issues we consider are of most importance to this proposal are appropriately addressed. We raise particular concerns regarding the scope of the Environmental Statement with respect to waste and flood risk, which we are keen to discuss in further detail with Thames Water.

Our technical comments and advice on:

Part A

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- The approach to scoping the EIA - assessment topics
- The proposed EIA assessment methodologies
- The proposed ES structure and contents

Part B

- General topic comments
- Project wide effects
- Site specific comments

are provided below.

Technical comments and advice for Part A Overview

3.0 Approach to scoping the EIA

Assessment topics

At this stage we are unsure as to why flood risk and waste have been excluded from the range of potential environmental effects likely to arise from the construction and operation of the Project. This approach does not appear to fulfill the requirements of Part I, Schedule 4 of The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 which sets out the information for inclusion in Environmental Statements.

The Scoping Report and the EIA processes needs to identify all the potentially significant impacts and mitigate these through design, management or other means. We will continue to liaise with Thames Water to gain a better understanding as to why they believe flood risk and waste should be excluded as topics in the Scoping Report and how they propose to demonstrate to you and ourselves that these topics will be covered within the planning process and documents submitted with the application for a DCO.

Our initial advice is provided below.

Flood risk

It is our current view that flood risk should be included within the EIA scoping assessment and Environmental Statement, as potentially significant environmental effects could arise as a result of the Thames Tunnel. We believe these impacts could arise from:

- Hydraulic effects on the river morphology, due to works or structures being located within the river, which may adversely affect the integrity of London's flood defence system including impacts on third party assets.
- Changes in flows and flood storage in the River Thames and its tributaries resulting in increases in flood levels. Combined tidal / fluvial effects should also be considered.

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- Reduction in the ability to inspect and implement future works to replace or repair the flood defences and to carry out raising works as required by the TE2100 project to reduce impacts associated with climate change.
- Flood risks resulting to and from the Thames Tunnel and associated infrastructure.
- Surface water issues related to flood risk. There is a potential for increased volume of runoff and change to the pluvial system due to the proposed works.

We note in section 3.3.4 of the submitted Scoping Report that the intention is to produce a Flood Risk Assessment (FRA) and to include this as an appendix to the water resources (surface water) chapter of the Environmental Statement. The FRA is due to cover both site-specific and scheme wide flood risks.

For the reasons given above, we strongly consider that flood risk should be noted within Table 3.2 and included within the EIA. The FRA should inform the EIA processes and the contents of the Environmental Statement.

3.3.5 - Settlement impacts due to tunnelling, shaft construction and other associated works should be covered with regards to the impact on the flood defences through reduced structural integrity and serviceability standards of third party flood defence assets. We have attended a meeting with Arup and Thames Water to discuss the scope of this assessment but consider that this matter should also form part of the considerations to be included in the EIA.

Waste

It is our current view that waste should be included within the EIA Scoping Assessment and Environmental Statement. For the project as a whole, waste is likely to have a significant effect. Whilst the Scoping Report does not specify the quantities of waste arising or the types, it is estimated to be around 3 million cubic metres.

Waste could result in potentially significant environmental effects both on site where it is produced or stockpiled and offsite where it is processed, reused or disposed.

The impacts will depend on a number of factors which include:

- the way in which the waste is produced (dry or liquid)
- the type of waste (i.e. the strata through which the tunnel goes or the process resulting in the waste e.g. demolition waste),
- the quantities produced (partly related to length / route of the tunnel, diameter)
- the location at which it arises (i.e. the location of the drive sites from which waste is removed)
- the option selected for transporting the waste
- the option selected for reusing, recycling or disposing of the waste.

The impacts that could arise include (but are not limited to):

- carbon emissions from the transportation of waste

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- traffic congestion from the transportation of waste
- land take and visual intrusion from waste storage
- dust from waste storage (giving rise to health or amenity issues)
- pollution of controlled waters from waste transfer operations
- pollution of controlled waters from waste storage
- depletion of local or regional waste disposal capacity
- effect on capacity of local or regional recycling infrastructure
- habitat creation or destruction

There are many potential waste streams that could be produced from this project. These include:

- excavation waste (tunnelling waste),
- construction waste, (e.g. tunnel lining) – quantities will vary depending on whether prefabricated segments or spray lining is used.
- dredging waste – the quantities, level of contamination and sites of production are unknown,
- hazardous waste,
- operational waste - increased volumes of sewage will need to be treated and greater quantities of sludge will require managing.
- canteen / administrative / maintenance waste.

These wastes have not been included in the Scoping Report and should be considered in the Environmental Statement. Their impact will vary depending on the quantities produced, their characteristics and whether the wastes can be reused, recycled or require treatment or disposal.

The impacts of waste management should be considered at the producer site (in the case of tunnel waste that would be where the waste comes to the surface), and the destination site as the impacts at either or both may be significant.

We note the statement in paragraph 3.3.7 of Part A of the Scoping Report that the DCO application will be supported by a waste strategy which “..will include [a] Waste Options appraisal and a generic Site Waste Management Plan. The Waste Options Appraisal will identify a preferred list of management options and sites for the tunnel arisings. Where appropriate, the Waste Strategy will inform chapters within the ES as necessary”. We would welcome further discussions with Thames Water to clarify how their proposals will fulfil the requirements of the EIA processes.

We note a number of statements regarding early engagement on waste with the Environment Agency and wish to clarify those made in the following sections of the Scoping Report:

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Part A, Table 3.1 - refers to EIA position papers, one covering waste which are said to have been circulated and discussed at a meeting with Local Authorities and the Environment Agency in December 2010. We did not attend this meeting and was not in receipt of the position paper or party to the discussions. The Technical Working Group meetings took place in March 2011 and not February 2011.

4. Proposed EIA assessment methodologies

4.3 Ecology Aquatic

4.3.2 – A feature of the Tidal Thames Site of Metropolitan Importance is the diversity of larger plants (macrophytes) on the wall and banks of the river. These communities should be included within the river dependant habitats, and assessed within the river corridor survey.

As part of the river wall assessment, the structure of the algal mats should be incorporated.

4.3.8 - We agree with the conclusion that the proposal is unlikely to have an impact on statutory sites. However, you should be aware that Syon Park SSSI is in hydrological continuity with the project and Barnes Wetland Centre does have an occasional connection.

4.3.10 - The Tidal Thames is London's largest wildlife site, containing a diverse mosaic of habitats and species, while also providing an important corridor for both terrestrial and aquatic species. The impact of habitat connectivity both temporally and spatially needs to be assessed as part of a cumulative impact assessment.

4.3.12 & 4.3.15 – Fisheries data are limited to six sites biannually. Data for 2010 is now available.

4.3.16 - Grey seals are regularly seen upstream of QE2 Bridge and have been as far upriver as Chiswick and Richmond. They use sheltered areas of foreshore that have little disturbance to haul out and rest e.g. Chiswick Eyot.

4.3.17 - Autumn fish surveys (October) can show the presence and relative abundance of the 'young of the year' juveniles. Combined spring and autumn fish surveys give the best indication of seasonal adult and juvenile fish movements.

4.3.18 & 4.3.19 - Fish are highly mobile and the estuarine environment is highly dynamic so it may be difficult to ascribe changes to species composition and abundance locally to a particular site.

4.3.23 - Working the slack water period (either high or low water) will increase efficiency of seine netting.

4.3.34 - The impact on the extent of change to the river bed arising from scour and changes in deposition is required to assess impact on invertebrates and fish.

4.3.35 - A balance sheet approach to mitigation and compensatory habitat is recognised as appropriate for a scheme of this size. It may not be possible to fully mitigate locally, but where possible there should be habitat created that can be utilised by those species displaced or prevented using an impacted habitat. This may not always be a direct

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replacement e.g. intertidal mudflat or gravels could be partially compensated for by creating high level intertidal vegetated areas.

Though the improvements in water quality and potentially improved connectivity to the tributaries are recognised as being a mitigation measure, it is unclear whether these can be included within the quantitative balance sheet approach. An understanding of the function and productivity of habitats may enable an assessment of impact in qualitative terms.

Fish in the Tideway may also benefit from increased access to the freshwater tributaries. These are often blocked by impassable barriers close to, or at their confluence with the Thames. Physical improvements to these that would allow fish to move between the fluvial and tidal systems could have a large scale benefit in terms of improving access to new habitat. In some areas, mitigation in the form of fish passage improvements may offset negative impacts to fish populations within the Tideway. In some circumstances, temporary impacts to fish migrations could be offset by permanent improvements to migration opportunities.

4.3.37 - It is very important that the cumulative impacts of the construction period are properly assessed. For fish, this should include noise and vibration impacts within the aquatic environment, as well as hydrodynamic impacts.

4.4 Ecology Terrestrial

Where surveys are undertaken to assess the likely ecological improvements from the interception of the CSO's, the comparative sites should be within a similar salinity zone and of similar habitat.

4.4.8 - The intertidal zone between mean spring low and mean spring high tide contains a range of marginal macrophytes and should be included within the wall surveys.

4.4.26 - The likelihood of invasive species occurring on sites is high. These will also need to be surveyed.

4.6 Land Quality

4.6.5 - This paragraph is not in line with Table 3.2 Scoping Review, which scopes in land quality for the construction and operation phase. We do not understand why this paragraph states land quality has been scoped out of the operational phase. Land quality needs to be considered in the operational phase since leakage may lead to land contamination and new pathways may be created for land contamination which do not become apparent until after construction.

4.6.8 - Local Authority records should be added to the list of information to be obtained.

4.6.10 - The site investigation phase needs to be part of the assessment for land contamination

4.6.12 - We disagree that no land quality assessments will need to be carried out in the western part of the scheme. Some quality assessment of impermeable strata will be needed in terms of use/disposal of the excavated material and to ensure appropriate pollution prevention during storage and disposal.

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4.6.16 - The operational effects cannot be scoped out of the land quality assessment, at least until mitigation and other measures have been agreed.

4.7 Noise and Vibration

There needs to be some link or reference to Aquatic Ecology and the impacts of noise and vibration. Piling and construction noise within the aquatic environment should be assessed. The construction phase will require extensive coffer dams, jetties and other intertidal and subtidal constructions, which will all have potential to have both local and wider cumulative impacts upon the aquatic environment, particularly for migrating fish species. Periods of 24 hour working, or work within narrow channels e.g. tidal creeks, may increase the impacts.

We have been two recent studies of noise and vibration within the Thames and these can be made available to you if required. We can also advise upon mitigation measures.

4.11 Water Resources (Groundwater)

4.11.1 - Superficial Deposits, such as gravels appear to have been overlooked.

4.11.4 - This section should include the site investigation phase as part of the assessment for water resources.

4.11.11 - The list should include data from BGS and/or others on unlicensed borehole abstractions used for non-potable purposes.

4.11.15 - Environment Protection Regulations 2010 (EPR 2010) should be added to the list.

4.11.16 - There is no reference to risks to groundwater quality e.g. from Tunnel operation or from construction sites.

4.11.18a - Pathways for pollution can be created via the shaft and tunnels.

4.11.28 - Unacceptable change in the quality of groundwater as well as change in qualitative status should be included.

4.11.30 - Measures aimed at preventing unacceptable changes in groundwater quality are required in addition to the mitigation measures proposed.

4.12 Water Resources (Surface Water)

We would wish to see inclusion of SUDS measures to reduce runoff from sites to greenfield rates and to provide wider benefits to amenity, water quality and biodiversity. This is supported by The London Plan Policy 4A.14.

4.12.2 - Further to highlighting any effects on scour and deposition on the bed and banks of the river as a result of the works, this assessment is also required to determine whether the flood defences may be undermined if there is any change in bed levels and to establish river propagation and conveyance of river flows and resulting river levels.

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Other linkages to this modelling assessment include fisheries and biodiversity interests by way of changes in velocities which may impact fish migration and navigational concerns.

4.12.9 – Bathing waters in the outer estuary will not be affected by this project.

5. Proposed ES structure and contents

We are satisfied with the majority of the proposed ES structure and contents. However, we have the following points to make:

- Volume 4 (Alternatives) – It must be clearly demonstrated that sites have been selected via application of the Thames Tunnel Site Selection Methodology.
- Volume 6 (Assessment Methodologies) – As mentioned in the paragraphs in ‘3.0 Approach to scoping the EIA’ above, we would like to continue discussions with Thames Water as to why flood risk and waste are not listed as topics to be included in the Scoping Report.
- Site related effects – The ES must also identify opportunities to improve environmental conditions. This must be documented in each site specific volume.

Technical comments and advice for Part B Scoping Results

General

Water resources (groundwater)

In the tables for each Local Authority, drilling of an additional monitoring borehole is listed as a possible mitigation measure. It is not clear in what way the additional borehole actually provides mitigation, surely this is just a way of monitoring the effects. For monitoring purposes, there will be some sites where more than one monitoring borehole may be required.

In some of the ‘Tunnels’ sections it is stated that groundwater assessments are proposed for the sections where the tunnels are constructed in chalk. This is to assess the potential impact on abstractions and the chalk aquifer during construction and operational phases. This should also be included for any sections of the tunnel in overlying Secondary aquifers.

Ecology - aquatic

There are many fish species known to spawn within the tidal Thames in discrete areas dependent upon specific habitats, fluvial qualities and optimum requirements for egg survival and growth. Salmon, sea trout and eels, are known to migrate into and out of the estuary at different lifestages. Ensuring that these migrations remain unaffected is key.

Any construction works riverward of the flood defences, particularly on the foreshore and within the watercourse, may have impacts on fish resident or migrating through the area. We would require investigation and assessment of the possible damage of this habitat during construction and more detail of the methodologies to be used, along with the

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timing and duration of works. We are happy to advise Thames Water further on what piling methods are most suitable and when works within the river should take place.

Large scale abstractions or dewatering operations may also have impacts on fish. Dredging works to enable activities such as barge access may negatively impact on the habitats and species within the tidal Bow Creek and Thames, these should be investigated and assessed.

For mitigation options it recommends that any permanent structures within the river are designed in a manner that the scour will be minimised. If this requires that the area of land take is greater than that which is operationally needed, then terraces or shelves may be incorporated. We will be providing advice to Thames Water on a site specific basis. However, encroachment should not take place to create new habitat. Any encroachment must be justified in terms of operational or hydraulic requirements.

Within the mitigation options, it is recommended that river wall designs incorporating the approaches described within the Estuary Edges Guidance is incorporated. Generally the creation of intertidal vegetated areas between MHWS and MHWN will provide foraging and refuge opportunities for both juvenile and adult fish.

Further mitigation can be that temporary structures are designed in a manner to enable the successful re-instatement of habitat features with the completion of the project.

Land quality

Within several of the Local Authority Scoping Opinions there is a statement under the 'Tunnels' section which reads, 'The potential impact of the operational tunnel would depend upon its construction. Consideration of a secondary lining is the subject of a separate study being carried out in parallel with the EIA.' We are unclear to why this is not therefore part of the whole EIA and is not referred to in Part A, Overview. This again is contradicting Part A which shows the land quality has been scoped out for the operational phase.

8. Project-wide effects

As above, we would question why flood risk and waste have been excluded from Table 8.1. Both these topics have the potential to cause project wide effects.

8.2.2 - This paragraph also needs to reflect the possibility that for some aspects there may be a cumulative negative impact which requires mitigation or compensation, as identified in Table 8.1.

Site specific comments

All foreshore sites

- Putney Bridge Foreshore
- Cremorne Wharf Foreshore
- Chelsea Embankment Foreshore
- Victoria Embankment Foreshore

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- Albert Embankment Foreshore
- Blackfriars Bridge Foreshore
- King Edward Memorial Park Foreshore
- Borthwick Wharf Foreshore

We seek to protect the foreshore as the use of foreshore sites along the Thames is likely to lead to a number of detrimental effects to flood risk management, biodiversity and recreation. However, we support the environmental benefits the Thames Tunnel will deliver and recognise there is a need to develop as near to the river as possible. This may result in the need to develop on foreshore sites.

Where foreshore sites have been selected, yourselves and the Environment Agency should be satisfied that environmental impacts have been avoided, minimised, mitigated and compensated for by the application of the principles in Annex 1. We will support and work very closely with yourselves and Thames Water to ensure this.

11. London Borough of Hammersmith & Fulham

Hammersmith Pumping Station.

Ecology aquatic – Table 11.2 should reflect that there is potential for enhancements on this site along the rivers edge which could off set impacts caused in other areas.

12. London Borough of Richmond

Barn Elms

Land quality - Some further investigation of the area of the tanks should be undertaken.

Ecology aquatic - There are opportunities within the scheme to improve habitat availability and quality through works on and near the Beverly Brook. Improvements to Horne Lane weir, through which the CSO sewer runs, may be possible at this location. Removal, bypass or a technical fish pass are all options.

13. London Borough of Wandsworth

Bell Lane Creek

Ecology aquatic - There are opportunities within the scheme to improve habitat availability and quality through works on and near the River Wandle.

Bell Lane Weir and nearby EDF Weir are both considerable barriers to fish movement, changes to one or both of these structures would allow fish to move from the Tideway into the freshwater river upstream. We have a report advising on possible options for this area and would be happy to share this with Thames Water.

22. London Borough of Newham

Abbey Mills Pumping Station

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Ecology aquatic - Site description & potential impacts column - 'Construction of the wharf...may present a barrier to fish migration depending on design the campshed structure..would cause complete loss of river bed and bankside habitat.' The Channelsea River is important not just for its reedbed areas but for the nursery area that it provides for fish species including bass, mullet and eel. The site is even more valuable since the loss of a tidal habitat on the Lee associated with the tidal barrage. The water body and reed bed is a priority habitat in the UK BAP and is included in the delivery area of the Thames and Tributaries integrated biodiversity delivery area (IBDA).

Construction: potential significant effects column - 'Temporary land take may result in the loss of potential feeding and spawning habitat for fish'. The previous column implies that permanent loss of river habitat on the Channelsea River could be the outcome. This scenario needs to be taken into account and additional ecological compensation carried out.

Mitigation - We agree that mitigation measures such as silent piling and timings of works will lessen impacts, but we have concerns about the potential 7 year loss of river bed/banks and impediment of fish movement. Another mitigation measure should be to ensure that designs will not compromise fish movement.

We still have a preference for the use of a wharf in the Prescott Channel, which is heavily engineered and of a low ecological value versus a wharf leading to loss of natural channel and priority BAP habitats.

'The Channelsea River also provides an opportunity for habitat creation measures to compensate for impacts elsewhere'. We would support ecological enhancements such as the creation and enhancement of reedbed or the managed retreat where hard defences exist.

For information, a potential offsite mitigation site is further down on an area of existing reedbed on the east banks of the tidal Lee (at TQ3852481708). There is a need for enhancement and control of Japanese knotweed. Thames 21 are the contacts if you require further information.

Ecology terrestrial - Invertebrates are not covered in the list of surveys listed to inform the assessment. The German Hairy Snail, a red data book species that is restricted to areas with some tidal inundation is present at this site. We are satisfied that other species surveys (e.g. otter and water vole) are covered in the terrestrial section of the table.

Beckton Sewage Treatment Works

Ecology terrestrial - The Beckton Lands South SINC is not included in the designations list.

For information, there are opportunities for offsite habitat enhancement at Ripple LNR (ditch reinstatement). Please contact us for further information.

We hope you find the above comments useful. We will continue to work closely with Thames Water on the final stages of the site selection processes. For the project as a whole, and in particular foreshore sites, we will work with Thames Water to help find solutions to avoid or minimise impact on the environment and propose suitable

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mitigation and compensation where adverse impacts are unavoidable. Importantly we will also help identify environmental opportunities throughout this project.

We would be happy to work with you and provide you with technical environmental information to better your understanding of the potential environmental impacts of the project and how these can be avoided, minimised, mitigated and compensated for and opportunities for enhancement sought. This evidence will help to inform balanced decisions within the planning processes.

I trust this is satisfactory but if you have any queries, please contact me.

Yours sincerely

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ANNEX A

General principles

If these are met Thames Water will be able to avoid, minimise, mitigate and compensate potential environmental impacts.

- sites must be selected via application of the Site Selection Methodology
- the project must meet all relevant statutory requirements
- the project must support relevant policies and strategic aims for the tidal Thames. This includes: aim to achieve no net loss of habitat and no increased risk of flooding
- design of both individual sites and the tunnel must minimise impacts as far as possible. For example, the footprint of disturbance (land take) must be minimised in both the construction and operational phases unless this results in net environmental improvement such as remediation of contaminated land at the site. Only essential infrastructure should be sited in the foreshore and associated works should be sited on land if possible. Encroachment to create terraces/green space is not acceptable due to potential negative environmental impacts
- construction must use best practices to minimise potential impact on the environment
- impacts must be fully mitigated against
- compensation should be offered where impacts cannot be fully mitigated against

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- re-instatement e.g. of habitat and compensation e.g. of flood storage volume, must be planned for upfront
- the project must be designed to take account of future requirements including both climate change and emerging legislation. A key opportunity is the ability to link with TE2100 Plan implementation.

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