



December 2 2013

**Application WW010001 by Thames Water Utilities Limited for the Thames Tideway Tunnel:
Further Written Submissions**

Our unique reference number: 10018146

Document reference: SYR05

Glossary

In addition to the ExA's glossary, in these submissions:

AM = Abbey Mills, CW = Chambers Wharf, doc = DCO document with reference numbers, ES = Environmental Statement within the DCO, FWQs = First Written Questions, PLA = Port of London Authority, SWQs = Second Written Questions, SYR = Save Your Riverside, TTT = Thames Tideway Tunnel, TW = Thames Water

Executive summary

(1) SYR uses these submissions to build on its November 4 WRs, and reserves its position on some matters until it has seen the further material promised primarily by the applicant (for example the updated DCO and the Transport Strategy).

(2) We comment on the applicant's approach to the Examination including its holding back of information over a long period of time, followed by its late release during the Examination, and the experience of many IPs of lack of objectivity and balance when assessing alternatives against the preferred scheme.

(3) We submit that there is no policy support for the applicant receiving consent for every detail of its preferred scheme, quite the contrary.

(4) SYR objects to the notion that a sub-optimal scheme, incorporating significant avoidable impacts, should be considered acceptable. The applicant tends to use CDM to criticise alternatives, and to conflate health and safety risks with what it sees as project risks. We criticise the applicant's reluctance to engage with feasible modifications to its scheme.

(5) The applicant has failed to justify the objectivity of its site selection methodology with undue reliance on "professional judgment" exercised in its own interest.

(6) The use of optioneering workshops to decide on site selection and drive strategies was conducted in highly unsatisfactory manner.

(7) SYR introduces a further short submission from our noise and vibration expert Mr. Rupert Taylor which build on the report attached to our WRs and his oral evidence at the Day 2 IS hearing.

(8) SYR remains opposed in principle to article 7 of the DCO which weakens persons' rights in respect of statutory noise nuisance.

(9) When Chambers Street South is occupied the CW site will be surrounded on 3 sides by some 770 people living in very close proximity to the site.

(10) Impacts at CW would be much reduced by making it a reception site. More details are required to be able to assess the change in working hours proposed at CW, not last in terms of higher daytime impacts. 2300t barges are still very large and pose potential risks, not least to the houseboats.

(11) TW's recent proposal to bring tunnel segments by river would on the face of it save 2600 HGV movements - but this is very small compared to the 36,800 saved if CW were a reception site, together with 68% fewer barge movements.

(12) SYR questions whether a smaller cofferdam is required at all if CW did become a reception site.

(13) SYR strongly objects to TW's suggestion that they would seek to drive the Greenwich tunnel from CW if the decision was made not to drive the main tunnel from CW.

(14) We make comments on transshipment, daylight/sunlight, and on health.

(15) Barging on the Lee from AM has now been agreed by TW with the PLA and local authorities to be feasible. An 'all by road' strategy at AM would put more HGVs on the road, but not at night, and this impact would be reduced by a dual barging/road transport strategy. Our slurry pipeline proposal at AM remains a promising option and the applicant should be asked to assess it .

(16) The Transport Strategy is a crucial component of the scheme. We look forward to seeing the updated version and to testing how effective the associated requirement will be, for example in ensuring 90% of specified materials are actually transported on the river. The applicant has not yet produced convincing evidence that in practice there will not be a shortage of boatmasters, bargehands, and barges to meet the applicant's promises.

(17) This Examination should take the necessary procedural steps to examine modifications to the applicant's preferred scheme in the face of overwhelming evidence that feasible alternatives exist which would reduce overall impacts.

Scope and structure of further submissions

(18) Save Your Riverside welcomes the opportunity to supplement its original WRs submitted on November 4 2013. In these submissions we build on those WRs without seeking to repeat them. We make some comments on the WRs and LIRs of other IPs, and on the responses to the FWQs (First Written Questions). In so doing we take into account the proceedings of the IS hearings on the rationale for the selection of work sites and drive strategies, and on the draft DCO, and the OF hearing held at the Glaziers Hall on November 22. We hope that some of the issues we raise will feature in the ExA's SWQs (Second Written Questions). We attach to these submissions a letter of 21.11.13 from SYR to TW seeking clarification of TW's WRs on changes in working hours at CW (referenced SYR05.1); TW's reply of 28.11.13 (SYR05.2); and an additional submission on noise and vibration from the practice of Mr. Rupert Taylor (SYR05.3).

(19) During the IS hearings the applicant has committed to producing a range of fresh material, or at least material which develops their previous position or the known facts, for the December 2 deadline, together with a revised draft of the DCO by December 9. Obviously these submissions cannot take into account new material we have yet to see, and to that extent some of these submissions are necessarily interim in character; however we look forward to commenting on it by

the next submissions deadline of January 13. For the avoidance of doubt our comments below are without prejudice to our main case that the direction of drive of the eastern tunnel should be reversed to significantly reduce impacts at CW.

(20) The structure of these submissions is as follow:

- The applicant's approach to the Examination
- Details of the scheme and the balance to be struck
- Quality of the scheme
- Reasons for resistance to changes
- Site selection and methodology
- Use of CW as a drive site or a reception site
- Use of AM as a drive site
- Transport Strategy
- Procedural options open to the ExA and the Secretary of State

The applicant's approach to the Examination

(21) Amongst the material released by the applicant in response to the FWQs was at least some information on the process of site selection, which SYR and others have repeatedly requested since a the summer of 2012. Some of this information was specifically promised in September 2012 at a meeting at Southwark Council offices in the presence of the Leader of the Council, Simon Hughes MP, and our GLA representative, Valerie Shawcross. It was never delivered. Now only late in the process has the information been provided. This has made objective assessments and comparisons of such matters as site selection and drive strategies more difficult to achieve. Moreover IPs found themselves in the unsatisfactory position of having barely three calendar days to digest and take professional advice on this data before the IS hearings commenced on November 11. We welcome the ExA's announcement that consideration will be given to holding another day's IS hearing on site selection and drive strategy at a later date in the Examination process.

(22) The WRs and oral submissions at the IS and OF hearings have disclosed a widespread and consistent exasperation with the applicant's tactics which insist on specific project engineering options regardless of the cost to other parties, and its treatment of affected parties over a long period of time. It has been typical of the applicant to defend its preferred scheme and give little ground despite detailed written objections by LB Southwark and SYR. The applicant's response to Q14.25 in APP14 comparing the use of CW and AM as drive or reception sites is riddled with examples of praise for CW as a drive site, whilst citing (and in our view exaggerating) numerous problems for AM being a drive site; the references to archaeological impacts and to dredging impacts are a couple of examples. In short the comparisons made in the responses are neither fairly balanced, nor objective.

(23) The policy intention behind the Planning Act 2008 is that promoters are assured of the strong likelihood of their schemes being consented as Nationally Significant Infrastructure Projects relatively quickly compared to the previous arrangements, provided that they can pass the test that they have made every effort to avoid or reduce any adverse impacts arising from the construction or subsequent operation of the scheme. We commend the rigorous manner in which the ExA is conducting this testing process, and appreciate the fairness shown to other IPs who are hardly in a position to match the applicant's expertise or resources. In contrast we regret the approach to date by the applicant which we suggest has shown inadequate respect for the testing process, so crucial to the cases of IPs who are critical of the preferred scheme, based it would appear on a presumption and expectation that every last detail of its preferred scheme can and must be consented.

Details of the scheme and the balance to be struck

(24) At the IS hearings Mr Humphreys QC for TW sought to argue that the details of a scheme “which are the responsibility of the applicant to determine” (in the words of para 3.4.2 of the NPS) are, due to these words, matters for the promoter to decide. However the NPS is a policy guidance document, it is not a statute drafted by the Parliamentary draftsman, and the words should not be expected to bear the weight of law which they plainly do not. It is clear from the context of the NPS that ‘determine’ in this case is intended to mean ‘proposed’, with para 2.6.34 putting the onus unequivocally on TW “to justify in its application the specific design and route of the project that it is proposing, including any other options it has considered and ruled out” . We endorse LB Southwark’s submission (26.11.13) summarising the legal issues which makes the point that the national need for the TTT established by the NPS does not mean the promoter can rely on that to override any impacts, however adverse, arising from the construction or use of the scheme. If that were the case it would render the Examination process entirely pointless. There is no policy support for the applicant (or other infrastructure provider) being entitled to achieve all of its preferences on sites, routes, drive strategies and other techniques, to suit its convenience, minimise its risk, and minimise its costs when invariably these preferences impact adversely on other parties, the quality of their lives, their interests and the risks they must bear.

Quality of the scheme

(25) During the hearings Mr. Humphreys also advanced what we regard as the remarkable contention that consent for the scheme must be granted even where the Secretaries of State may think there is a lower impact alternative. The idea that a sub-optimal scheme is acceptable, and that promoters need do no more than achieve that minimal standard, is repugnant both in public policy terms and in terms of unnecessary impacts visited upon those persons directly affected by the scheme’s construction or operation. In creating a system for fast-tracking infrastructure deemed to be in the national interest, the notion that ministers or Parliament intended that sub-optimal schemes featuring a range of avoidable adverse impacts could and should be promoted and consented in the interests of speed or for any other reason is, we suggest, fanciful and entirely baseless.

(26) On numerous occasions when addressing proposed changes to their preferred scheme TW has cited their legal responsibilities under the Construction (Design and Management) Regulations 2007 to “avoid foreseeable risks to the health and safety of any person” (Regulation 11(3)). However HSE advice is that designers do not have to eliminate all risks as “there will be many situations where it is not possible to avoid all hazards”, and there is relationship between reducing risks and the degree of risk. Moreover the HSE advises “CDM does not require designers to stifle their creativity, limit their design freedom or place safety above aesthetics”, nor does “CDM require designers to choose “the safest form of construction””. Of course the applicant should take its health and safety duties very seriously, however in our submission the applicant’s praying in aid of its duties has resulted in two unfortunate consequences which militate against the most optimal scheme achievable:

(a) the applicant’s design has been excessively constrained by an overcautious interpretation of its safety duties, which has led in some instances to the absurd position of TW defending even small details of its preferred scheme against techniques which it or its contractors are already employing. The applicant’s health and safety objections to alternatives to its preferred scheme seem to melt away when the applicant itself wants to make some modifications.

(b) The applicant has a strong tendency to conflate health and safety risks with what it regards as project risks. It rejects alternative proposals on the grounds that that it cannot put

construction workers at risk, but on closer examination it often transpires that the real reason is perceived project risk, or even simply that the applicant would prefer not to do it that way.

Reasons for resistance to changes

(27) The IS hearings have demonstrated that in most cases the applicant's real objection to adopting alternatives proposed by IPs is that Thames Water would just prefer not to. As we stated at the hearing the applicant's technical ability to modify the scheme is in no doubt. However there is also no doubt that to date the applicant has declined to consider modifications to the scheme as submitted except where forced to through the ExA's written questions. At para 29.9.3 of APP14 (response to question on selection of sites and drive strategies) it is argued that "No responsible infrastructure provider would be willing to place the delivery of a NSIP on such an uncertain footing by selecting Abbey Mills as one of the three critical drive sites for the main tunnel", a point reiterated by Mr. Stride at the hearing. Of course the applicant was willing to use its own pumping station site at AM, owned and operated since the 1860s, as a drive site at Phase One consultation but has subsequently changed its position. We submit that no responsible infrastructure provider should be so unwilling, intransigent or inflexible as to refuse to engage with modifications to its preferred scheme in the face of compelling evidence that alternatives exist which are technically feasible, do not incur unacceptable increases in risk or cost, but do deliver significant reductions in impacts without unacceptably increasing them at other sites.

Site selection methodology

(28) We have already criticised TW's site selection methodology in our WRs. TW's responses to the FWQs and the discussions in the IS hearings have drawn further attention to the questionable process adopted by the applicant. In the Day 1 hearing the Chair asked the applicant how a site could be deemed 'overall suitable' when a majority of the assessment disciplines (socio-economic, community etc.) were judged to be 'less suitable' or even 'unsuitable'. The fact that TW had no answer to this question speaks volumes about the flawed process whereby instead of any attempt at weighing the disciplines against each other, the applicant used its "professional judgment" instead as this was found to be "the more robust and useful approach" (DCO doc 7.01, para 4.3.25).

(29) On Day 2 of the IS hearings Mr. Rhodes for TW made a comment that all the alternatives to CW were "worse" in socio-economic terms; we are not aware of any evidential support for this contention, and accordingly it must be regarded as no more than unproven opinion. Mr. Rhodes also said that there would be significant impacts at CW as a reception site but these 'cannot be quantified, they are a matter of judgment' he argued. In our submission the applicant's methodology, relying as it does on expedient "professional judgment", has fallen well short of the balanced objectivity required in order to properly test the selection of sites and drive strategies.

(30) It would be very surprising if the fact that the CW site is owned by the applicant, having paid a reported £80m for it, was not a motivating factor in the applicant's insistence on the use of CW. We believe that in the interests of transparency the arrangements that have been entered into between Thames Water and the Berkeley Group/St. James in respect of CW should be published, so that all IPs can be more informed on this issue. We draw attention to the fact that in its search for sites the applicant excluded London's four World Heritage Sites "and existing housing within concentrated residential areas" (doc 7.05 Final report on site selection process). Why did the applicant select CW, a concentrated residential area by any definition, as a work site in breach of its own criterion to exclude such areas?

Use of CW as a drive site or as a reception site

Optioneering workshops

(31) We welcome the focus the FWQs have brought to bear on the merits of CW and AM as drive or reception sites. The significant adverse impacts on CW as a drive site are referred to in section A.4 of APP14.25.04. It now transpires from the information regarding the optioneering workshops (for which information is finally available) held between Dec. 2010 and June 2011 that the adverse impacts on the local community of using CW as a work site have long been recognised by TW, with the site being assessed as ‘less suitable’ whether as a drive site or a reception site (APP14, para 5.3.20). Although in the workshop the community representative expressed concern about the direct negative impacts on the local community and schools of the use of CW (para 5.3.48), “by the end of the workshop the whole team came to a collective decision” that the opportunity to remove large volumes of excavated material by barge from CW was the key factor in determining a preference for use of this site (para 5.3.50), when balanced against the assumption (which we dispute) that high numbers of HGVs must be required at AM if it were the drive site (para 5.3.48).

(32) We regard the selection, and comparison of sites in the manner described above as highly unsatisfactory. This was an entirely closed process and although it is clear that debates took place within the workshops, no minutes have been made available to inform us of how conclusions were reached - though the agendas suggest that barely more than an hour was spent collectively in the four workshops where CW was a specific agenda item. Numerous questions arise, for example how did the participants overcome the fact that ‘less suitable’ assessment disciplines outnumbered ‘suitable’ disciplines to reach a conclusion of overall suitability? On what basis was the good river access at CW permitted to override the adverse community impacts? We raise these questions to draw the ExA’s attention to what we regard as the deeply flawed nature of the selection process.

Noise impacts

(33) The ExA will have noted the expert evidence on noise and vibration from Mr. Rupert Taylor at the IS hearing about the unusual nature of the severe proximity of sensitive residential receptors to the CW site, the anomalies in the ES including the baseline, the combined impacts of noise and vibration, and the limits to the practicability of mitigating noise and vibration effects. We attach a short additional submission from Mr. Taylor on these and related issues (SYR05.3). We sincerely hope he would be invited to participate in any technical discussions that may take place to agree facts on noise impacts.

(34) TW stated at the IS hearing that no timeline had been done of noise impact at CW as a reception site, and the letter from TW SYR05.2 indicates that TW’s Dec 2 submissions will address the noise and other impact questions raised in SYR05.1 (Q8 in particular). It is asserted in APP14.25.04 that limiting barge movements to day and evening only would result in “no significant adverse night time effects at Chambers Wharf” , para A.4.31. We comment in more detail below about the proposed change in working hours at CW. We reserve our position on those proposals, not least the effects on noise impacts until we have had a chance to see and review TW’s Dec 2 submissions. In particular we will wish to assess the daytime ‘penalty’ in terms of impacts of more intense activity in the proposed period 0800-2200 for loading and moving barges needed to obviate the loading and movement of barges at night. We will also wish to consider the merits in impact terms of shortening that time period for “daytime” barge operations from perhaps 0800 to 2000.

(35) In our WRs and at the IS hearing on the DCO SYR made plain our objection in principle to article 7 of the DCO which would give the applicant further defences against actions for statutory nuisance with respect to noise. The idea that the project could be frustrated by a magistrate issuing a noise abatement order unless the applicant has a “cannot reasonably be avoided” defence to

supplement the existing defence of “best practicable means” is disproportionate and unnecessary. If the issue arises there is no justification for making it more difficult for persons suffering the nuisance to obtain relief from the nuisance, if necessary through the courts. This is about balance, and there is no case for weakening the existing protection for citizens.

Community impacts

(36) The evidence on local impacts submitted by LB Southwark. and TW’s responses to the FWQs, have clearly established that the impacts arising from a drive site at CW are significant adverse on thousands of local residents, on our local schools and their pupils, and on local businesses. The unsuitability of CW as a work site at all is underlined by the arrival in due course of occupants in the 182 units comprising the Chambers Street South development, in close proximity to and directly overlooking the site on the south side, at the same time as TW and its contractors hope to commence implementing a DCO consent. We estimate that there will be some 770 people be living on the 3 sides of the site when Chambers Wharf South is occupied, 345 of whom face directly onto the site with substantial glass frontage on four of the blocks.

(37) The applicant sought to stress at the IS hearing that even as a reception site, CW would still be a construction site for at least 4 years 8 months. However this is misleading as after construction of the shaft there would be a relatively quiet period of some 19 months awaiting the arrival of TBMs from Kirtling Street, AM, and from Greenwich. There is no dispute among the parties that as a reception site CW would need far fewer construction workers on site, there would be substantially fewer movements required of barges, HGVs, and ‘white van’ light vehicles. In short whilst CW as a reception site would not eliminate significant adverse impacts, including some which could not be mitigated, the range, intensity and duration of adverse impacts would be significantly reduced.

Proposed change to night time working at CW

(38) As referred to above TW submitted WRs for the Nov 4 deadline on a proposed change to night time working at Chambers Wharf, which TW sent us before the deadline so we were able to make some initial comments in our WRs(para 105-107). Since then the applicant has developed the proposal further. TW’s letter SYR05.2 refers to a new proposed barge size for use at CW of 2300t (originally 1500t, then 5500t in TW’s WRs). Mr. Stride stated this to the OF hearing in Glaziers Hall on November 22, and also announced two further changes: that tunnel segments would be brought in to CW by barge instead of road, and that low noise/vibration piling would be used at CW unless impossible to do so (previously “where reasonably practicable”). Mr. Stride confirmed at the DCO IS hearing that the importation of segments by barge was being proposed only for CW, not for the other drive sites.

(39) Our comments are necessarily still of an interim nature as TW has said more details of the barging operation will be confirmed in the forthcoming update of the Transport Strategy, and more details are expected on the implications of the proposal for noise and other impacts (it is worth noting here that the larger barges have major adverse effects on townscape and visual in Bermondsey Wall East, and on users of the Thames Path, APP14.25.04, para A.4.43-44). Barges of 2300t are still very large vessels for the Tideway: it appears that the largest barge operated by leading operator Bennetts Barges is 1740t and that there is only one of those currently available. We remain concerned by the size of these barges in respect of the relatively vulnerable houseboats on Downing Road moorings, whether from dredging, or collision, or other risks. The proposal would give the contractors considerable discretion on barging activity. We hope that the Transport Strategy will not only throw light on the securing mechanism, but will analyse the different impacts attributable to different barge sizes; we submit that minimising local impacts should be an important consideration in the number

and size of barges required, and their frequency of loading and movement, it should not just be a function of tunnelling rates and so the amount of spoil to be transported.

The segments in and piling changes

(40) We look forward to hearing more detail from the applicant about the importation of tunnel segments to CW by barge instead of by road. Subject to confirmation on the face of it this would transfer 4% of materials from the road to the river and accordingly should reduce HGV movements by 2600. We called for this change in our WRs (para 73) and it is welcome in principle. It is interesting to note that hitherto TW has always said they would not, if not could not, undertake to bring segments in by river and indeed expressed concerns about the availability of barges, tugs and experienced crews for this purpose (Transport Strategy, para 6.2.2). Of course this change of strategy begs the question of what else the applicant has said it could not or would not do, but if pressed might undertake to do. A further unknown is the securing mechanism for importing segments by barge. We will see if this matter is dealt with by the updated Transport Strategy. Obviously it would be unsatisfactory if local residents expected slightly fewer HGV movements but in practice this did not take place because ways could be found round any securing mechanism by the contractors to keep their costs down.

(41) Although the importation of segments by barge should offer a modest reduction in the number of HGV movements at CW as a drive site, this should be viewed against the reduction in impact offered by CW being a reception site as SYR advocates. As a drive site the HGV movements should come down to $64,500 - 2600 = 61,900$ by bringing in segments by barge. However as a reception site the predicted number of HGV movements at CW comes down much more significantly to 36,800 (APP14, table 25.6), or by c.43%. compared to CW as a drive site, with the peak in year 1 as opposed to year 6 as a drive site. It should also be noted that the overall reduction in barge movements would be some 68% with CW as a reception site (APP14, para 25.10.21).

(42) The new commitment to undertake low noise/ vibration piling techniques “unless impossible” appears to be more of a semantic change than a meaningful one over the previous formula of “where reasonably practicable”.

(43) We note TW’s statement in its letter that “It has always been our intention to try and minimise disruption to those who live and work around our proposed construction sites”. However if this were truly the case the applicant would not have selected the highly residential CW as a work site in the first place (under its own deeply flawed methodology), and having nonetheless selected it would have proposed it be a reception site only. The concessions recently offered by TW are not unwelcome as far as they go - but in our submission they do not go very far at all, and nowhere near as far as reversing the direction of drive of the tunnel would do in terms of reducing local impacts. The APP14 documents make it very clear that impacts at CW are substantially reduced as a reception site, and Save Your Riverside’s case remains that CW should not be used as a drive site and if used at all then there is an compelling case for it to become a reception site.

Smaller cofferdam - is it needed?

(44) The applicant asserts that even as a reception site a smaller cofferdam (30m projection rather than 60m) would be required at CW “to demolish the exiting river wall and jetty adjacent to the shaft, provide sufficient working area around the shaft to allow its construction and build a new section of river wall” (APP14, para 25.10.4). However this proposal appears to be based on no changes being made in the alignment of the tunnel with the location of the shaft being exactly where it is proposed in the DCO. No consideration appears to have been given to making a modest adjustment to the position of the shaft (and so of course slightly altering the alignment of the tunnel), perhaps by

moving it a few metres to the south and/or the west which we submit might well obviate the need for even the smaller cofferdam or demolition of the river wall. That adjustments to tunnel alignment can be contemplated is evident from the different options considered, and still the subject of disagreement between the parties, at KEMP.

(45) The construction of an elaborate jetty for barging operations is not required as this function can be successfully fulfilled by the use of jack-up barges, a well-established technique. If the smaller cofferdam and associated works can be avoided there would be a reduced impact at CW, including some reduction in impacts on Fountain Green Square residents at the north-east side of the site as the shaft would be further from them - and as the shaft itself could be of a smaller diameter as we comment below.

(46) TW stated in its letter of 4.20.13 (SYE03.7) that if CW became a triple reception site then “a 20m shaft could be adopted but this would need to be confirmed”. We appreciate that more work would need to be done on the hydraulic design of a smaller diameter shaft. However if a smaller diameter shaft was confirmed as feasible as seems likely then it would offer some reduction in local impacts and could facilitate not needing the smaller cofferdam referred to above. We hope that the ExA will consider asking questions in the SWQs about what adjustments to the scheme would be required to obviate the need for the smaller cofferdam and associated works, including the option of a smaller diameter shaft, and a comparative assessment of the impacts from so doing.

The Greenwich connection tunnel

(47) In para 94 of our WRs we registered our strong objection to any suggestion of driving the Greenwich connection tunnel from CW because of the impacts that would be sustained. However we regret that that suggestion is indeed made by the applicant in APP14 “If the decision was made instead to drive the tunnel to CW from AM, we would need to consider whether the Greenwich connection tunnel should be driven from CW, rather than from Greenwich in order to capitalise on the very good river access at CW” (para 27.2.14). It is evident from the applicant’s responses to the FWQs that the 24/7 tunnelling operation to drive the Greenwich tunnel would result in a mere 3 months shorter period than a main tunnel drive operation, and that “local amenity effects at CW would increase back to wards those that would be experienced from its use as a main tunnel drive site” (APP14 para 25.1.9). It would be absurd in our submission to reverse the direction of drive of the main tunnel in order to reduce significant adverse impacts at CW, for over 80% of them to be then re-instated by reversing the direction of drive of the Greenwich tunnel; we would strongly oppose any proposal to that effect.

Transshipment of materials at CW

(48) TW’s letter SYR05.2 appears to confirm that there would be no transshipment of materials at CW from other sites on the project, or from other projects (Q10 of SYR letter SYR05.1 refers). However this is not spelled out. It should be put beyond doubt, and should be the subject of a requirement perhaps as part of the requirement(s) which it is expected will form the securing mechanism for the Transport Strategy.

Daylight/Sunlight

(49) The DCO Daylight/Sunlight assessment (doc 7.24) refers to the CoCP requirement that the west of the CW site should be designed to minimise potential sunlight/daylight impacts on the lower floors of Axis Court (para 3.3.6). At the IS hearing on Day 2 Mr. Rhodes for TW suggested moving the temporary office proposed for the south-west corner of the site because its other function of shielding St. Michael’s School on the south side of Chambers Street from site noise would now be fulfilled by the blocks of affordable homes currently being constructed along the south side of the

street. These trade offs are obviously not easy to balance, and underline the general unsuitability of CW as a work site. It is essential that there be a requirement or other securing mechanism to ensure that LB Southwark is fully engaged with, and empowered to insist on changes to, the layout of the site so that the welfare of local residents is as important a driver as the operational convenience of the contractor. On the subject of light as powerful external lighting at night can be highly intrusive and has the potential to disturb local residents' sleep patterns, we urge that there be an effective securing mechanism to engage LB Southwark for this factor too (proposed requirement 6 in LB Southwark's LIR refers).

Health issues

(50) SYR is very concerned at the potential threats to the health of local residents and schoolchildren arising from the proposed works at CW. Oral evidence was given on the subject on Day 2 of the IS hearings by Miss Troughton for LB Southwark, and Mr. Rupert Taylor underlined that this was an area where the impacts on health of this kind are only now beginning to be better understood. We understand that the Fulham coalition will be referring to this issue in their submissions. These concerns highlight the need for the most effective mitigation measures possible should consent for the scheme be given, and CW used in whatever configuration.

Use of AM as a drive site

(51) In our WRs we set out our case that the main tunnel should be driven from AM to CW rather than vice versa, and as originally proposed by the applicant. Since then the IS hearings have highlighted what appears to be TW's main objection to this strategy, namely the perceived project risks of relying on the River Lee for the transportation of materials. We understand that at a meeting on 28.11.13 an agreement was reached between TW, the PLA and local authorities about the number of barges that could be used to access the AM site. We await a note of that meeting but understand that the parties agreed that 2 x 350t barges would be able to access the AM site per tide, so with 4 barges/day approximately 1250 tonnes of material could be moved per day. Navigation risks and difficulties were not considered insurmountable, with the PLA's view that night-time navigation would be no more difficult than in the day-time. Moreover although campsheds would be required at AM, it was concluded that there would not need to be any large-scale dredging on the Lee, only some dredging may be required adjacent to the site.

(52) The evidence given by Mr. David Allen, TE's River Transport Advisor, did not point to insuperable difficulties of barging on the Lee. On the contrary he is living proof that up until the 1960s the Lee was a busy river transporting inter alia timber, coal and copper in and refuse out. The continuous use of the river by businesses maintained its profile. Clearly some limited works would be required to bring the Lee back to the full navigational state it was in before the decline in its use, but in the context of the huge £4bn project to construct the tunnel it would be a relatively small programme of works to put in place the necessary facilities.

(53) Notwithstanding the confirmation that barging on the Lee is perfectly feasible, it appeared to be undisputed at the IS hearings that it would be feasible to use AM as a drive site relying on an 'all by road' transportation strategy. Of course that would require a significant increase in HGV movements with more traffic on local roads, though inadequate research has been undertaken by the applicant into whether the obvious route down Abbey Lane is the only feasible route; we submit that the applicant should be asked to do this assessment in the SWQs. It is in our view clear from the evidence that AM as a drive site could be managed so as to avoid any need for 24 hour working of HGVs under an 'all by road' strategy, thus confining HGV impacts on residential streets to the day-time (APP14.30.01, para A.2.7 refers). As Miss Lieven for LB Southwark pointed out, public transport connections in the vicinity of AM are more than adequate to bring the site staff in and out

and there could be a restriction on the use of private vehicles (as is proposed for CW). As our noise evidence underlines it remains the case that there are far fewer sensitive receptors who would be affected by AM being used as a drive site, and they are further away than the many more, and closer receptors at CW.

(54) We do not believe that the concerns expressed at the OF hearing in Glaziers Hall by LB Newham about potential impacts of AM being a drive site on the proposed development in Sugar Lane bear scrutiny. The development appears to be nearly 500m from Shaft G as the crow flies, is not on the probable transport route, and it is not certain if it will in fact be built - whereas the new housing being built immediately opposite the site CW is well under way.

(55) Given the above we submit that it is now established that the applicant's main concern of project risk about using AM as a drive site is without foundation. The Lee can be used for barging to remove sufficient material to keep up with the TBM, particularly taking into account the programmed stoppages which would allow any catching up required from the stockpile of material. Even if the Lee were not used at all an 'all by road' strategy would work without undue impacts on local residents. Of course these options are not mutually exclusive: as the applicant's responses to the FWQs confirm there could be a joint strategy whereby some of the material could be transported by river and some by road, thus reducing HGV movements.

(56) This still leaves the slurry pipeline option for transporting material at AM as referred to in para 86-87 of our WRs. This option was discussed by Dr. Tony Swain at the IS hearing, and we urge that the applicant be asked in the SWQs to carry out an assessment of it.
In responding for TW Mr. Arnold:

(a) expressed concern about pipe wear. However this is the exactly same technology TW and its contractors are currently using successfully in constructing the deeper and longer Lee Tunnel (which goes through the Plaistow Graben, not an issue on the AM to CW section of the main tunnel).

(b) expressed concern about inserting the pipeline within the Northern Outfall Sewer. This is a misunderstanding, the proposal is to place a temporary pipeline on the NOS, owned and operated by TW, to take the slurry down to Beckton for treatment at the same facility as is being used for the Lee Tunnel. For most of its length the NOS is some 12-15m wide at the top, there is no reason to believe it need in any way interfere with recreational use of The Greenway.

(c) did not address the alternative proposal of routeing the pipeline down the Lee to its confluence with the Thames. This option could offer transfer of treated material to larger barges for direct transit to disposal down the estuary.

Transport Strategy

(57) The Transport Strategy is a crucial component of the scheme. The scheme has been promoted not least on reducing impacts at work site and on London's highway network by the aspiration to carry 90% or more of specified materials by river. Mr Rhodes told the IS hearing that TW was completely committed to its transport strategy and that there would be "no backsliding". It is very important that there is not as any failure to deliver on the aspiration, whether by contractors finding ways round any requirement in order to save significant costs, or through lack of experienced boatmasters or bargehands or barges, has immediate adverse impacts on residents near work sites and on traffic congestion and road safety in London. We look forward to seeing the revised Transport Strategy with the components listed in APP16 para 3.1.14, and analysing whether it addresses a range of issues referred to at the DCO IS hearing including:

- any linkage between incentivisation of contractors and requirements,
- the robustness of the applicant’s assertion that it will have sufficient time to train adequate numbers of boatmasters and bargehands in a declining industry,
- whether the applicant can secure sufficient barges of the required size – has a survey been conducted of supply from elsewhere in the UK and on the continent?
- what account has been taken of simultaneous demands for the same resources from other projects e.g. the Northern Line extension (table 5.3.1 in DCO doc 7.15 Skills and Employment Strategy refers)
- how financial factors will be excluded from the exercise of the derogations as Mr. Stride assured the hearing they would.

Procedural options open to the ExA and the Secretary of State

(58) SYR submits that the evidence adduced that the applicant has failed to adequately explore alternatives to its preferred scheme, and that feasible alternatives exist which would significantly reduce overall impacts from constructing and operating the scheme is now overwhelming. On Day 5 of the IS hearings submissions were made about the legal options open to the ExA and to the Secretary of State regarding the examination of changes to the scheme as proposed in the DCO. The legal submissions made by LB Southwark (26.11.13) cover these matters, as do the submissions from other authorities including LB Hammersmith and Fulham. We heard the exchange between our MP, Simon Hughe and the ExA at the OF hearing, and we have seen his subsequent call for the Examination to be paused to allow the Secretary of State to extend the Examination as needed to allow fuller consideration of alternative sites and drive strategies.

(59) We are also mindful that the forthcoming review of the Planning Act is likely to focus on improving ways whereby changes can be made to applications after they have been submitted, as experience has shown this to be desirable. We take no view on the optimum method whereby this fuller consideration take place, though we see much merit in this Examination conducting this exercise given its engagement with the huge amount of data and submissions before it, and the likelihood in our submission that alternatives to the scheme as proposed could be examined and adopted without excessive delays or prejudice to third parties who may be affected by the alternatives. Indeed the applicant accepts that “good information exists in relation to both” CW and AM sites, and that “in the time available we have not been able to undertake a full EIA, but there is good environmental information available to enable the principal issues to be identified” (APP14 paras 25.1.6, and 25.2.3b respectively). We urge that the necessary action for the alternatives to be formally considered by this Examination be put in hand as soon as possible.

SYR05.1



November 21 2013

Phil Stride
Head of Thames Tideway Tunnel
Thames Water Utilities Ltd
The Point
37 North Wharf Road
London W2 1AG

By email [REDACTED]

Dear Phil

WORKING HOURS AT CHAMBERS WHARF: FURTHER INFORMATION REQUEST

1. I am writing to request further information in respect of your proposed changes to working hours at Chambers Wharf that you submitted as a Written Representation to the Examination. We are grateful for the decision expressed in para 1.1.4 to make public your current thinking on what is clearly 'work in progress' so that representations can be made on them. Obviously it would be helpful if you could respond by the middle of next week, please, so as to allow a few days to take account of your answers in preparing our next submissions to the ExA due on December 2.

2. At para 1.1.6 you indicate that barges of up to 5500t instead of 1500t could reduce the need for night time vessel loading and movements. Please could you describe the economics of using larger barges at Chambers Wharf? Could you confirm that through economies of scale the use of larger barges would significantly reduce the costs incurred by the infrastructure supplier/contractors in operating the site as a main tunnel drive site?

3. As you said at the IS hearing on November 12 there is a relationship between tunnelling rates and the size and number of barges required to transport materials. What assumptions have you made about tunnelling rates from Chambers Wharf, were it a main drive site as you propose, in calculating the need for barges to service the site? What assessment have you made of how many vessels, and of what size, would be required to implement these proposals? What assessment have you made of the availability of such vessels at the time they would be required?

4. At the IS hearing the PLA representative indicated that there was no precedent for using barges of 5500t for movement of materials on the tideway, and that no navigation risk assessment had been signed off yet. Have your discussions with the PLA considered the potential risks of these vessels to the houseboats on Downings Road moorings? What restrictions on the operation of these vessels do you expect to agree with the PLA?

5. At para 1.1.9 you say that there is an increased likelihood of derogations being required because of the use of larger vessels in the daytime only. What assumptions have you made about the frequency and intensity of the use of derogations, and the duration of their use, to permit (a) loading and movement of barges at night, and (b) the use of road vehicles to remove material?

6. At para 1.1.10 you indicate that the deployment of larger vessels could reduce the capacity for other potential activities at the wharf, including importing of materials by river. Have you completed your further review of this issue, and if so what is the outcome? Does this mean that fill for the proposed cofferdam would use smaller barges as originally proposed, with the larger vessels used for removing excavated material from the tunnel? By what means are you now proposing to remove the fill from the cofferdam?

7. At para 1.1.11 you say that larger vessels would require some limited dredging. Have you calculated the scale of the dredging that would be required, over how long a period this would take place, and have you assessed the impact of this operation on nearby residences and businesses, and on the houseboats? The site assessment for Chambers Wharf (DCO doc 6.2.20) notes the high archaeological potential of the site, in particular the foreshore, and you indicate at para 1.1.12e that there could be an adverse archaeological impact. Have you conducted any of the survey and sampling work to which you refer to assess the necessity for /feasibility of mitigating any impacts?

8. In para 1.1.12 you set out some initial indications. You refer to noise and vibration in sub-para c on the basis of no vessel movements or loading at night, night time movements of material to stockpiles to be confined to the three-sided enclosure around the material handling area, and the use of a relatively quiet vehicle for moving material. Sub-para d then states "There would be no significant night time effects at Chambers Wharf" (you made this point when speaking at the IS hearing). Then sub-para g explains that in effect there is a penalty for the restriction on night-time loading and barge movements in the form of an intensification of movement of material around the site during the day, with "additional significant day time effects" likely at Luna House and Axis Court during more sensitive weekend hours. Arising from this :

(a) to support your contention in sub-para d, what assessment have you made of the reduced impacts on local residences of the proposed restrictions on night time working, including people who live on the north bank of the river who face the open side of the enclosure?

(b) what assessment have you made of the increased impacts on local residences of the additional day time impacts resulting from the proposed restrictions on night time working?

(c) would any of the proposed tunnelling scenarios require an increase in the double handling of excavated material under these proposals e.g. from shaft to stockpile at night, then to barge in the day time? If so have any impact assessments you have made taken account of this?

(d) have you conducted a comparison between the local impacts of the working hours as proposed in the DCO and supporting documents and the changes in working hours you are now proposing for Chambers Wharf?

9. If Chambers Wharf were a reception only site, as we propose, would it still be your intention to use much larger vessels than originally proposed notwithstanding the fact that the bulk of materials to be moved would be substantially reduced from the site being a drive site (i.e. excavated material from the shaft, plus the infill for the smaller cofferdam you say is required in this scenario), and so could be moved in day time working?

10. Could you please confirm that you do not have any intention or expectation that the infrastructure provider or its contractors would use Chambers Wharf as a transhipment point for materials being transported from other sites on the tunnel project, or indeed materials from other projects?

11. Is it correct that Thames Water's responses to the ExA's First Written Questions are based on the working hours at Chambers Wharf as originally proposed, and do not take into account your recent proposals for changed working hours deploying larger vessels?

12. Finally could you please supply copies of any of the assessments or other reports referred to above that you may have conducted in relation to the change in working hours at Chambers Wharf proposals? Thank you.

I expect you will be attending the open floor hearing at the Glaziers Hall tomorrow, if so we might have a chance to have a word on the progress you have made on the change in working hours proposal. I am copying this letter for information to the planning inspectorate.

Yours sincerely,



Barney Holbeche
Secretary





Mr Barney Holbeche

Ref:100-CO-PLN-SYRIV-000002

Save Your Riverside
19 Axis Court
2 East Lane
London
SE16 4UQ

28 November 2013

Dear Barney,

Thames Tideway Tunnel – request for information

Thank you for your letter dated 21 November 2013 regarding our recent submission to the Planning Inspectorate regarding proposed changes to working hours at Chambers Wharf.

At the examination on Friday 22 November 2013 I stated that we are confident of making a commitment to transport tunnel segments to Chambers Wharf by barge rather than by road, again except for circumstances largely out of our control. This would make a significant reduction to the number of lorry movements on Bevington Street and Chambers Street. As you can appreciate, due to the planning examination process it is important to us that any change to our application is available to all at the same time. We are therefore, only able to provide answers at a summary level for you prior to our submission of responses to written questions next week. However, I trust this information will help you to respond and we are happy to meet with you in mid December where we will be in the position to discuss the proposed changes in more detail.

We are also proposing to use barges that are a size of 2,300 tonnes, not the larger vessels that were referred to at the issue specific hearings. Details will be confirmed in our Transport Strategy, and our submission on 2 December 2013. The assessment of vessel size is not associated with cost. I must stress that we have continued to explore mitigation options and have listened to the ExA and stakeholder concerns regarding our proposals and the impacts on the local community. The question of how we can mitigate the potential impacts on residents is the driving factor behind our review of the transport proposals at this particular site.

It is also likely that irrespective of the size of vessel dredging would need to be undertaken and the final solution will also require a full Navigational Risk Assessment. For further information regarding navigational safety, please refer to 7.20.10 Navigational Issues and Preliminary Risk Assessment and 7.20.10 Chambers Wharf - Annexes: Hazard Logs - In particular reference 14 and 20 refer to the houseboats in the vicinity.

The importing of fill material for the cofferdam and the removal of the fill from the cofferdam will continue to be undertaken in line with the application.

With regard to archaeology, the application is accompanied by a detailed archaeological assessment set out in Vol 20 Section 7 of the Environmental Statement. This is based on a considerable body of baseline data including a wide range of desk based sources, results from monitoring geotechnical investigations on the site over the past two years and from foreshore walkover surveys. Our archaeologists also carried out an archaeological watching brief in 2006 as part of another development to monitor and record a number of geotechnical test pits within and around the site, which has provided archaeological baseline information. The proposed amendments at this site to enable reduced working hours have been assessed following the same approach as detailed in the Environmental Statement, and the same process would be followed to mitigate the predicted effects. The process to be followed to mitigate impacts on archaeology is further detailed in the Overarching Archaeological Written Scheme of Investigation, which is part of our application for Development Consent.

I would refer you to our submission next week to help with your Q8a and d. As for matters arising from noise please refer to Question 11 (Doc Ref App 11 – Noise and disturbance, including noise contours) in our first round of written responses which outline noise impacts, sites and types of noise monitoring and summary of likely significant effects at all sites regarding noise and vibration. There is no change in the amount of handling of the material, it has always been anticipated that the processed chalk would be taken from the presses to the stockpile. The conveyors are then loaded within the stockpile area.

As you are aware our application does not propose Chambers Wharf as a reception site.

In regard to Q10 and Q11 you are correct and I must stress that the proposals refer to the proposed change in working hours not the size of the vessel.

Finally, as you are aware information supporting our application has been published and we will continue to provide information as needed to the Planning Inspectorate. As we have suggested in previous correspondence, some information collated by the project remains commercially sensitive.

I trust that by providing these responses we have been able to assist you with your own representation. It has always been our intention to try and minimise disruption to those who live and work around our proposed construction sites. We will continue to review our proposals to identify areas where we can further reduce the impact of our works and by working with you, we have been given a clear understanding of residents concerns. Please contact Belinda to arrange a meeting if you feel that would be of help during this period of the examination process.

Yours sincerely,



Phil Stride
Head of Thames Tideway Tunnel

SYR05.3

SAVE YOUR RIVERSIDE additional submission – noise and vibration

Rupert Taylor FIOA – 2 December 2013

Content of note

- 1 ES Assessment methodology for significant effects and their mitigation**
- 2 Severe proximity of residential receptors to the site**
- 3 Significant airborne noise levels.**
- 4 Significant vibration**
- 5 Mitigation**
- 6 Practicability (sound), Adverse effects (ventilation), Limitations (vibration)**
- 6 Summary of Effects at Chambers Wharf and Abbey Mills**

1 ES Assessment methodology for significant effects and their mitigation

Assessment methodology

The assessment methodology used in the ES to determine significant effects can lead to under-estimates of significant effects. Anomalies can also arise and there are further inconsistencies in relation to the application of the TTT policy for Noise Insulation and Temporary Re-housing.

The EA assessment methodology for airborne noise from the worksite is described in Appendix 1 of this note but can be summarised thus: calculate the noise level at each receptor from construction activity, determine a threshold value for construction noise at each receptor derived from the (existing) ambient noise level there, if the predicted construction noise level exceeds the derived threshold value then apply 'professional judgement' to determine whether there is a significant effect.

Note that the first two stages are based on guidance in British Standard 5228 and use the first of two methods provided (the 'ABC' method) for deriving the threshold level at a receptor. However, in that British Standard if the construction noise is predicted to exceed the threshold value that is deemed to be a significant effect whereas in the ES that situation is only regarded as a 'potential' significant effect and 'professional judgement' is applied to decide whether to designate it as a significant effect. Factors considered include the internal noise level during the day with closed windows and the duration of the effect (periods not exceeding 1 month will not necessarily be regarded as constituting a significant effect). For the night-time period a façade level derived from an internal level and assuming partially open windows is considered.

In the case of river-based construction traffic the test for a significant effect appears to be that it must cause the existing noise level to be increased by 3 dB. That is a similar approach to the second assessment method described in British Standard 5228 which

uses an increase of 5 dB in the existing noise level (caused by the construction noise) as the criterion¹.

Mitigation

The Noise Insulation and Temporary Re-housing Policy sets trigger noise levels for the daytime, evening, and night-time periods which if exceeded for 10 days or more in 15 consecutive days satisfy the noise requirements that entitle residential occupiers to an offer of noise insulation (or temporary re-housing)². The weekday daytime trigger level is 75 dB (10-hours) and the night-time trigger level is 55 dB (1-hour).

Under-estimates of SEs from the use of 'professional judgement'

At Luna House for the evening period, because the internal noise level that the ES sets as an additional criterion is not exceeded with closed windows, the ES does not designate a significant effect there for airborne noise from the worksite even though the relevant threshold (for the ABC method) is exceeded. For the same reason, at Axis Court the ES does not designate significant effects for the daytime period; it also cites the limited duration (1 month) as a factor³.

Anomalies

At Axis Court the ES reports a maximum external noise level from construction of 75 dB for the 12-hour period 0700-1900 (see Volume 2 Table 9.5.1). The trigger level in the Noise Insulation and Temporary Re-housing Policy for the daytime period is also 75 dB but over the 10-hour period from 0800-1800 which are the standard working hours (see Code of Construction Practice Part A, Table 4.1). Because no significant noise should be emitted from the site outside the standard hours (except for special operations such as long concrete pours), the noise from the coffer dam construction – the source of the maximum noise level – should only occur in the 10 hours between 0800 and 1800. The L_{Aeq} for that period can therefore be derived from the value of 75 dB in the ES for the 12-hour period by the addition of 1 dB to give a value of 76 dB. It would appear, then, that for the daytime period Axis Court would qualify for noise insulation even if the maximum level in the ES is only present for 10 out of 15 consecutive days whereas the ES does not consider that there is a significant effect there on the basis that that maximum level has a duration of at only one month.

At Fountain Green Square the ABC methodology does not identify there being a significant effect from airborne worksite noise there in the daytime or evening periods when the maximum levels are 63 and 51 dB respectively (equivalent to a combined period maximum of 62 dB). However, the ES does report a significant effect there for the daytime/evening period from river-based construction traffic for which the noise level is stated to be 59 dB. (The Noise Insulation and Temporary Re-housing Policy does not

¹ Subject to cut-off values of 65dB, 55dB, and 45dB from construction noise alone for the daytime, evening, and night-time periods respectively. A duration of 1 month or more is deemed to be significant, unless works of a shorter duration are likely to cause a significant effect.

² There are other conditions that must be met, eg, only habitable rooms are eligible for the insulation.

³ For reasons not explained in the ES the noise reduction with closed windows used for Axis Court is 36dB whereas for Luna House, which appears to be of similar age and construction, a value of only 34 dB has been used.

appear to apply to noise from river-based traffic and so no off-site mitigation would be offered in this case.)

This anomaly of the reporting of significant effects arises because the significance of noise from river traffic is assessed on the basis of noise level change rather than by using a threshold. The second assessment method in British Standard 5228 also uses as a test of significance the change in noise levels, albeit a change of 5 dB rather than the 3 dB used in the ES to assess the significance of river-based noise (*ie*, it is a less sensitive test). Nevertheless, applying the second British Standard method to assess the significance of airborne construction noise identifies significant effects at the following locations for which no significant effects are reported for this source in the ES:

Table 1 Significant airborne noise effects identified by BS 5228 Method 2

Ref	Location	Distance from site - m	Dwellings	Period	Extra SEs
CW1	Luna House	0	47	D E N	SE
CW2	Axis Court	0	59	D E N	SE SE
CW3	10-28 Chambers Street	15	18	D E N	SE
CW6	1-13 Loftie Street ²	15	7	D E N	SE
CW7	210-212 Bevington Street ²	15	12	D E N	SE
CW8	8-14 Fountain Green Sq	20	7	D E N	
CW5	Chambers Wharf	25	182	D E N	SE
CW11	33 East Lane ¹	45	10	D E N	SE
Note 1 2	From the plan in the ES this appears to be 33 Bermondsey Wall East (Tempus Wharf) 8 – 14 Fountain Green Square (CW8) does not appear in this table because the ES predicts the maximum daytime noise level there to be 2 dB lower than at these 2 receptors.				

2 Severe proximity of residential receptors to the site

There are two residential blocks immediately bordering the site - Luna House, 8 storeys containing 48 units and Axis Court, 6 storeys containing 59 units.

There are 37 residential units 15m from the boundary (10-28 Chambers St, 1 – 13 Loftie St, and 210-121 Bevington St), 7 units at 20m (Fountain Green Square) and 182 units 25 m from the boundary (the new development – Chambers Wharf). (see Table 3.2 in Rupert Taylor report dated 4 November 2013 for Save Your Riverside Action Group).

As Table 1, above, illustrates, alternative assessment methods lead to more of these close by locations being identified as experiencing significant effects from airborne noise from the worksite than are reported in the ES.

3 Significant airborne noise levels

During the construction of the coffer dam in the first stage of the work, which would not be necessary if the site were not used as a main tunnelling drive site, even after on site mitigation (including acoustic barriers) the residual noise levels predicted are high – 79 dB for Luna House and 75 dB for Axis Court (ES Vol 20 table 9.5.1 and table 9.10.1) for a duration of one month.

Luna House also has significant effects from river-based construction traffic (ES Vol 20 para 9.5.90) as does Fountain Green Square (ES Vol 20 para 9.5.91).

Luna House and Axis Court have significant noise effects at night of 57 and 52 dB respectively from tunnelling activities over 29 months (ES Vol 20 paras 9.5.6 and 9.5.18).

4 Significant vibration

Luna House has significant groundborne vibration effects (ES Vol 20 Table 9.10.2 and table 9.5.4) as does 8-14 Fountain Green Square (ES Vol 20 Table 9.10.2 and para 9.5.97). Paragraph 9.8.8 of Volume 20 states that the use of low vibration piling methods to mitigate these effects cannot be guaranteed.

5 Mitigation Practicability (sound), Adverse effects (ventilation), Limitations (vibration)

Practicability of installing sound insulation in the qualifying dwellings

Sound insulation as a noise mitigation measure consists of secondary glazing and the provision of noise-attenuated alternative means of ventilation. The facades of Luna House and Axis Court are such that adding secondary glazing, which has to have a void of the order of 100mm between it and the primary glazing, will be challenging to install.

Potential adverse effects of installing sound insulation

Secondary glazing only provides noise reduction when closed, and when closed natural ventilation through the windows is not possible. The noise-attenuated ventilation units which form part of a noise insulation package are capable of supplying a limited flow of air at outdoor ambient temperature, and in hot weather over-heating is a major problem.

Limitations of mitigation in respect of vibration

The ES notes that the use of on-site mitigation of groundborne vibration from piling (by the use of low vibration methods) cannot be guaranteed. In the case of airborne noise the TTT project proposes off-site mitigation (*ie*, at the receptor façade) in cases where on-site mitigation does not achieve sufficient reduction of off-site noise levels. However, there is no equivalent to sound insulation as a mitigation measure against vibration.

Summary of mitigation issues

Taken together these noise and vibration effects not capable of practicable mitigation are severe. Even if noise insulation is regarded as mitigating the significance of noise effects, the vibration effect cannot be insulated against.

6 Summary of Effects at Chambers Wharf and Abbey Mills***Airborne noise and vibration from worksite***

The Rupert Taylor report dated 4 November 2013⁴ showed that if the main tunnel was driven from Abbey Mills very few, if any, dwellings would be subject to any significant effects from airborne noise or groundborne vibration from worksite activity whereas driving from Chambers Wharf would result in a large number of dwellings would be subject to significant effects from noise and/or vibration.

Effects of noise from transport

An issue that has yet to be fully evaluated is the consequence of spoil removal at Abbey Mills. At Chambers Wharf the ES concludes that there would be no significant effect from the use of road transport but does conclude that there would be significant effects – some at night – from the use of river-based transport. The ES also shows that in the event of the river transport option being unavailable for any reason at Chambers Wharf, the significance criterion for noise from construction traffic would be exceeded.

The feasibility of river access at Abbey Mills, and the extent of any infrastructure (campsheds) is the subject of ongoing discussion and studies and so the extent to which that would be available cannot be determined at present.

A further unknown is the effect of noise and the number of dwellings that construction traffic at Abbey Mills, and indeed at Chambers Wharf in the event of there being a period when no river access is available there.

At Abbey Mills the route designated in the ES to the nearest A road turns west out of the sties to run along Abbey Lane passing through a predominantly residential area. It is not known whether an alternative route via the Industrial Estate that lies to the north of that residential area (the other side of the pipe run - 'Greenway' on plans) could be used. It

⁴ An updated version (2 December 2013) has been issued with some corrections to Table 4.3.

would need to be accessed by turning north-west out of the site, going under a bridge under the pipe run and only passing 8 dwellings before turning west to go through the industrial estate. Even if excavation was required to increase the clearance under the bridge that might offer a low impact option in term of dwellings.

Other possible benefits for Chambers Wharf from reversing the direction of drive.

It appears that the main (Vertical) shaft at Abbey Mills will be completed before the TTT project could start (if given consent). There is therefore a potential benefit to the project programme in that the main tunnel drive could be started from Abbey Mills before the main shaft has been sunk at Chambers Wharf.

The following changes to activities at Chamber Wharf might therefore be possible (subject to other considerations such as safety, cost etc) which could have noise benefits there:

Reduced rate of shaft sinking – reduced daytime activity, less frequent extended hours working,
Installation of secondary main tunnel lining entirely or mainly from Abbey Mills – if entirely from Abbey Mills there would be a reduction in night-time noise and if no slurry plant was required there could be other environmental benefits (eg, dust and light). If there was a reduced period for this activity there could still be a reduction in night-time noise.

Appendix

Assessment methodology used in the ES for effects from airborne noise from worksite

The project's general environmental assessment methodology is set out in Volume 2 Section 3 of the ES; specific factors (ambient noise levels) in relation to the Chambers Wharf worksite are included in Volume 20 (including Appendix G). Mitigation issues are dealt with in Schedule 2 of the Statement of Reasons (which describes the project's Noise Insulation and Temporary Re-housing Policy) and the Code of Construction Practice Volume 1 Part A (project-wide) and the Code of Construction Practice Part B (specific to each worksite).

The assessment method for airborne noise from the worksite has three stages followed by a mitigation stage where necessary:

- 1 Determine the level of construction noise** (Vol 2 paragraph 9.5.19)
- 2 Determine the construction noise threshold level** (Vol 2 paragraph 9.5.20)
- 3 If the level of construction noise exceeds the threshold level apply further procedures to determine whether the effect is 'significant'** (Vol 2 paragraphs 9.5.21 et sequi)
- 4 Where significant effects are predicted despite the application of mitigation on site, a Noise Insulation and Temporary Re-housing Policy is applied** (Code of Construction Practice Part A, paragraph 6.5.2)

1 Determine the level of construction noise

Using the procedure in British Standard 5228 (BS5228), the ES includes predictions of the typical, minimum, and maximum construction noise levels for the daytime, evening and night-time periods at each of 11 receptors (CW01 – CW11) in the vicinity of the Chambers Wharf worksite.

2 Determine the construction noise threshold level

The construction threshold levels in the ES were determined using Method 1 (the 'ABC' method) from BS5228 which requires the existing (ambient) noise level to be known for each of the three periods mentioned above. To provide that information a baseline noise survey was undertaken at 5 locations (CHW01 to CHW05). One of those survey locations (CW 03) was opposite the site on the northern bank of the river, the rest were close to the worksite. The results from those 5 survey locations were assigned to one or more of the 11 receptor locations.

3 Determine whether there is a significant effect

The ES explains (Volume 2 Section 3 paragraph 9.5.22) that although BS 5228 describes situations in which the construction noise level exceeds the threshold as a 'significant effect', in the ES exceeding the threshold was only deemed to indicate a potential significant effect and that a further stage was applied involving professional judgement to determine whether to designate a given situation as a significant effect. In the case of residential receptors factors taken into account included:

- 1 For the daytime, whether with closed windows the internal noise level exceeded 40dB – the ‘reasonable standard defined in British Standard 8233; exceedances for periods of up to 1 month would not necessarily be deemed to be significant.
- 2 For the night-time, the Interim Threshold value of 55 dB (outside) contained in the WHO Night Noise Guidelines for Europe (NNGs) was applied. The ES explains the basis for this selection. British Standard 8233 (BS8233) describes an internal noise level at night of 35dB as ‘reasonable’ and the WHO NNGs use a noise reduction from outside to inside of 21dB; $35 + 21 = 56$ dB. The noise reduction value of 21dB is greater than the figure of 10-15dB found in other publications⁵ but the value of 21dB in the NNGs is averaged from survey data which took into account the proportion of the year that windows are opened for ventilation at night and the extent to which they are opened.

4 Noise Insulation and Temporary Re-housing Policy

This policy sets out trigger levels which if exceeded will entitle occupiers of dwellings to an offer of noise insulation or temporary re-housing provided certain conditions are met. Trigger levels are set for the day, evening, and night-time periods and they include sub-periods of 1-hour within each of them. Among the conditions that must be met to qualify for an offer of noise insulation (or re-housing) is that the relevant trigger level must be exceeded for at least ten out of fifteen consecutive days. The noise insulation ‘package’ includes approved noise-attenuating ventilation units.

Assessment methodology used in the ES for effects from transport noise

Volume 2 Section 3 of the ES describes the methodology used in the case of construction road transport in paragraphs 9.5.35 – 9.5.38. The criterion used for the level of noise from the existing road traffic to increase by 3 dB or more as a result of the additional road traffic from construction.

There does not appear to be any guidance in this volume on the criterion used in the case of river construction traffic. However, the discussion on significant effects in the Chambers Wharf volume of the ES (Volume 20) implies that a similar criterion (*ie*, a change of 3 dB or more from the ambient noise level) has been applied in the case of river-based construction traffic (see paragraphs 9.5.90 and 9.95.91 of Volume 20).

⁵ Paragraph 9.5.48 of this part of the ES refers to other WHO guidance, BS 8233, and PPG24.