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Our Ref: AEH/1251.01/L0001
Your Ref: PA/20/02488/A1
26 March 2021

By Email

Planning Director
Tower Hamlets Council
Town Hall
Mulberry Place
5 Clove Crescent
E14 2BG

For the attention of Aleksandra Milentijevic

Dear Madam

Phased Hybrid Planning Application, Orchard Wharf, Orchard Place, London
Application Ref: PA/20/02488/A1

1. We refer to our letter of the 17 February 2021 informing you that we act on behalf of the London City Island Leaseholders and Residents Associations (LRA) who represent the conjoined developments of London City Island and Goodluck Hope. Please find enclosed our objections to the above planning application on behalf of the Leaseholders and Residents Association.

2. We would like to make clear that the LRA do not object in principle to the redevelopment of the application site but do object the current proposals on several grounds and these are set out below under the following headings.

   Principle of Development
   Scale of Development
   - Density
   - Design and Height of Buildings
   - Impact on Residential Amenity

   Traffic
   Air Quality
   Climate Change/GHG Assessment
   Environment
   Infrastructure and Accessibility

3. It is contended that the application is contrary to policies of the new London Plan 2021 published on 2 March 2021 together with the Tower Hamlets Local Plan 2020 as well as Supplementary Planning Guidance (SPG) as well as policies of the National Planning Policy Framework (NPPF). The relevant development plan policies are outlined below.

4. This objection letter is also accompanied by a Highway Technical Note by Meyer Brown Limited that assesses the submitted Highway Assessment and the implications of the development on the highway network. It is also accompanied by a report by Air Pollution

Services in respect of Air Quality and sets out in more detail the LRA's concerns on those matters.

The Principle of Development

5. The application proposes a mixed use scheme under a hybrid application which seeks detailed planning permission for some 826 dwellings contained in six tower blocks, 5 of which are to be between 15 and 30 storeys and a sixth one to be 20 storeys, 8,212 m2 gross internal area (GIA) of General Industrial / Storage or Distribution floorspace (Class B2/B8) and 135 m2 (GIA) of flexible commercial floorspace (Class E) together with associated works. Outline planning permission is sought for external waterborne freight infrastructure and all other related works (including marine works) with all matters reserved for future approval.

6. The application site is identified on the Proposals Map for the Tower Hamlets Local Plan, adopted in 2020, as a Safeguarded Wharf. The designation reflects the latest Secretary of State's Safeguarding Direction of 2000.

7. The 2016 London Plan required the protection of safeguarded wharves and encouraged their use for waterborne freight (Policy 7.26). That Policy presumption has been carried forward into The London Plan 2021 in Policy SI 15 Water Transport, confirming that these wharves should only be used for waterborne freight-handling use and that the redevelopment of safeguarded wharves for other land uses should only be accepted if the wharf is no longer viable or capable of being made viable for waterborne freight-handling (criterion E). The Policy also requires that development proposals on a safeguarded wharf that include the provision of a water freight use below or alongside another land use, must ensure that the water freight use is secured long-term, that the development is designed so that there are no conflicts of use and that the freight-handling capacity of the wharf is not reduced (Criterion G). The explanatory text clarifies that where a development proposal for a safeguarded wharf includes land uses unrelated to the handling of waterborne freight, the design of the development must not result in conflicts of use between wharf operations and the other land uses, nor constrain the long-term use and viability of the safeguarded wharf. The freight-handling capacity of the wharf must not be reduced and the reactivation of the wharf for waterborne freight handling must be delivered and secured for the long term in order for proposals to be deemed acceptable (paragraph 9.15.7).

8. The retention of Orchard Wharf as a Safeguarded Wharf follows the review of safeguarded wharves carried out in 2019 (Implementation Report - Safeguarded Wharves Review 2018-2019) and intended to inform the new London Plan. That Review recommended the removal of the safeguarding direction on several wharves but Orchard Wharf was not one of them. The Review was supported by a number of documents including an Individual Site Assessment which stated under Alternative 1 (Continue to Safeguard wharf), that the Wharf cannot be used for residential, commercial or industrial development to accommodate London's growing population. It was accepted that it could potentially result in localised, intermittent increases in noise and vibration disturbance to local residents as well as terrestrial and marine ecology. Furthermore, the retention of the safeguarding would have no overall impact on the existing townscape, waterscape and visual setting of the Wharf and its surroundings.

9. The Minister of State for Housing wrote to the Deputy Mayor on 15 September 2020 agreeing to the recommendations made in the above report including the updated designations. As a consequence, Orchard Wharf remains a safeguarded wharf and one where the review confirmed that it cannot be used for housing.

10. The Tower Hamlets Local Plan (THLP), adopted in 2020, follows through the strategic policies of the former London Plan and is consistent with the current London Plan (2021) in that it retains Orchard Wharf as a safeguarded wharf. THLP Policy D.TR4 requires that development adjacent to safeguarded wharves ensures that it does not compromise their operation (Criterion 2).

11. The current proposals involve the development of the majority of the safeguarded wharf for housing with the area to be used for the freight handling located at ground floor level. The basement and all other levels above ground floor are shown as being used for residential development. Of concern to the LRA is the fact that the application has been submitted in such a way as to ensure that the details of the housing would be approved before the details of the development of the wharf are known or finalised. This places a potential constraint on how the wharf can be developed and used in the future, contrary to the policies of the London Plan and the Tower Hamlets Local Plan. It also does not provide sufficient certainty of information on what impacts a functioning wharf will have on the area, including on the residents of Goodluck Hope. The construction of five tower blocks at the corners of the wharf and along the rear boundary clearly imposes limits on the internal freight area which will in effect, be fixed by the current planning application for housing.

12. The LRA is not opposed to some residential development taking place on the application site and fully accepts that Orchard Wharf is a safeguarded wharf that could come back into use and that improvements will be need to allow that to happen. However, the LRA is concerned about the extent of the development, the fact that the detailed approval of in excess of 800 dwellings is being sought before the details are fixed in relation to how the wharf can be brought back into use and will operate and the size and scale of the development proposed. This appears contrary to the policies of the London Plan and the Tower Hamlets Local Plan which both seek to ensure that other forms of development should not prejudice how the safeguarded wharves can be developed and operate. It is noted that this development is not tied to any operator for the wharf and that this, in itself, gives rise to concern for the Port of London Authority (PLA).

13. The Port of London Authority's consultation response of 25 January 2021 makes it clear that this application should have been submitted with appropriate support from a wharf operator for the proposed scheme. This support would demonstrate both the viability of the Safeguarded Wharf box proposal and also would assist in informing the mitigation requirements associated with the proposed development to ensure that any issues and effects arising from juxtaposition of the wharf proposals and residential development (both proposed and existing) are robustly identified and mitigated.

14. The PLA therefore consider that there are substantial issues that need to be resolved to ensure that the future operation of the wharf is not prejudiced by the current development proposals. It has not yet commented on the outcome of the negotiations that it was involved in with the Applicant and therefore there can be no certainty that the current proposals would be capable of being meeting the requirements of a future operator.

15. The proposed development involves a very significant amount of residential development as well as the potential for a significant throughput of freight and the LRA consider that the scale of the current proposals amounts to overdevelopment of this limited site which is manifested through issues of height and density, impact on residential amenity, as well as in respect of traffic and air quality impacts both on and off site and environmental concerns. The LRA's concerns about these issues are explained below.

16. The LRA also consider that this development cannot be considered in isolation and should be looked at in the context of the various large scale developments that are proceeding or are proposed in the area.

Scale of Development

Density

17. The LRA is extremely concerned about the density being proposed for this site and does not consider that the Applicants have carried out a proper evaluation of this matter.

18. Paragraph 7.28 & 7.29 of the submitted Planning Statement acknowledges that the site is within a 'central setting' and that it has a PTAL rating of 3. The Statement also confirms that the 2016 London Plan contained an indicative density range of between 300-650 habitable rooms per hectare (Table 3.2 of the London Plan). In contrast, the application seeks to provide "*2,106 habitable rooms per hectare*" and exceeding the identified range set out in the 2016 London Plan by some 400%.

19. The GHA Housing SPG (updated August 2017) promotes increased densities and advises that:

> *Thus, the London Plan includes a density matrix as only one part of a wider policy to optimise development on sites in different settings, with different levels of public transport and accommodating homes of different sizes. The density ranges are sufficiently wide to accommodate the spectrum of policy considerations which must be taken into account when optimising development at a particular location.*

20. Where density ranges are to be exceeded, the SPG requires that schemes must be of a high design quality and should be tested against the considerations set out in paragraph 1.3.51 of the SPG.

21. Policy D.DH7 of the Tower Hamlets Local Plan requires that where residential development exceeds the density levels set out in the London Plan, it must demonstrate that the cumulative impacts have been considered (including its potential to compromise the ability of neighbouring sites to optimise densities) and any negative impacts can be mitigated as far as possible.

22. The London Plan 2021 no longer includes density ranges. The Plan seeks to optimise site capacity at Policy D3 and to ensure that development is of the most appropriate form and land use for the site. Higher density developments should generally be promoted in locations that are well connected to jobs, services, infrastructure and amenities by public transport, walking and cycling in accordance with Policy D2 and that:

> '*Where these locations have existing areas of high density buildings, expansion of the areas should be positively considered by Boroughs where appropriate'*. The Plan indicates that density levels should be monitored and that '*Density measures related to the residential population will be relevant for infrastructure provision, while measures of density related to the built form and massing will inform its integration with the surrounding context*.

23. The Applicant considers that the 400% increase of the (previous) density range could be justified for a number of reasons, including the fact that the then draft London Plan did not include any density ranges (citing Policy GG2 – Making the Best Use of Land as justification in this respect). However the fact remains that although the new London Plan no longer includes a density range, it still requires a design led approach which takes

account of its surroundings in order to determine the optimum development capacity of the site. Therefore while Policy D.DH7 of the adopted Tower Hamlets Local Plan does not set out what those levels are, it does go on to require that development in exceedance of those levels should demonstrate how it is acceptable. In this case, it is accepted that density, in terms of density ratios, cannot be determinative but that policies require development to reflect and be sympathetic to the characteristics of adjacent development and its built form and massing.

24. The application for Goodluck Hope proposed a total pf 804 residential units (2037 habitable rooms) on a 2.43hectare site which equated to 768 ha/hr. The officer's report for the Goodluck Hope development confirmed that those proposals were considered to meet the exceptional circumstances required by the SPG to justify this significantly higher density than was set out in the 2016 London Plan. The current application proposes an increase over the Goodluck Hope density by another 270% but provides no reasonable justification for such a large uplift, nor does it address the potential cumulative impacts of the development. It is therefore necessary to consider the form and scale of the proposed development in its context and in relation to its neighbours and surroundings to assess if the density on the application is excessive.

Design and Height of Buildings

25. The NPPF seeks to secure good design and sees it as a key aspect of sustainable development. Policies in the London Plan (Policy D4) and Tower Hamlets Local Plan (Policy S.DH1) also require development to be of the highest standards of design, layout and construction.

26. It is considered that the Applicant's desire to maximise the amount of development on the site with residential development contained in 6 monolithic tower blocks as well as the wharf and associated facilities has resulted in a development that has limited design value and is unsympathetic to its location and neighbouring sites.

Design

27. The application proposes 5 tower blocks of 20 to 30 storeys and a sixth one of 15 storeys. Blocks A, B, D, E and F are all constructed on top of the podium that is to form the internal working and storage area for the wharf. This podium is some three storeys in height (15m) and forms a large elevated block across virtually the whole site, with the working space interrupted internally by the tower blocks. The north elevation shows this to be a continuing frontage with limited variation in design or features and not the human scale at street level required by Policy D.DH6. On the southern frontage, facing onto the Thames, the podium appears lower in visual terms but still presents a large elevated mass above the river wall when looked at from the river and beyond and is to be open between the two tall tower blocks at the corners to allow the internal workings of the wharf. The addition of the tower blocks on top of this podium, particularly with their solid square design, increases the ponderous elevation on both the Thames (southern) and northern elevations.

28. There is widespread concern among residents represented by the LRA about the number and layout of tall buildings proposed to be concentrated into this relatively small site. With 5 buildings at 20 - 30 storeys, the development has considerably more height en masse than either London City Island or Goodluck Hope. The proposed concentration of six uniform, square, tall blocks appears visually dominating and overbearing, particularly in relation to the neighbouring low rise development along Orchard Place. Goodluck Hope was designed to provide a varied roofline and includes a mixture of tower blocks, tall buildings and town houses. The tallest, Douglass Tower (formerly Building AB on the

approved plans) is 30 storeys in height but sits at the back of the Goodluck Hope site and has a graduated form with a comparatively slim block at the higher levels, particularly when viewed from the Thames. The inclusion of projecting, feature balconies on various floors also provides visual interest. The other taller buildings on the Goodluck Hope site are also designed to provide visual interest with different heights, rooflines and elevational treatment throughout the development. As with the Douglass Tower, they also sit at the rear of the site and are seen over the rooftops of the smaller buildings when viewed from the Thames, providing a layered development that remains high density but visually interesting.

29. The submitted proposals depart significantly from the design ethos of Goodluck Hope. The development is for six tower blocks with no relief in the way of variation in height, design or roofscape. The proposal represents a solid uniform form of development which has no real contrast beyond a very limited variation in the respective heights of the towers. The towers are virtually identical in design and width and their respective positions effectively prevent views through the development and lack the transparency of views required for developments along the Thames.

Tall Buildings

30. Policy D9 of The London Plan 2021 relates to Tall Buildings and requires development Plans to identify areas for the locations of tall buildings which should then be built only in those locations. In considering development proposals the policy requires that:

> *'buildings near the River Thames, particularly in the Thames Policy Area, should protect and enhance the open quality of the river and the riverside public realm, including views, and not contribute to a canyon effect along the river.'* (Criterion C f))

31. Policy D.DH6 of the Tower Hamlets Local Plan relates to Tall Buildings and requires development to satisfy the 12 criteria contained in that policy. The Local Plan identifies the Leamouth Peninsula as a designated Tall Building Zones where the design principles set out in that policy must be applied. In respect of Leamouth, the policy requires that:

> *Tall buildings in this cluster should step down towards the River Thames and ensure glimpses and views across the cluster.*

32. The Isle of Dogs and South Poplar OAPF, adopted 2019, covers the Leamouth Peninsula and identifies the key opportunities for the area, including the use (and re-use) of safeguarded wharves (Page 76). The OAPF also outlines the existing character of Leamouth and confirms that more recent development of heights of 3 and 27 storeys has been permitted and that:

> '*Building heights culminate in neighbourhood centres and around key junctions of the A23, with stepping down towards the River Thames'*

33. There is therefore a policy governing how Tall Buildings are to be designed and located with an acknowledgment and requirement that building heights should step down towards the River Thames. This application fails to take account of that stepping down requirement. The Applicant claims that the development complies with Policy D.DH6 of the Tower Hamlets Local Plan. The LRA disagrees and considers that the application conflicts with Policy D.DH6 for the reasons set out below.

34. Part of the Applicant's justification as set out in their Planning Statement, is that the proposal provides a '*scale of development proportionate to this strategically important site,*

whilst remaining in keeping with other developments consented in the vicinity by responding to and relating appropriately to their form, materiality and layout'. The LRA does not agree. Orchard Wharf is strategically important as a Safeguarded Wharf. It is not the case that it has a strategic housing role. Orchard Wharf is not allocated for residential development in the adopted Plan, nor do the adopted policies for safeguarded wharves suggest that high density housing on this, or other such sites, is appropriate.

35. The residential tower blocks are not therefore strategically required and any such development should be proportionate to their secondary role on this site and reflect their surroundings. As a consequence, it is not accepted that the height, scale, mass and volume of the residential tower blocks are proportionate to their role, function and importance of this strategic safeguarded wharf, nor to their location in the local, borough-wide and London context as required by Criterion a) of Policy D.DH6.

36. The proposals do not take account of the character of their immediate context and surroundings as also required by Policy D.DH6, nor do they achieve exceptional architectural quality as required by Criterion b). The immediate context for Orchard Wharf and against which these buildings will be read, is the adjacent Goodluck Hope and the historic Trinity Buoy Wharf to the east together with the East India Dock Basin and Virginia Wharf to the west and London City Island to the north. These developments contain a variety of uses, designs and shapes but Goodluck Hope and Virginia Wharf, which are immediately adjacent to the Thames, are characterised by a domestic scale particularly at street level. Town houses have been designed to extend along Orchard Place and heights along the river frontage have been kept at levels which do not swamp Trinity Buoy Wharf and provide a frame for the historic wharf. The roofscape also adds interest with a variety of pitches. In direct contrast, the application would introduce 6 large, regular shaped tower blocks with no real variation in design or shape and with a uniform, flat roofscape, unsympathetic to the adjacent developments.

37. The Goodluck Hope development also has a stepped approach with the buildings stepping down towards the river. This is in marked contrast to the current application where the 6 tower blocks introduce tall buildings of some 20 storeys directly on the edge of the River Thames. Additional blocks of up to 30 storeys are positioned immediately to their rear. It is a fact that the lowest blocks are actually at the rear (Blocks C and E at 20 and 15 storeys respectively). The proposals clearly do not reflect the current character of the area as outlined in the Isle of Dogs and South Poplar OAPF nor do they respect the policy advice for buildings to step down towards the Thames.

38. Criterion (d) of Policy D.DH6 requires that development should provide a positive contribution to the skyline during both the day and night time. It is considered that the proposals will fail to do so and the tower blocks height and design will detract from the skyline along the Thames both during the day and night time.

39. Good Luck Hope and Trinity Buoy Wharf will be visually dominated by the proposed towers and the careful design of the existing development which was intended to reflect and complement the scale of the historic Trinity Buoy Wharf will be lost.

40. The O2 and The Tide are located directly opposite the application site on the southern bank of the Thames and are increasingly popular tourist locations which also provide waterside views. Views from these locations will be of the monolithic towers which afford no real transparency through them towards development to the rear and will appear discordant with the adjoining developments at Goodluck Hope and Virginia Quay.

41. The fundamentally poor design of these towers will create a harsh and domineering development and skyline when viewed, not only from across the river from the important

tourist attractions, but also from the river itself and also the footpaths and cycleway that extends along the Thames frontage. This will also be true when considering the night time skyline. The uniformness and blandness of the towers will provide limited variety and their location on the edge of the Thames will dominate views from and along the river and contribute towards a canyon effect that the London Plan seeks to avoid.

42. The East India Dock Basin sits immediately to the west of the safeguarded wharf and will also be dominated by the tower blocks, closing in the open skies of the Basin. The East India Dock Basin is a popular public space and used for recreational purposes. The placing of these large towers so close to the Basin will detract from the open space and have an adverse impact on recreational users and visitors.

43. Policy D.DH6 also requires that tall buildings maintain adequate distance between buildings to ensure a high quality ground floor experience and enhanced residential environment (Criterion (f)) and that they present a human scale of development at street level and comprise an attractive and legible streetscape that takes into account the use of the public realm for a variety of users and includes active uses at ground floor level (Criterion (h)).

44. In this case, the scheme's focus is primarily on the residential use of the buildings and the 'street level' for future residents is largely the open space area provided on top of the podium. The interface of the majority of the development with the actual street level along Orchard Place is more limited and, apart from Block C, is created by the three storey height podium and the tower blocks on top. The Orchard Place elevation is largely 'dead'. It contains three entrance doorways to access the tower blocks and the vehicular access/egress for the wharf facility but the rest of the elevation has no other active uses at ground floor or even for the first and second floors as these form part of the 'void' for the wharf facility. This elevation extends for some distance along Orchard Place and is the main focus of views for pedestrians and other visitors heading south toward the site along the only access into the peninsula.

45. This 'dead' frontage is carried around to the east elevations which has a close interface with Agar House. There is no evident use of the three floors of the podium on this elevation which is only 14m from Agar House.

46. The development as designed will provide a poor quality and unattractive ground floor experience for existing residents and visitors and it is not considered that this element of the proposals have been properly addressed and does not comply with Criteria f and h of Policy D.DH6. As a consequence, it is considered that the proposed Development conflicts with key Policy D.DH6 in relation to Tall Buildings as well as Policy D9 of The London Plan.

Impact on Amenity

47. The scale and density of the proposed development and its poor design all combine to provide a poor amenity for future residents and also to result in adverse impacts on the amenity of existing residents, contrary to Local Plan Policies D.DH6 and D.DH8 of the adopted Local Plan. Policy D.DH8 deals specifically with Amenity and requires development to protect and where possible, enhance or increase the extent of the amenity of new and existing buildings and their occupants, as well as the amenity of the surrounding public realm. To achieve this, the policy requires development to satisfy the five criteria contained in that policy. It is considered that the development as proposed does not satisfy any of the five criteria for the reasons explained below.

a. *maintain good levels of privacy and avoiding an unreasonable level of overlooking or unacceptable increase in the sense of enclosure, and b. ensure new and existing habitable rooms have an acceptable outlook*

48. Orchard Place is characterised by mixed development containing a mixture of low and high rise buildings with town houses along Orchard Place and also with offices at ground floor and residential above. Much of the development is between three/four to 10 storeys in height. The introduction of the proposed tower blocks in close proximity to these lower rise buildings will have an overbearing effect and will have direct impacts of overlooking. Living room windows and balconies are located on the northern and eastern elevations of Block E directly overlooking the windows of the dwellings in Orchard Place and Agar House which is only 14metres away. The submitted plans do not show an accurate representation of the relationships with these buildings and drawings should be submitted which show how the development relates to surrounding development. The submitted document Residential Quality (Chapter 7 of the ES) concentrates on the amenity of future residents rather than existing ones. The only plan/impression of how the buildings will sit with each other is on page 4 which shows the podium level of the development and buildings. It is clear that Block E at 15 storeys will totally dominate the dwellings and buildings directly to its north as well as Agar House to the east and will provide an unacceptable sense of enclosure as well as having a considerably reduced outlook.

c. *ensure adequate levels of daylight and sunlight for new residential developments, including amenity spaces within the development and d. not result in an unacceptable material deterioration of the sunlight and daylight conditions of surrounding development and not resulting in an unacceptable level of overshadowing to surrounding open space and private outdoor space*,

49. The overdevelopment of the application site will have a significant adverse impact on the amenities of existing and future residents of Goodluck Hope. The Applicant acknowledges this fact in their Environmental Statement and Planning Statement (Paragraph 9.45). The Environmental Statement highlights that the effects

    "*at 44 Orchard Wharf and Goodluck Hope development Blocks A and B, C and D and J, K and L (all currently under construction) would be significantly adverse*".

50. Block E is positioned directly adjacent to the Goodluck Hope development which extends to the east and north. The submitted Overshadowing Assessment demonstrates that dwellings to the north of this block will be overshadowed by the development for much of the day, particularly during the winter months when the sun is low in the sky and therefore behind the proposed tower blocks. As several of the units in the affected development at Goodluck Hope are facing west, they already have limited sunlight on their balconies which form their only private outside space and rely on the amenity spaces between the buildings. The proposed tower blocks will significantly reduce the sunlight to those areas also and cast the areas into shadow for large parts of the day.

51. Of concern also is the impact of the development on the East India Dock Basin. That area is a highly valued piece of public space and any impacts will affect the wider community and lead to the loss of enjoyment. The Overshadowing Assessment clearly shows that there will be overshadowing over the eastern side of the basin during the mornings.

52. The Overshadowing Assessment also shows that the open space to be provided for the new Block C will also be overshadowed for much of the day. Its position to the rear of the main podium and tower blocks means that it will experience considerable levels of overshadowing throughout the day and would be reliant upon the sun being able to shine

between Blocks B and D. It is considered that this block will be considerably overshadowed by the two tallest blocks in the development.

53. The Applicant suggests that significant efforts have been made to minimise these impacts and that the block locations have been carefully considered to maintain sufficient distancing between them to avoid unacceptable levels of overlooking and positioned so that they do not compromise the functionality of the wharf box. We disagree. The issues of overshadowing are a direct result of the scale and density of the development. A considerably reduced number of dwellings and a more sympathetic design would avoid these issues. The application does not explain why the blocks need to be so tall, especially when they are located so close to existing residential properties and in a location which will have an overbearing impact on them and the East India Dock Basin.

e. not create unacceptable levels of artificial light, odour, noise, fume or dust pollution during the construction and life of the development.

54. The submitted Noise Report assesses that noise from the development will affect the residents in the vicinity and that "*significant effects are predicted at 42 and 44 Orchard Place, as well as Goodluck Hope Blocks A, I and J for night-time noise levels*". There will also be a general disturbance from frequent passing vehicles (in particular at the adjacent the public realm Brewers Square with outdoor seating and a brewery on site at Goodluck Hope).

55. No hours of operation are suggested in the application forms but the Applicant has indicated that the wharf could be subject to 24/7 operations. They have therefore based their noise assessment on a worst case scenario in terms of vehicles, marine vessels, plant and the RMG crane running concurrently and continuously over a 24 hour period. However, the details of the future operator and how the wharf will operate are not known and that part of the application is still in outline. It is therefore not possible to be conclusive on the overall future impacts of the development but there are clear concerns about potential night time activity and its impact on the noise climate of Goodluck Hope as well as London City Island. Although new dwellings may be capable of being designed to take account of the suggested noise impacts, the LRA remains concerned at the impacts on existing residents.

56. The Applicant assumes that all flats can or will close their windows so that the noise impact can be reduced. The development of Goodluck Hope was designed to provide an element of noise protection to residents in anticipation of possible future wharf activities. However, the Applicant should establish whether the degree of noise mitigation approved for the development at Goodluck Hope is actually sufficient to prevent noise nuisance from the anticipated noise levels indicated by the Applicant. It is not sufficient or reasonable to expect existing residents to close windows to make a proposed development more acceptable in noise terms as suggested by the Applicant. The proposed development should be designed to ensure that it does not generate unacceptable levels of noise and have an adverse impact on existing residential amenity.

57. The construction stage of this development will be extensive and will inevitably generate considerable noise, dust and fumes that have the potential to have a significant adverse impact on residents and occupants of the business premises at Goodluck Hope and Trinity Buoy Wharf. The impact will be increased because of the position of the site and the pressure of construction traffic using Orchard Place. The nature of the current application which potentially would bring housing ahead of the wharf construction appears to miss a fundamental aspect of the Safeguarding Wharf requirement in its own development – to allow a more sustainable way of transporting goods into London. The wharf should be constructed first to allow construction materials to be imported by

waterborne craft to the site, thereby avoiding the necessity to use Orchard Place for all of these road related journeys.

58. It will be essential that, if planning permission is granted, appropriate safeguards (including no night time working) are put in place through a Construction Method Statement and which is adhered to and strictly enforced.

59. The Applicant has acknowledged that the development will have significant adverse impact on residential amenity but considers that the harm is "outweighed by very clear and demonstrable planning and public benefits brought about through the Scheme" (Planning Statement para 12.4). The LRA consider that the acknowledged public benefits of bringing a safeguarded wharf back into use and the provision of housing, including affordable housing, can be achieved with a lesser scheme that would not have the adverse impacts on existing and on potentially future residents. The Applicant has not provided any adequate or convincing justification for a scheme which represents such excessive overdevelopment and results in unacceptable impacts on residential amenity. As it stands, the application is clearly in breach of Policy D9 of the London Plan, Policies D.DH6, D.DH7 and D.DH8 of the Tower Hamlets Local Plan and contrary to the Supplementary Planning Guidance in respect of High Density Living as well as the NPPF.

Traffic

60. The London Plan and the Tower Hamlets Local Plan contain policies that are aimed at promoting sustainable travel. Policy T1 of the London Plan sets out the strategic approach whilst Policy T4 requires development proposals to ensure that the impacts on transport capacity and the transport network are fully assessed. Policy D9 (Tall Buildings) of the London Plan confirms that it must be demonstrated that the capacity of the area and its transport network is capable of accommodating the quantum of development in terms of access to facilities, services, walking and cycling networks, and public transport for people living or working in the (tall) building proposed (Criterion 2)d)).

61. The Tower Hamlets Local Plan continues the policy requirements and confirms that where development has an adverse impact to traffic congestion on the highway network and/or the operation of public transport (including crowding levels), it will be required to contribute and deliver appropriate transport infrastructure and/or effective mitigation measures (policy D.TR2).

62. The Leaseholders and Residents Association has commissioned Meyer Brown Ltd to carry out a review of the submitted Transport Statement and associated sections of the Environmental Statement and their Technical Note is attached to this letter.

63. Meyer Brown query the previous use and throughput of the wharf and its ability to generate traffic in comparison to the new facility now proposed. The Applicant states that the wharf is to be 'reactivated' and the proposed works to the wharf, including the construction of the wharf box etc., are necessary to provide the anticipated freight handling capacity. There is no usable jetty at present nor is there any crane lifting facility to move freight from water to land. The wharf therefore has a limited capacity for freight handling and planning permission is required to modernise it and allow it to be developed to a point where it can increase its throughput. As a consequence, Meyer Brown's assumptions are correct – that a new, modern, wharf would have a greater throughput capacity and therefore any uplift in vehicle movements associated with modernisation would need to be considered appropriately.

64. Meyer Brown highlight a number of flaws in the submitted Transport Statement. That Statement is lacking in detail in respect of how, or if, larger vehicles can negotiate the entirety of Orchard Place without conflicting with oncoming traffic as some areas of Orchard Place may not allow two large vehicles to pass with ease and mitigation/widening may be required. There are no proposals for this. This is an ongoing concern for existing residents who are solely reliant upon this single pedestrian and vehicular route serving the Orchard Wharf peninsular. No other pedestrian access was provided when the Goodluck Hope development was approved and built and the London Plan recognises there are connectivity issues along the River Lea – '*Significant local transport improvements are needed to allow better pedestrian and cycle accessibility over the River Lea via footbridges*' (paragraph 2.1.47). Furthermore, Orchard Place is the only route into Goodluck Hope for emergency vehicles. The addition of a further 826 dwellings plus freight lorries using this narrow access will exacerbate existing problems and create a more unattractive and dangerous environment for pedestrians and residents and businesses generally through the potential impact on accessibility, particularly for emergency services.

65. Meyer Brown also comment on the fact that the Applicants indicated that the A13/A1020 junction would operate well above capacity in 2027 but that the Applicant takes the view that, as the junction of A13/A1020 would operate well above capacity prior to the development coming forward, it is acceptable that the development adds further traffic without any offer of mitigating their additional impact.

66. Meyer Brown consider that the Applicant's conclusion of a minor adverse impact on driver delay is fundamentally flawed and would expect the Applicant to offer mitigation to offset any impacts arising from their additional traffic.

67. A clear issue is that at this point much of the transport related assessments submitted by the Applicants are somewhat speculative as the wharf operators are not known. Furthermore it appears that the submitted information does not take full account of matters that are taking place outside the site and which could have a cumulative impact on the impacts of the development.

68. It is clear from Mayer Brown Ltd's Technical Note that the submitted Transport Statement and ES does not adequately address the transport issues and impacts of the proposals as required by the above policies. It does not provide any details of proposed mitigation that would address the impacts and is clearly contrary to the adopted Policies of both The London Plan 2021 and the Tower Hamlets Local Plan.

Air Quality

69. The Leaseholders and Residents Association has also commissioned Air Pollution Services to carry out a critical review of the submitted Air Quality Assessment. Their report is also enclosed with this letter.

70. The 2019 NPPF recognised a greater need for decisions to sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in location areas. This recognition is carried through into Policy S1 of The London Plan which requires that development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected

by the development. Policy SI 2 (Minimising greenhouse gas emissions) requires that major development should be net zero-carbon and that this means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the energy hierarchy set out in that policy. THLP Policy D.ES2 requires development to meet or exceed the 'air quality neutral' standard, including promoting the use of low or zero emission transport and reducing the reliance on private motor vehicles.

71. Air Pollution Services has found several flaws in the Assessment accompanying the planning application and summarises them at Section 5 of their Review. These include, amongst others, queries in respect of the traffic model setup used, and the limited extent of the study area, omission of consideration of impacts at likely worst-case sensitive locations, non-regard to the street canyon effect at the site and within Orchard Place, a lack of context on how the proposed development is compliant with the NPPF's requirement for improving air quality at the local level or the London Plan's requirement to have a positive effect on air quality; lack of modelling of onsite life-safety generators and no assessment against WHO guidelines or the impact the development may have on delaying compliance with the legally binding limit values.

72. The report concludes that

> *'While it is fair to expect air quality in the future to improve due to national measures being implemented, the assessment does not provide evidence to determine an assessment of likely significant effects. Thus, while the impacts of the Proposed Development might be insignificant in terms of air quality, that determination cannot be made in accordance with the EIA Regulations based on the submitted air quality assessment due to the lack of supporting reliable evidence.'*

73. It is clear from the Air Pollution Services Review that the submitted application does not demonstrate or assess adequately what the impacts of the development will be on air quality within the area. The submitted Air Quality Assessment is insufficient to allow the application to be determined on the basis of the current information.

74. It is evident that the submitted air quality statement is not robust or correct and appears to be based on incorrect data. It does not satisfy the requirements of London Plan Policy S1 or the Tower Hamlets Local Plan D.ES2 and is therefore in conflict with those policies as well as the NPPF

Climate Change/GHG Assessment

75. Climate change/GHG assessments are different to air quality assessments and the Applicants comment that:

> *The GHG assessment presented in this chapter and in Technical Appendix 18.1 in ES Volume 3 consider demolition and construction stage and completed development stage emissions only and should not be considered a full life cycle assessment of GHG emissions. For example, emissions associated with refurbishment and replacement or deconstruction are not included in the GHG assessment as they are considered out of scope and beyond the control of the proposed development."*

76. It is clear from this that the assessment carried out by the Applicant is not a complete assessment and they do not clarify why they would not consider a full life cycle assessment, which is the normal approach and also required by current policy.

77. For example, limited consideration has been given to the operational GHG emissions. In particular the traffic emissions have been considered for only a 5-year period (Table 18.4 of the ES) whereas the development will be around for significantly longer (typically 60 years are considered in these assessments). Furthermore, given the number of issues and concerns with the operational traffic flows, any subsequently GNG assessment which includes these considerations would be incorrect. There is no reason why the Applicant could not complete a life-cycle assessment using conservative assumptions

Environment

78. The LRA are also concerned about the potential impacts of the buildings on the microclimate and amenity of East India Dock Basin and upon biodiversity and open spaces. The Environment Statement (Chapter one Chapter 3) identifies both impacts on ecology for both construction and completed development but concludes that cumulative demolition and construction effects on terrestrial ecological features are not anticipated to be significant because of the distant location of the cumulative schemes and on account of the embedded mitigation measures that would reasonably be adopted within each of the cumulative schemes considered.

79. In respect of completed development cumulative effects the ES concludes that on terrestrial ecological features, beneficial effects would arise from biodiversity enhancement, but it would not be to a significant scale. However, there would be increased overshadowing of the EIDB, Bow Creek and River Thames and Tidal Tributaries which are expected to be adverse but the authors do not consider it would be significant.

80. It is clear from the submitted information that the development will have a significant impact on ecology in some respects and that Block A is proposed in direct line of the flight paths for many birds to and from the East India Dock Basin. (Image F from ES Vol. 3, Appendix 9.4). This underlines the impact that the development will have on the amenities of the area and the fact that the development as proposed is excessive and overly dominant on the river and EIDB frontage.

Infrastructure and Accessibility

81. It is noted that Thames Water has commented on the *''inability of the existing water network infrastructure to accommodate the needs of this development*" and there are also clear concerns regarding the drainage for the development. The LRA are extremely concerned about any potential lowering of water pressure to Goodluck Hope as a result of this development as it will very serious implications on the fire service's ability to deal with any emergencies in both the existing and proposed developments and therefore on fire safety for residents and occupiers. The LRA considers that this matter should be addressed and the position clarified and confirmed before any planning permission can be granted.

82. As a separate matter, the residents of this new development will benefit from the public pathways through LCI to Canning Town station. The upkeep of these public spaces is currently paid for out of Goodluck Hope and LCI service charges. However, with additional pedestrian use, the maintenance cost on these pathways and public spaces will increase. It is considered that should planning permission be granted, then a Section 106 will be required to secure the appropriate additional funding for the upkeep of the public spaces which include Botanic Square, Hopewell Square, Canning Town entrance, the red bridge and the area beside the D3 bus stop leading to Canning Town station.

83. As indicated above under Transport matters, an ongoing concern for existing residents is the lack of accessibility to the Orchard Wharf peninsula and its reliance on the single access point via Orchard Place for all pedestrian and vehicular traffic. This currently serves all of Goodluck Hope and the Trinity Buoy Wharf development and there is no alternative access available. The addition of 826 dwellings plus freight lorries will effectively double the use and pressure on this access and the LRA consider that an alternative access should be considered. It is appreciated that this may be outside the control of the Applicants but consider that CIL money should be used to improve the accessibility and safety of the site for pedestrians.

Conclusions

84. The site is a Safeguarded Wharf and the policy presumption is to protect that function and to bring it back into use. The site is not allocated for housing but the current application seeks to secure planning permission for housing before the details are known of how the wharf would, or could, be operated. The Leaseholders and Residents Association (LRA) is fully aware that the Wharf would come back into use but consider that the full ramifications of that use should be known and considered first before any other uses are allowed on the site.

85. The LRA is not opposed to residential use on the site but considers that the proposed development of 826 dwellings in addition to a fully functioning modern wharf represents clear overdevelopment of this site. This is demonstrated by the heights of the buildings which do not step down towards the Thames, the density of the development and the impact that these buildings will have on their surroundings and neighbours through overshadowing, overlooking and being overbearing. The submitted application does not justify these impacts and also does not adequately identify or address the likely impacts of the scheme in terms of the highway implications or on air quality. It also does not provide certainty on ensuring emergency access and safety of Goodluck Hope residents and occupiers. Indeed the LRA consider that the submitted information on these matters is fundamentally flawed and further evidence would be needed to demonstrate that the impacts are acceptable or can be made acceptable through appropriate mitigation.

86. The Policies of the London Plan 2021 and the adopted Tower Hamlets Local Plan require that development should not prejudice the Safeguarded Wharf and that any development, particularly Tall Buildings, should be of a high standard of design and should positively contribute to the character of the area. This scheme fails in those respects and it is considered that the development is contrary to the Development Plan as well as National Policy.

87. In these circumstances, the Leaseholders and Residents Association would request that the current application is refused planning permission.

Yours faithfully

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Encs: Technical Note on Transport Matters by Meyer Brown
Critical Review of the Air Quality Assessment by Air Pollution Services

Technical Note

Introduction

1.1 Mayer Brown Limited has been appointed by London City Island Leaseholders and Residents Association (LCILRA) to consider submissions made by Regal Orchard Wharf Limited relating to their proposed redevelopment of land at Orchard Wharf, London Borough of Tower Hamlets (LBTH).

1.2 The current brief is to undertake an initial review of the following documents and to identify any flaws or obvious omissions which would warrant further investigation or clarification:

1. Transport Statement Parts 1-4
2. VOLUME 1 CHAPTER 11 - TRANSPORT AND ACCESSIBILITY

1.3 The proposals comprise a hybrid application, described as:

> *"Part A - full planning application for redevelopment of site following demolition of all existing buildings and enabling works to provide a mixed-use development consisting of the erection of five buildings between 15 and 30 storeys (56.6 m AOD and 103.75 m AOD) above a raised safeguarded wharf box (15.5m AOD) and one standalone 20 storey building (68.9 m AOD) which would deliver: (i) a total of up to 826 dwellings (Class C3) and ancillary accommodation; (ii) up to 8,212 m2 gross internal area (GIA) of General Industrial / Storage or Distribution floorspace (Class B2/B8) including ancillary office accommodation; and (iii) 135 m2 (GIA) of flexible commercial floorspace (Class E). Associated works include hard and soft landscaping; private amenity space; vehicular access and servicing facilities; car parking and cycle parking; and other works incidental to the proposals including works to the River Wall; and*
>
> *Part B - outline planning application for external waterborne freight infrastructure and all other related works (including marine works) for which all matters are reserved."*

Transport Assessment (TA)

1.0 Introduction

1.4 The Planning Consultant advising LCILRA should confirm what, if any, planning permissions are required to bring the use of the wharf marine infrastructure back online – as it was used in 1993. If it is possible that the wharf can be used lawfully without any further permissions, then it will be important to understand the capacity limitations the existing wharf infrastructure has, if any. We suspect that a new, modern, wharf would have a greater throughput capacity and therefore any uplift in vehicle movements associated with modernisation would need to be considered appropriately.

1.5 Para 1.38 does not mention the provision of a Construction Logistics Plan (CLP) accompanying the planning application, yet para 1.28 sets out that the LBTH Local Plan identifies a requirement for one. Given the scale of development, it is anticipated it would be appropriate for the submission to have provided a CLP even in draft/framework form. LCILRA should check if one was provided.

3.0 Site and Surroundings

1.6 Para 3.2: There are footways on both sides of Orchard Place, but there are pinch points which wheelchair users and possibly families with children (Affordable Transition families?) might find difficult to navigate – example below

1.7 Buses (general) – the bus stop locations identified within the PTAL 640m range appear to be lacking shelters/seating provision, which is not ideal. The footway on Blackwall Way is also limited in width offering little space for bus patrons to wait.

1.8 Para 3.40: While it is accepted that the PTAL rating provided by WebCAT is likely inappropriate, the PTAL rating 3 agreed for the Goodluck Hope site is still only a "moderate" level of accessibility on a scale of 1-6b. While the Affordable Transition residents may be more inclined to make a shift in their travel habits, that would be more likely to take effect in a more accessible location.

1.9 Para 3.47: Reference to Appendix C, specifically drawing 194689/AT/H05 – it is unclear if an articulate lorry turning right into the site access is afforded appropriate forward visibility to ensure they do not turn in front of a NE bound vehicle on Orchard Way. Junction visibility and forward visibility drawings should be provided to ensure that appropriate splays can be secured within the public highway or land under the applicant's control.

1.10 Moreover, the applicant should provide swept path analysis for a wider network, not just the site access. It is unclear if these larger vehicles can negotiate the entirety of Orchard Place without conflicting with oncoming traffic – some areas of Orchard Place may not allow two large vehicles to pass with ease and mitigation/widening may be required. Swept path analysis from the A13 would be useful to confirm there are no highway safety concerns in that regard.

1.11 Para 3.56: Given the quantum of residential development being brought forward in the area it is surprising that additional car club spaces are not being provided at the site. As a minimum it is expected that future residents would benefit from a free membership for 3 years. I would recommend that ZipCar (or Enterprise) are consulted to seek their input on viability of additional cars in the area.

1.12 Para 3.61: TfL presently request at least 20% of cycle spaces are provided as Sheffield stands – suggest clarity is sought on the mix of two tier and Sheffield stands as the latter have spatial implications.

1.13 Para 3.65: The overall parking provision is very low (accessible car parking only). The site has an unofficial PTAL rating of 3 (officially it is lower) and the London Plan would allow up to 0.25 parking spaces per dwelling (PTAL 3) or 0.75-0.5 per unit assuming PTAL 1-2.

1.14 Para 3.11 – Residential refuse collection – plans in Appendix C are referenced which show a 9.930m long Vulture refuse vehicle. This vehicle is shorter than we have seen used on other LBTH schemes and LBTH should confirm it is sufficiently sized.

4.0 Active Travel Zone

1.15 A series of potential improvements are identified within this chapter, but it is not clear which are being implemented by the applicant. Clarity is sought.

5.0 London-Wide Network

1.16 Para 5.6: The referenced HCA document was superseded by version 3 (Nov 2015). The TA calculations therefore underestimate the B8 FTE numbers and need revisiting accordingly.

1.17 Para 5.11/5.14: Shift patterns have been assumed in the absence of an operator. None of the assumed shifts attract staff trips in the critical peak periods. This is a potential shortcoming and, for robustness, it should be assumed an operator might arrange shifts which could impact on the weekday peak periods. The assessment needs revisiting to take account of this.

1.18 Para 5.15-5.21: The operational assessment of the marine infrastructure assumes it will be running 24/7. While the assessment work does skew trips to the daytime, there is no evidence that the assumed day/night split is reasonable or appropriate. If the applicant were being robust with their traffic assessment, they would restrict movements to daytime only. Additionally, if the assumed day/night split assumption is incorrect, then that could have a significant bearing on the noise assessment which may be more sensitive to operations at night.

1.19 The applicant does not appear to have considered an operational use other than a Wharf. This is acceptable if it can only be used for water borne freight. If the permission will offer any B2/B8 use, then a TRICS analysis should be undertaken to consider whether the first-principles approach taken in the Transport Assessment is robust. It is possible that a generic B8/B2 use may attract significantly more traffic than has been assessed.

1.20 Table 5.8/5.9 – The TA understandably adjusts the modal split away from the census data as a result of the scheme being car free and the promotion of sustainable measures. However, Table 5.9 reduces the number of taxi trips to the site which is a flawed approach. If anything, reliance on taxi trips will increase compared to census statistics. This requires further consideration and to be revised accordingly.

1.21 Additionally, there does not appear to have been an assessment of the trips to the flexible commercial space (although the EIA Transport chapter suggests there has been a TRICS analysis). Clarification is sought on what allowance has been made for the flexible use class trips.

1.22 Para 5.41-5.47: The servicing trip rate identified is approximately half of that which could be expected. With a car free development, residents will be more reliant on deliveries – especially given the sites moderate (at best) accessibility as residents do not have excellent access to transport. The applicant should identify comparable sites in TRICS (which should be newer surveys, reflecting the modern way in which we live) or survey an operational site (London City Island?) to obtain more reliable data. There does not seem to have been a calculation identifying servicing trips to the flexible commercial space.

6.0 Additional Borough Analysis

1.23 Para 6.18/Table 6.3 – The modelling identifies the junction of A13/A1020 is operating at capacity in 2014. This is not a particularly good baseline to work from. No model validation commentary is provided to confirm how the model is operating compared to "on the ground" conditions. Have the modellers followed the full TfL modelling guidelines? Without a validated base model to work from, little reliance can be placed on any future year scenarios modelled.

1.24 Para 6.20/Table 6.5: The model is indicating the A13/A1020 junction would operate well above capacity in 2020, with no development in place.

1.25 Para 6.22/Table 6.7: The model is indicating the A13/A1020 junction would operate well above capacity in 2027, with no development in place

1.26 Para 6.24/Table 6.9: The model is indicating the A13/A1020 junction would operate well above capacity in 2027, with just committed development in place (i.e. at a scale of 140% of its capacity). At this level, queuing and delay would be unacceptable.

1.27 Para 6.26/Table 6.11: The model is indicating the A13/A1020 junction would operate well above capacity in 2027, with committed development and Regal Wharf in place and that the development would compound an already unacceptable operation of the junction.

1.28 Surprisingly, the applicant takes the view that, as the junction of A13/A1020 would operate well above capacity prior to the development coming forward, it is acceptable that the development adds further traffic without any offer of mitigating their additional impact. I would be surprised if TfL would find this acceptable and, as a local resident, I would be very concerned about the additional delay which I may incur at an already failing junction.

1.29 It will not escape the council that the Wharf is essentially a cul-de-sac serving a significant volume of residents and commercial uses already. Any additional congestion/delay could be detrimental to access – specifically emergency access.

Environmental Statement – Chapter 11 Transport and Accessibility

1.30 Para 11.50 – bullet 2. As set out above, the staff numbers have been based on an old employment density paper, this needs updating and calculations revisited accordingly.

1.31 The Transport Chapter states the following:

Driver Delay

11.76 The GEART notes that driver delay can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system.

11.77 The standalone TA contains a detailed assessment of the highway network including the impact of the proposed development on the capacity of the two key junctions included within the study area. This junction modelling and application of professional judgment has been used to determine the magnitude of impact.

1.32 The Transport Assessment makes it absolutely clear that the A13/A1020 junction is significantly over capacity prior to the development coming forward. It is therefore likely that any effects of additional traffic could well be significant. The TA and EIA Transport chapter do not present any data on additional driver delay (which can be extracted from the models) and it is therefore surprising that the magnitude of impact relating to driver delay has been determined using professional judgement rather than the modelled delays.

1.33 Para 11.134: A ZipCar that is 1.4km away is not overly helpful. Given the quantum of development coming forward in the area, there should be specific provision made within, or adjacent to, the site. ZipCar should be approached about the feasibility of a provision in the locality – it would be surprising if they were not interested. Moreover, the developer should promote free membership for 3 years to all initial residents of the development.

1.34 Table 11.22: As per the comments on the Transport assessment, it is unrealistic to expect zero taxi trips – this requires reconsideration and a re-run of the assessment.

1.35 Tables 11.23 to 11.25 – Link 1 sees a very significant increase in total vehicles and HGV flows and has been identified as having a high sensitivity which is of a concern. The applicant should also check their calculations throughout the whole chapter as there appear to be errors in the percentage calculations which determine what should be assessed – for example, Table 11.25 Link 1 sees a baseline of 1 HGV in the PM peak rise to 3 HGV's following the development. This is an increase of 200% compared to the baseline, yet the table reports a 139% net change.

1.36 Para 11.255: To conclude a minor adverse impact on driver delay is fundamentally flawed. As the applicant sets out at para 11.76, there are only likely to be significant effects when the road network is close to, or at, capacity. The modelling demonstrates that the A13/A1020 junction is significantly under pressure (at 140% capacity) and it is therefore probable that any additional traffic would have significant impacts on driver delay – yet the applicant has not reported delay changes from the modelling. Given the likely operation of this junction, I would expect the applicant to offer mitigation to offset any impacts arising from their additional traffic otherwise there are likely to be unacceptable impacts arising.

1.37 Para 11.319 – as per Para 11.255 above.

Author: AJP
Date: 23rd February 2021

AIR POLLUTION SERVICES

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Critical Review of the Air Quality Assessment – Orchard Wharf, Tower Hamlets

Date: 12 March 2021

Quality Assurance

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Contents

1 Introduction

1.1 Air Pollution Services (APS) were commissioned by Orchard Wharf Campaign Group (via London City Island Residents Association) to carry out a critical review of the air quality assessment of the Proposed Development at Orchard Wharf in the London Borough of Tower Hamlets (LBTH). An Environmental Statement (ES), dated November 2020 (Ramboll, 2020), accompanied the Applicant's planning application. Chapter 12 and its Technical Appendices covers air quality.

1.2 This review focuses on the key technical aspects of the air quality assessment and considers whether ES Chapter 12 as a whole satisfies the requirements set out in Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (hereafter referred to as the EIA Regulations).

1.3 A key number of considerations which undermine the assessment are shown in the main body of this review, with additional comments in Appendix A2.

EIA Regulations

1.4 The EIA Regulations requires *"significant adverse effects on the environment"* of new development to be considered. The EIA must identify, describe, and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the Proposed Development on air quality.

1.5 When determining whether significant effects on the environment are likely to be caused by a development, the decision maker (the local authority) and the Applicant should identify the most relevant issues to be considered.

1.6 The EIA Regulations require the Applicant to provide information on the characteristics of the development and its likely significant effects on the environment. The detailed list of information to be provided is specified in the EIA Regulations. The Applicant should also take into account, where relevant, the available results of other relevant assessments of the effects on the environment which have been carried out.

1.7 Finally, the decision maker must reach a reasoned conclusion on the significant effects of the development on the environment, taking into account the results of their examination of the environmental information submitted and, where appropriate, supplementary examination by a competent professional.

Planning Policy Framework

1.8 Planning law requires that applications for planning permission be determined in accordance with national policies and local plans. Planning policies and decisions should also ensure that new development is appropriate for its location taking account of the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development.

1.9 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2019a) sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. The NPPF states:

Paragraph 103: "The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

Paragraph 170: "Planning policies and decisions should contribute to and enhance the natural and local environment by:
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and"

Paragraph 180: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

Paragraph 181: "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Paragraph 183: "The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Guidance Documents

Guidance on Land-Use Planning & Development Control: Planning For Air Quality

1.10 Environmental Protection UK (EPUK) in partnership with The Institute of Air Quality Management (IAQM) have produced guidance on *Land-Use Planning & Development Control: Planning for Air Quality (2017).* EPUK and IAQM have produced this guidance to ensure that air quality is adequately considered in the land-use planning and development control processes. It provides a means of reaching sound decisions, having regard to the air quality implications of development proposals

and provides guidance on how air quality considerations of individual schemes may be considered within the development control process, by suggesting a framework for the assessment of the impacts of development on local air quality.

LAQM Technical Guidance

1.11 Defra and the devolved administrations have published a guidance document on Local Air Quality Management (LAQM) - *Local Air Quality Management Technical Guidance (TG16) April 2018*. This document is designed to support local authorities in carrying out their duties under the Environment Act 1995, the Environment (Northern Ireland) Order 2002, and subsequent regulations. LAQM is the statutory process by which local authorities monitor, assess, and take action to improve local air quality. The Technical Guidance provides tools, approaches and technical information related to air quality.

Guidance on the Assessment of Dust from Demolition and Construction

1.12 The IAQM produced guidance on the assessment of dust from demolition and construction. This document provides a risk-based methodology for assessing construction impacts, including demolition and earthworks where appropriate. The guidance has been used throughout this review, which should be read in conjunction with the guidance document.

GLA SPG: Sustainable Design and Construction

1.13 The GLA's Supplementary Planning Guidance (SPG) on Sustainable Design and Construction (GLA, 2014b) provides details on delivering some of the priorities in the London Plan. Section 4.3 covers *"Air Pollution"*. It defines when developers will be required to submit an air quality assessment, explains how location and transport measures can minimise emissions to air, and provides emission standards for a range of stationary combustion plant, and provides guidance on how Policy 7.14B(c) of the London Plan relating to *"air quality neutral"* should be implemented.

GLA SPG: The Control of Dust and Emissions During Construction and Demolition

1.14 The GLA's SPG on The Control of Dust and Emissions During Construction and Demolition (GLA, 2014a) provides a risk-based methodology for considering the potential for dust generation from a development site during construction and demolition phases. The SPG sets out what mitigation measures should be implemented to minimise the dust impacts, dependent on the outcomes of the risk assessment. This guidance is largely based on the Institute of Air Quality Management's (IAQM's) guidance, and it states that *"the latest version of the IAQM Guidance should be used"*.

Professional Competence

1.15 The reviewers conducting this review, Dr Claire Holman and Kieran Laxen, have extensive experience of undertaking and reviewing air quality assessments, in particular for developments in the London Borough of Tower Hamlets (where the Proposed Development is located) and Newham (the adjacent borough to the Proposed development).

1.16 Both reviewers are members of the IAQM and Institution of Environmental Science (IES), as well as committee members of the IAQM. They are both Directors of APS and have a combined experience of over 50 years' in the field of air quality.

1.17 Dr Claire Holman was a co-author of the EPUK/IAQM Guidance on Land-Use Planning & Development Control: Planning For Air Quality, which was used in the air quality assessment reported in ES Chapter 12. Kieran Laxen has presented at both the ADMS User Group (workshop for users of the modelling software used in the assessment) and the IAQM Dispersion Modellers' User Group (DMUG) on modelling techniques. Further details of the reviewers are set out in Appendix A1.

2 Overview of Assessment

2.1 The air quality impact of the Proposed Development during the construction phase was assessed qualitatively. It considered the following sources:

- Construction traffic;
- Non-road mobile machinery (NRMM); and
- Construction activities.

2.2 The air quality impact of the Proposed Development during the operational phase was quantified for:

- The associated road traffic; and
- The river vessels using the wharf.

2.3 The emissions from the combustion plant within the development, such as the back-up emergency generators (called the Life-Safety generators in the ES), was assessed qualitatively.

2.4 The assessment also includes an assessment of the impact of nitrogen oxides (NOx) emissions from the development upon ecological receptors.

2.5 The assessment does not include the impacts from:

- Emissions from vehicles accessing and using loading/unloading bays within the Safeguarded Wharf Box.
- Emissions from other stationary combustion plant in the local area.

2.6 The assessment considers the impacts from the operational activities in 2025 which is based on:

- Wharf operations are anticipated to commence in 2025; and
- residents will occupy the first block in the third quarter of 2025 (ES Chapter 12 paragraph 12.113).

2.7 The assessment states that to produce a robust assessment background concentrations were assumed to be those estimated for 2025 and the road transport emissions modelled were based on 2025 vehicle emissions factors but derived from traffic flows associated with the full operation of the development, which would occur in 2027 (ES chapter 12 paragraph 12.30).

Assessment criteria

2.8 The assessment criteria used in the ES for the protection of human health are the national air quality objectives (AQOs), which are set out in the Air Quality Strategy published by Defra. These are the objectives which the local authority has a legal duty to work towards achieving.

2.9 Additional assessment levels for the protection of human health which are relevant, but have not been considered by the assessment include:

- the EU derived limit values which are legally binding; and
- the World Health Organization (WHO) guidelines for air pollutants.

2.10 The Major of London has a target to achieve the WHO $PM_{2.5}$ guidelines by 2030, as stated in the London Environment Strategy (2018). The London Plan 2021 (previously published as the 2019 intend to publish London Plan) states "*The Mayor is committed to making air quality in London the best of any major world city, which means not only achieving compliance with legal limits for Nitrogen Dioxide as soon as possible and maintaining compliance where it is already achieved, but also achieving World Health Organization targets for other pollutants such as Particulate Matter*".

2.11 In the absence of a statutory approach for defining the likely significance of effects, the assessment states it follows the IAQM/EPUK guidance, which is the industry standard. However, in places it also applies an approach set out by the Environment Agency (EA) for the purposes of environmental permitting. The assessment fails to acknowledge that the approach set out by the EA is designed to screen out low risk processes and that the risk of effects from processes is determined by the EA themselves with no publicly published documentation on the EA's criteria for determining whether there will be a significant effect or not. Therefore, for the purposes of EIA Regulations the EA approach should not be used to determine the likely significant effects.

2.12 For ecological sites, the critical level for NOx and the critical loads for nitrogen deposition were used as the assessment criteria. Where these criteria are exceeded, an impact of less than 1% of the critical level and critical load was used to screen out the potential for likely significant effects (12.27 and 12.77 of the ES Chapter 12). The ecological sites considered were the East India dock Basin (EIDB) Site of Interest for Nature Conservation (SINC) and River Thames and Tidal Tributaries SINC.

3 Construction Review

3.1 The assessment of the construction impacts has been undertaken in accordance with the IAQM Assessment of Dust from Demolition and Construction guidance, in accordance with the GLA's SPG. The construction assessment in general follows standard approaches.

3.2 There is, however, some confusion regarding the number of vehicles that will be required during demolition and construction. Paragraph 12.13 of ES Chapter 12 states that the estimated vehicle movements for heavy goods vehicles (HGVs) and light goods vehicles (LGVs) combined during construction would be a peak annual average (emphasis added) of 101.5 two-way trips during 2023, of which 70.5 two-way trips would be HGVs. It then states *"However, when the HGV movements are averaged over a full year period (24-hour Annual Average Daily Traffic - AADT), these would be expected to be lower than peak movements".*

3.3 This is used to justify why no assessment of the impact of the emissions from these vehicles was undertaken. As the figure for 2023 is an annual average of 70.5 HGVs and the threshold in the EPUK/IAQM guidance is 25 AADT, it is unclear why an assessment has not been undertaken.

3.4 Furthermore, there is not sufficient detail on the cumulative impacts with other sites within the area to screen out air quality impacts from construction related road traffic or cumulative dust impacts from construction.

4 Operation Review

4.1 The assessment of the operational impacts has, in general, been undertaken in accordance with the IAQM/EPUK Land-Use Planning Guidance.

Receptors

4.2 Paragraph 12.115 of ES chapter 12 states: "*Sensitive receptors were chosen to reflect places where members of the public would receive relevant exposure to annual mean and hourly pollutant concentrations from road traffic and road and river freight. When identifying road traffic sensitive receptors, particular attention has been paid to assessing impacts close to junctions, where traffic may become congested, and where there is a combined effect of several road links. When identifying sensitive receptors in relation to river freight, proximity to the vessels was the main factor*" and paragraph 12.116 states *"Existing receptors have been selected due to their sensitivity to road traffic or river freight".*

4.3 However, many of the sensitive receptors in the local area have not been included or represented in the assessment. The amenity for future occupants has therefore also not been appropriately addressed.

4.4 Figure 1 shows example receptors (red triangles) where there are significant emission sources in the study area and where the receptor could be sensitive to small changes in emissions. Note, it is not limited to these example locations. The receptor locations which have been missed represent, for example:

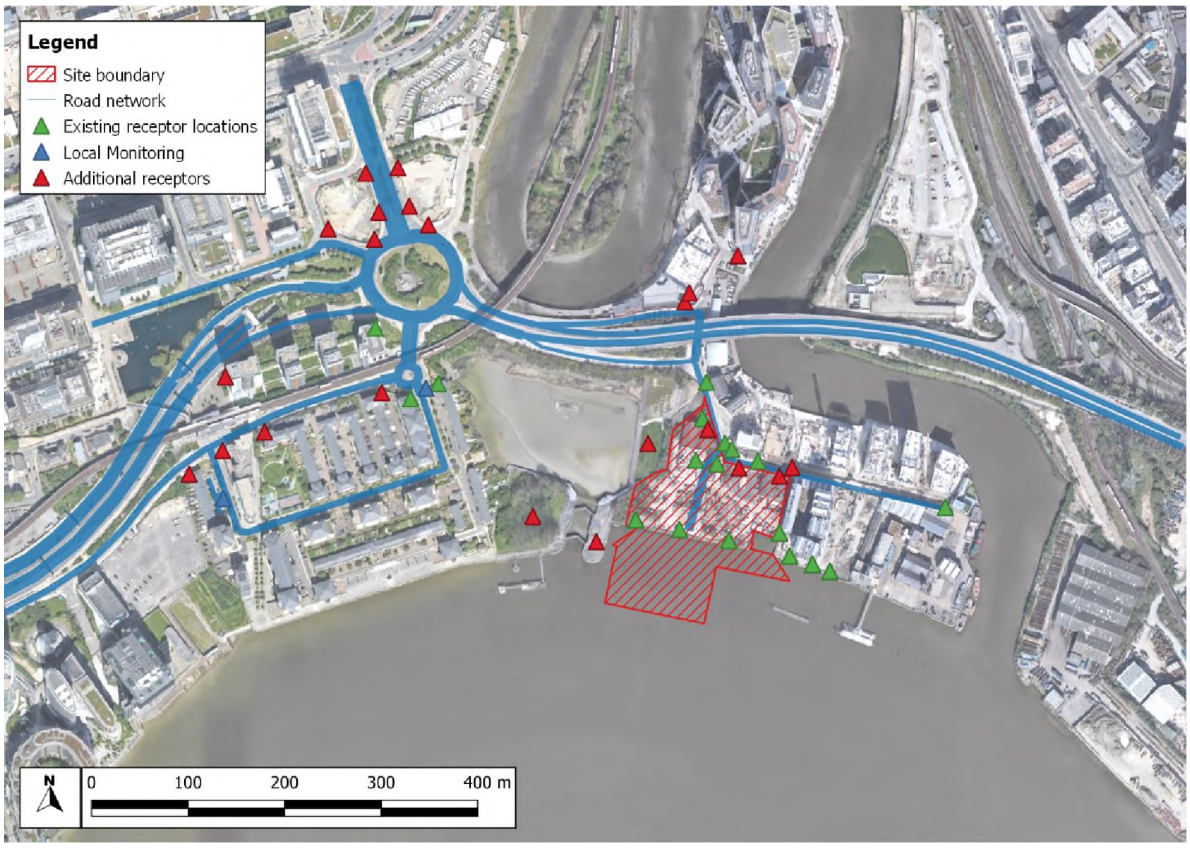
- locations where members of the public could reasonably be expected to spend one hour or more;
- new developments which are currently under construction (e.g. east of link 7, Figure 2, page 14, where there are 750 additional vehicles from the Proposed Development in isolation);
- locations near to high emission sources where even small changes could have an impact (e.g., busy roads); and
- locations where the development could result in a change in streetscape characteristics and result in a build-up of pollutants at ground level (i.e. there is potential for street canyon effects).

4.5 The impacts on the 1-hour mean concentrations at roadside locations have been assessed using the proxy of an annual mean concentration of 60 $\mu g/m^3$. This is appropriate where road traffic sources are the dominant emission source. However, at many of the locations ground level receptors have not been modelled for the consideration of the annual mean and while these ground level receptor locations may not be relevant for the annual mean they may be relevant for the 1-hour mean. Therefore, 1-hour mean impacts have not been assessed in many locations where there is relevant exposure.

4.6 Furthermore, the Proposed Development includes outdoor areas where occupants may be expected to spend 1-hour or more and these locations have not been included in the air quality

assessment. The amenity for future occupants has therefore also not been appropriately addressed.

Figure 1: Study Area Receptors



Traffic Modelling

Traffic Flows

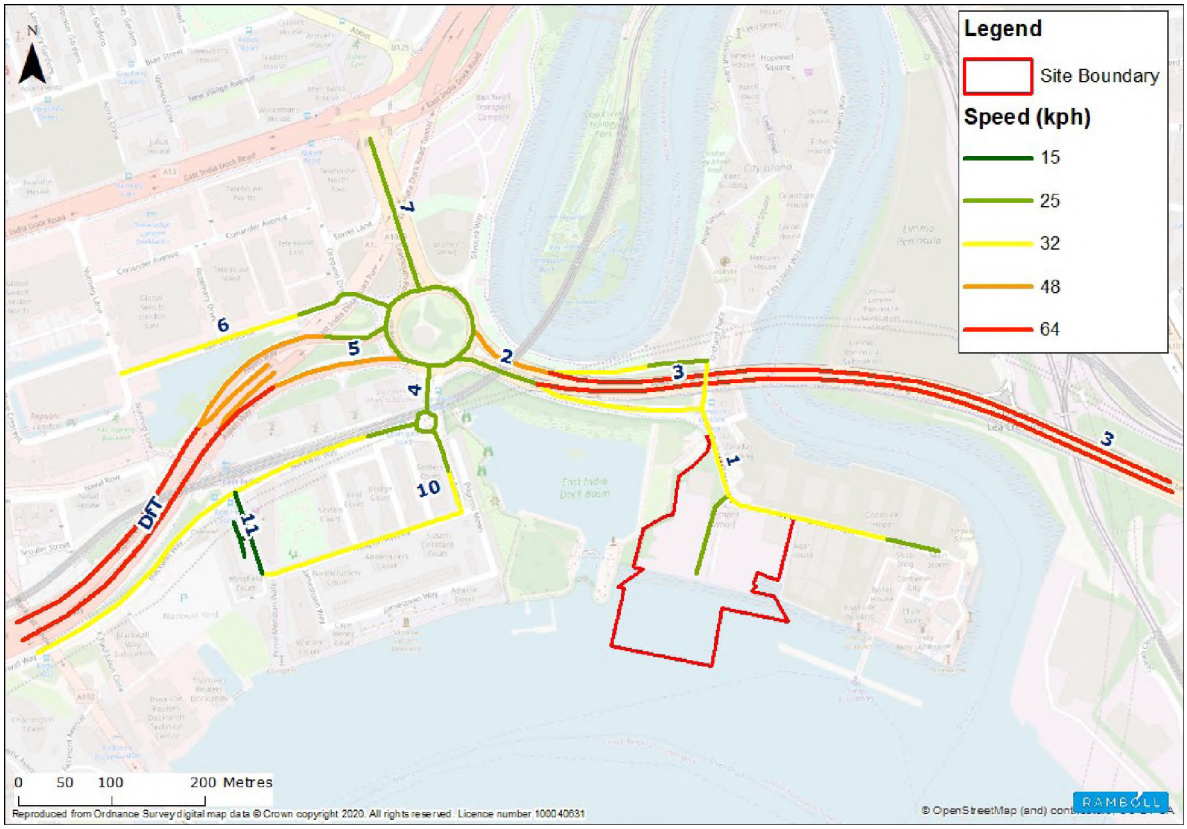
4.7 It is understood that several concerns have been raised regarding the traffic data assumptions during the review by transport consultants Mayer Brown, on behalf of our client. Any inaccuracies in the traffic data used in the air quality assessment will impact upon its conclusions.

4.8 Independently of the review undertaken by Mayer Brown, APS has reviewed the traffic data used in the air quality assessment. Tables 6.1 to 6.5 of Appendix 12.1 of the ES set out the annual average daily traffic (AADT) flows and annual average HGV flows for each road link modelled. The growth in the baseline between 2019 and 2027, the development specific traffic and the committed development traffic flows has been calculated from the data in the ES and are shown in Table 1. Figure 2 is extracted from the ES (Figure 6.1.2, Appendix 12.1) to show where the road links are located.

Table 1: Traffic Flows

Road link ID	Location	Baseline traffic changes 2019 to 2027		Development traffic (Scenario 3-2)		Committed Development (Scenario 5-2)		Committed Development plus Proposed Development (Scenario 4-2)	
		AADT	HGV	AADT	HGV	AADT	HGV	AADT	HGV
1	Orchard Place	176	23	1,068	459	1,619	32	2,687	490
2	A1020 LL Crossing	3,639	383	1,232	596	8,884	142	10,116	738
3	A1020 LL Crossing	3,042	319	168	137	5,426	47	5,595	185
4	Blackwall Way	-5,946	-425	0	0	16	0	16	0
5	A1261 Aspen Way	3,086	380	221	133	5,240	70	5,460	203
6	Saffron Avenue	-11,445	-1,240	0	0	236	0	236	0
7	A1020 Leamouth Road	2,142	221	750	239	7,284	40	8,034	279
10	Newport Avenue	-595	-42	0	0	16	0	16	0
11	John Smith Mews	-60	-4	0	0	16	0	16	0
DfT	Aspen Way DfT 48814	12,099	773	221	133	5,239	70	5,460	3,684

Figure 2: Modelled Road Links and Speeds



4.9 The data in Table 2 shows that between 2019 and 2027 the baseline (i.e. no development) traffic flows (AADT) will reduce in the future as follows:

- link 4 (Blackwall Way) reduce from 9,690 in 2019 to 3,744 in 2027 (61% reduction);
- link 6 (Saffron Avenue) reduce from 13,307 in 2019 to 11,445 in 2027 (86% reduction); and
- link 10 (Newport Avenue) reduce from 969 in 2019 to 374 in 2027 (61% reduction).

4.10 No explanation is given for the reduction in traffic for these road links. It is important because these large reductions in the baseline flow will significantly change the predicted air quality in the future assessment year and the impacts of the Proposed Development.

4.11 The consultant carrying out the air quality assessment should be reasonably confident in the data inputs they use for their assessment and where unusual data is identified it needs to be explained to provide confidence that it is a real effect and not an artifact of the traffic modelling. It is not uncommon for an air quality consultant to find errors in the traffic data. This is because an air quality assessment uses the data in a different manner to that used in a transport assessment. What can make a significant difference to air quality can be immaterial for a transport assessment.

4.12 The assessment states that roads within 250 m of the development have been included in the assessment, however, the roads in the City Island development which meet this criterion have not been included in the model.

4.13 The AADT flow on link 2 for the Future Base (Scenario 2) is 33,680 whereas for link 3 the flow is 28,151; a difference of 5,529 vehicles per day. Given that this is the same road the only difference is the slip roads off the main road towards City Island and the development site. The flows on link 1 into the development area are only 1,630 in this scenario, suggesting that 3,899 vehicles must travel into City Island but no justification for where the flows go is provided and if they do travel into City Island it would be good practice to model these links given that they are within 100 m of the site boundary. This issue is more significant in Scenario 5 when the difference in flows is 8,987 vehicles.

4.14 The development traffic (Scenario 3 minus Scenario 2) suggests that link 2 has an additional 1,232 vehicles per day, while link 1 (where the development is located) only has 1,086 additional vehicles. This suggests links further away from the development experience more additional development related traffic than the link the development itself is on. It is difficult to understand the justification for this.

4.15 A major concern is the limited road network included in the model. The traffic data suggests that 750 development related vehicles will travel along link 7. The whole of Tower Hamlets is an Air Quality Management Area (AQMA). According to the EPUK/IAQM guidance, which the Applicants has used for the assessment, the air quality impacts should be assessed where there is a change in traffic of greater than 100 AADT for LDVs or 25 AADT for HDVs. The assessment states all links have been included which meet these criteria (ES Chapter 12 paragraph 12.24). However, these 750 vehicles will continue along the road network, possibly to highly sensitive locations, that have not been considered in the assessment. Therefore, the air quality assessment is incomplete.

4.16 Table 12.31 of ES Chapter 12 states that the Proposed Development will generate 389,951 trips per annum, or 1,068 trips on an average per day. The traffic data in Appendix 12.1 implies the development related traffic (Table 2: Scenario 3–2) on link 1 (the entry/exit road for the Proposed Development) is 537. ES Chapter 1 paragraph 4.263 states there could be 648 LGV departures and arrivals per day (i.e., 1,296 AADT) for the Wharf Option 3 (using the jetty). There are three different values claiming to report the same parameter (development traffic). at least two of these figures must be incorrect.

Traffic Emissions

4.17 Defra's most recent Emission Factor Toolkit has been used which is considered to provide appropriate NOx and PM emissions for vehicles prior to 2020 and reasonable emissions thereafter. The link average emission rates are calculated using the traffic flows, traffic speeds and the vehicle fleet composition (in terms of type of vehicles and emission class).

4.18 The average traffic speeds used on the air quality model are shown in Figure 2. The traffic speeds reduce at major junctions where there may be congestion. However, the average speed for link 1, for example, has been set to 32 kph (20 mph) and the speed limit is 20 mph. Given the number of vehicles turning in and out of the Proposed Development, it is extremely unlikely that the average speed will be the maximum permitted speed on the local road. The modelling would benefit from more granular data on traffic speeds and vehicle movements. As a minimum, it should use an

appropriate average speed which accounts for periods of congestion, and the effect of vehicles turning into the Proposed Development. Lower average speeds are generally associated with higher emissions and therefore the predicted concentrations close to some of the roads (such as link 1) could be higher than presented in the assessment.

Street Canyon / Streetscape Effects

4.19 A major shortfall of the assessment is the approach to modelling the road links. None of the roads have been modelled as street canyons (Table 4.1 Appendix 12.1). The dispersion model used in the assessment (ADMS-Roads) has the capability of including the impact of buildings on the dispersion of traffic emissions. Even if a road is not a 'conventional' street canyon, the advanced street canyon module should be used if there are buildings, tall dense vegetation or barriers close to the road. If it is not included, the model assumes that the road is in open countryside, which is clearly inappropriate for London.

4.20 Figure 3 illustrates some of the roads included in the Applicant's dispersion model. It is clear that the roads are surrounded by building massing on both sides of the roads, causing a 'street canyon' effect, which will have a significant impact on the dispersion of vehicle emissions, depending on the wind direction. In most cases, streetscape effects lead to restrictions in dispersion, and result in higher concentrations within the street canyon. The assessment has not considered the streetscape effects at all and therefore is likely to have underpredicted the concentrations at many of the receptor locations.

Figure 3: Example Google StreetView images of the Local Roads included in the Dispersion Model

Imagery © 2021 Google, Map data © 2021

Safeguarded Wharf Box vehicle emissions

4.21 It is unclear whether the vehicles entering the Safeguarded Wharf Box will be exclusively electric (very unlikely) or if some will have internal combustion engines. Either way, emissions from vehicles on-site (within the Proposed Development) have been included in the dispersion model as a single road to access the Wharf, and emissions based on the length of that modelled indicative road. However, vehicles within the Wharf will travel greater distances and produce greater levels of emissions, should they stop for periods of time, they may have elevated 'cold start-up' emissions.

4.22 Buildings A, B D, E and F are set upon a 15.5 m high podium, i.e. the Safeguarded Wharf Box. Vehicles accessing/egressing the Wharf will drive through this Box. The Ventilation & Extraction Statement, submitted with the planning application, states that *"The Landlord would allocate space for the Wharf building supply and Extract Air systems"* (paragraph 2.0) but *"The Landlord would not provide ventilation to the Wharf building facility. The tenant would provide ventilation systems which would connect to atmosphere via louvres located within the ground floor façade"* (paragraph 2.11).

4.23 The dispersion model has not included the impact of the vehicle emissions exhausted via these louvres from the Safeguarded Wharf Box. The wharf is a covered location and the single road link on-site has been modelled as an open road, no emissions from the covered wharf box have been assessed out of the louvers in the side of the building.

4.24 The emissions from the vehicles (PM if electric only or NOx and PM if they have internal combustion engines) have not been appropriately modelled.

On-site Combustion

4.25 Paragraph 12.18 of ES Chapter 12 states in relation to the on-site life-safety backup diesel generator: "*Given the short period of operation and the adequate dispersion from roof level, there is no potential that the annual mean and hourly mean NO_2 objectives would be exceeded*". Life-safety generators are not required to achieve any specific NOx emission limits. Therefore, the emissions can be extremely high and even short periods of operation can result in significant impacts, particularly where the emissions are released from a residential block where there are sensitive receptors in very close proximity. Appropriate consideration has not been given to the impacts of these generators on the residential units within the Proposed Development or nearby units on other sites have been considered. Air quality for future occupants of the Proposed Development is therefore likely to be understated and may be unacceptable.

Nearby Combustion Plant

4.26 The planning application for the adjacent development which is currently being constructed includes a Combined Heat and Power (CHP) plant and boilers. The emissions from these have not been modelled and no consideration has been given to their impact on the proposed residential units which are sensitive exposure to both annual mean and short-term impacts. Many of the proposed residential units also have balconies where people may spend an hour or more, which are also sensitive exposure to short-term impacts. Air quality for future occupants of the Proposed Development is therefore likely to be understated and may be unacceptable.

Vessel Emissions

4.27 The vessel emissions are discussed in Appendix A2. In general, a reasonable effort has been made to model emissions from unknown shipping sources. However, there are some discrepancies and unusual values for the parameters presented in the assessment and approaches to the modelling. The key ones include:

- Wharf box option 1 and 3 consists of only line sources. Wharf box option 2 includes point sources and line sources. ADMS 5 requires nearby buildings to be included in the model to account for downwash, although this option within the model is only available for point sources (the generators) and not line sources (the vessels). Thus, only Wharf box option 2 considers the building downwash impacts. Figure 4.1 (ES Technical Appendix 12.1) shows the modelled buildings and their heights used in the ADMS 5 model. It poorly represents the development as buildings A, B D, E and F are not separate buildings as indicated on this figure, but will be constructed on top of a single podium, i.e. the Safeguarded Wharf Box. Only part of this Box is shown, with a height of 13 m, whereas ES Chapter 1 describes it as 15.5 m AOD high (ES Chapter 1 paragraph 4.6). The height of the tallest building (Building B) is 103 m whereas the highest building on the Figure 4.1 is 88 m, Buildings A and F are 70 m, but 56.5 m on the figure; D is 79 m but 68.5 m on the figure.

- It does not appear that the emissions associated with mooring have been modelled, in transit and stationary (minimal power) are included but not mooring which requires the vessels to be manoeuvred.

- Paragraph 12.35 of ES Chapter states *"To assess the potential impacts and associated likely effects from river vessels emissions associated with the operation of the safeguarded wharf facility, the modelled pollutant concentrations released into the air from stationary and in transit vessels, known as the process contribution (PC), has been added to scenario 4 to obtain the predicted environmental concentration (PEC)".* Wharf emissions are therefore not included in Scenario 3 which is the with development scenario. Scenario 4 is the cumulative baseline scenario.

Model performance

4.28 An important part of modelling is reviewing and checking the model setup parameters and input data then comparing the model results to local measured concentrations.

4.29 LAQM.TG.16, provides local authorities with advice on good practice for modelling air quality. This advice is widely applied for air quality assessments of proposed developments, although it is specifically aimed at local authority's duties to review and assess air quality. LAQM.TG.16 states that model verification, defined as a comparison of modelled results with monitoring results at relevant locations, is necessary (paragraph 7.520).

4.30 There are many reasons why there may be a difference between modelled and monitored concentrations and LAQM.TG.16 states (my emphasis) "*Model verification is the process by which these and other uncertainties are investigated and where possible minimised*." (paragraph 7.512). It provides a list of the factors that may explain the differences including meteorological data, source activity data (e.g. traffic flow and speed), emission factors, model input parameters such as roughness length, and monitoring data.

4.31 The advice in LAQM.TG.16 is generic for all road traffic dispersion models. ADMS has been shown to predict concentrations well given sufficiently accurate data inputs.

4.32 It is important to review the results of the modelling carefully and check the model setup parameters and input data. Once reasonable efforts have been made to reduce the uncertainties of input data for a model, further comparison of modelled and monitored results should be undertaken. Where discrepancies still remain, consideration may be given to adjusting the model.

4.33 Using good modelling techniques provides confidence that the model is performing as well as possible everywhere in the modelling area in the base year not just at the monitoring locations. Modelling is often an iterative process of improving the model setup and evaluating the impact on model performance. The same principles need to be applied to the entire modelling study area to ensure the model performs well throughout the study area.

4.34 It is unclear that all reasonable efforts have been made to improve the model inputs and there are certainly questionable inputs used including the traffic data, the meteorological parameters (discussed in Appendix A2), and the lack of inclusion of street canyons.

4.35 A model verification exercise has been carried out in the assessment as shown in Technical Appendix 12 Section 7.

4.36 LAQM.TG16 classifies monitoring sites as:

- Kerbside – *"A site sampling within one metre of the kerb of a busy road".*
- Roadside – *"A site sampling typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases)".*
- Suburban – *"A location type situated in a residential area on the outskirts of a town or city".*
- Urban background – *"An urban location distanced from sources and therefore broadly representative of citywide background conditions, e.g. urban residential areas".*

4.37 The two monitoring sites used for the verification are site 73, located near modelled link 11, and 85, located near modelling link 10 and not far from link 4. According to the traffic data set out in section 6 of the Technical Appendix, the road traffic flow on link 11 adjacent to site 73 is an AADT of 97 and on link 10 adjacent to site 85 it is an AADT of 969 (although link 4, not far away has a flow of 9,690).

4.38 Site 73 is clearly not situated within one meter of the kerb of a busy road and based on the classifications in LAQM.TG16 it should be classified as an Urban background site.

4.39 Site 86 is located on a lamppost at least 2.5 m from the kerb of link 10 and on the basis the traffic on link 4 travels along backwall way, the lane where the traffic will travel is approximately 10 m away from the monitoring site, which is typically greater than the distance for roadside classification, in some cases it could be considered a roadside location, however, it is more likely to be a suburban site. Link 10 is not a busy road and therefore the site cannot be classified as a kerbside or roadside site based on this link.

4.40 Both sites are stated to be kerbside locations in the assessment, and if they were then LAQM.TG16 states: *"7.520 Kerbside sites are generally not recommended for the adjustment of road traffic modelling results as the inclusion of these sites may lead to an over-adjustment of modelling at roadside sites. The exception is where kerbside sites are relevant for exposure, for example properties fronting directly onto the road. In that case, kerbside sites may be used in the model verification process".* However, it is the opinion of the reviewer that neither site is a kerbside location.

4.41 In general, all monitoring sites within 15 m of the modelled road network should be included. However, it is important to ensure one of the following conditions is satisfied:

- verification sites near busy roads are included; and
- verification sites directly relevant to the locations of the specific modelled receptors are included.

4.42 Where there are no sites then the model network may need to be extended to include relevant roads.

4.43 In the case of the verification carried out, the choice of monitoring locations is poor. Given the setting of the monitoring sites, they are effectively background sites and the verification process has effectively verified the background maps rather than the road traffic contributions predicted from the model.

4.44 Furthermore, the model includes parts of trunk roads (e.g. A1261) within the study area (link 5 and link DfT). Emissions from these roads will be partially included in the background concentrations. The concentrations may have therefore been double counted. If the assessment had accounted for the proportion of the major modelled road (A1261) and removed it from the background concentrations, the verification factor would have been higher.

4.45 Furthermore, it is clear the practitioner has actively tried to increase modelled concentrations near to site 73 by modelling the small private car park, with a low speed. Adjustments to models like this need to be systematically applied to the entire modelling domain to ensure that the modelling across the domain accounts for any alterations made to improve the model performance. There are private car parks near to the modelled receptors which have not been included in the modelling. Impacts at the modelled receptors may therefore be understated.

4.46 Overall, the selection of the monitoring sites and the specific modelling of the private car park have led to the model artificially appearing to perform well based on the statistics presented. However, there is no confidence in the model performance at locations where there are significant traffic contributions.

Assessment of Significance

4.47 The assessment determines the impacts using the EPUK/IAQM guidance, but has only determined impact descriptors for the road traffic impacts (Table 12.18 to 12.20). The contribution from the wharf activities is not included. The impact descriptors are related to the changes in concentrations

and should include all emissions sources from the Proposed Development and fully account for baseline concentrations, including relevant cumulative sources.

4.48 Furthermore, for the Wharf and vessel emissions the EPUK/IAQM assessment approach has not been used. Paragraph 12.79 states: *"If the PEC is greater than 70 % of the long-term environmental standard, detailed modelling is required, but thereafter, the assessment of significance is whether or not the PEC exceeds the environmental standard".* This is not correct, as explained in paragraph 2.11 of this review; the stated thresholds are based on environmental permitting regulations (EPR) and under the EPR in England, it is the up to the regulator (the EA) to make determination, in consultation with other bodies if required, to make the assessment of significance. The thresholds set out in Paragraph 12.79 are screening thresholds for the EA to review low risk and high risk processes/facilities to be able to trigger a need for the regulator to consider in detail the high risk processes (those where the PEC is greater than 70% of the long-term environmental standard). The EA do not publish their criteria for determining an assessment of significance for facilities or processes. Using the EA's EPR screening thresholds is not appropriate for planning applications which require an assessment of significance to be presented.

4.49 In relation to the AQO, given the number of uncertainties in the modelling, traffic data, and limited number of locations assessed, the significance of impacts cannot be based on the predicted concentrations presented in the assessment and therefore the ES does not satisfy the requirements set out in the EIA Regulations.

4.50 No assessment of the impact of the limit values has been carried out. The limit values are legally binding and local authorities and government have a responsibility to review whether a development is likely to lead to a delay in compliance with the limit values. There are road links in the local area where breaches of the limit values are predicted in 2019 and 2020 (and up to 2025 when the development will be operational). These breaches are anticipated to comply in different years depending on the road link. A review of whether the development will increase concentrations and result in a delay in compliance should be carried out (this should consider the construction phase and the operational phase).

4.51 No consideration of the impacts in relation to the WHO guidelines have been included. The Intend to Publish London Plan which was available during the preparation of the assessment and is now published (London Plan 2021) includes a commitment to achieve the WHO guideline for $PM_{2.5}$ in the shortest time possible before 2030. No consideration of the impacts in relation to this have been presented.

5 Summary

5.1 The following summarises the key issues with the air quality assessment:

- the traffic model setup has not been suitably verified (i.e. the setup adequately checked before comparing of the modelled and appropriate measured concentrations) bringing the whole modelling exercise into question;
- the traffic changes are unusual in a number of places, with no explanation given which brings the assessment into question;
- the modelling has not taken any account of the impacts of restricted dispersion or recirculation of pollution due to the 'street canyon' effect. This has a significant impact on pollutant concentrations and predicted impacts;
- many locations of likely worst-case exposure have not been included (receptors in general are minimal and impacts have certainly been missed);
- the assessment does not provide context on how the Proposed Development is compliant with the NPPF's requirement for improving air quality at the local level or the London Plan's requirement to have a positive effect on air quality;
- the onsite life-safety diesel generators have not been modelled and no details have been provided regarding where the exhaust is located in relation to sensitive receptors or the height of release in relation to other tower blocks;
- no consideration has been given to the limit values. There are roads which are predicted to exceed the limit value in 2019 and future years and an assessment of whether the Proposed Development will lead to a delay in compliance is required;
- an assessment against WHO guidelines should be included;
- the air quality neutral assessment is:
  - missing the building emissions from the on-site life-safety generator(s);
  - the assessment of traffic emissions seems to be incorrect; and
- there is no air quality positive assessment as required by the Intend to Publish London Plan (now published within the London Plan 2021) which is a material consideration for determining planning applications.

5.2 While it is fair to expect air quality in the future to improve due to national measures being implemented, the assessment does not provide evidence to determine an assessment of likely significant effects. Thus, while the impacts of the Proposed Development might be insignificant in terms of air quality, that determination cannot be made in accordance with the EIA Regulations based on the submitted air quality assessment due to the lack of supporting reliable evidence.

6 Glossary, References and Appendices

Glossary

AADT	Annual Average Daily Traffic
APS	Air Pollution Services
AQMA	Air Quality Management Area
AQO	Air Quality Objectives
Exceedence	A period of time (defined for each standard) where the concentration is higher than that set out in the Standard.
EA	Environment Agency
EIDB	East India dock Basin
EPR	Environmental Permitting Regulations
EPUK	Environmental Protection UK
ES	Environmental Statement
HDV	Heavy Duty Vehicles
HGV	Heavy Goods Vehicles
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles
LGV	Light Goods Vehicles
NOx	Nitrogen oxides
NPPF	National Planning Policy Framework
NRMM	Nor-road Mobile Machinery
PC	Process Contribution
PEC	Predicted Environmental Concentration
SINC	Sites of Importance for Nature Conservation
µg/m³	Microgrammes per cubic metre
WHO	World Health Organization

A1 Professional Experience

Kieran Laxen, MEng (Hons) MIEnvSc MIAQM

Mr Laxen is a Director of APS and has over twelve years' experience in the field of air quality. Kieran is an active member of the IAQM committee, heading up various position statements published by the institute, contributing to their indoor air quality group, and he is currently leading the development of guidance air quality dispersion modelling. He has extensive experience of ambient and indoor air quality monitoring and is a leading UK expert in the assessment of power generating facilities for both permitting and planning applications, detailed traffic emission modelling and meteorological data modelling. He has been a stakeholder in Defra's and the Environment Agency's consultations into implementing the MCPD and Specified Generator Controls.

Dr Claire Holman, BSc (Hons), PhD, CSci, CEnv, FIEnvSc, FIAQM

Dr Holman is a Director of APS, has nearly 40 years of experience. She has advised national governments in Europe, Asia, and Africa, as well as the European Commission on a range of strategic air quality and climate change issues. Claire has contributed to the development of IAQM and EPUK professional guidance, is the former chair of the institute, has been a member of a Government air quality review group, and advised the Department for Transport on their cleaner vehicles and fuels research programme. She is an experienced expert witness for planning and CPO inquiries and litigation. Dr Claire Holman is the Chair of the independent review panel for the Clean Air Zone Framework for Wales and understands the review process of detailed modelling and has been responsible for modelling studies for local authorities, such as Reading Borough for local transport plan purposes.

A2 Further points of consideration

A2.1 Set out below are further points of concern with the assessment. This is not an exhaustive list of additional discrepancies or issues relating to the model setup have been identified.

Changes in concentrations

6.1 In general, as a high-level review, the Proposed Development related increases in concentrations appear to be lower than expected for the volume of traffic in an enclosed streetscape (an urban setting). As an example, receptor location 5, located outside the Proposed Development in an area where there is restricted pollutant dispersion due to the built-up area either side of the road is predicted to have an additional 459 HDVs passing it (or a total additional traffic flow of 1,068 vehicles). According to the modelling this is predicted to only result in an increase in NO_2 concentration of 0.3 $\mu g/m^3$, given the volume of traffic and the nature of the streetscape this is a surprisingly low impact.

Geometry

A2.2 As part of a review of the model setup it was identified that there are locations where road widths, distances from the kerb to receptors and road alignments could be improved. The predicted concentrations may in some locations therefore be marginally inaccurate.

Meteorological Input Data and Parameters

A2.3 Dispersion models, including the ADMS models used in the assessment, require pre-processing of the meteorological data to ensure they are relevant for the study area. This is undertaken within the software. However, the user is required to enter a number of associated parameters into the model relating to surface characteristics which affect the pre-processing of the meteorological data. The use of London City Airport meteorological data is considered appropriate for the general area. However, the parameters entered by the modellers are critical for the pre-processing of the meteorological data to ensure it is relevant to the study area. Furthermore, the source of the meteorological data is not stated in the assessment and therefore there is no assurance of the quality of the meteorological data used.

A2.4 The key parameters include surface roughness, surface albedo, minimum Momin-Obukhov length and Priestly-Taylor parameter. The values selected for the assessment are unusual given the location of the site:

- The surface roughness has been set 1.5; a value appropriate for large urban areas with dense buildings. However, the application site and the airport are both near water and open areas and therefore this value is inappropriate.
- The minimum Monin-Obukhov length accounts for the urban heat island effect, and again given the location near to the river, the value of 100 for both the study area and the airport, is inappropriate.

A2.5 No justification is provided for the values used in the assessment. Calculated values for these and other relevant parameters, based on the different land-uses within a 500 m radius of the centre of

the Application Site and at the meteorological site are presented in Table 2 in comparison to those used in the assessment. Without running the models, it is not possible to state the impact of using more appropriate values on the predicted concentrations. However, based on our professional experience, these parameters can have significant effects on predicted concentrations and should therefore be considered carefully and justified.

Table 2: Surface characteristic

Parameter	Used in the model	Suggested
Dispersion site		
Surface roughness (m)	1.5 (large urban areas)	0.45
Surface albedo	0.23	0.15
Minimum Monin-Obukhov length (m)	100 (large conurbations >1 million)	29.4
Priestly-Taylor parameter	1	1
Meteorological site		
Surface roughness (m)	1.5 (large urban areas)	0.45
Surface albedo	0.23	0.17
Minimum Monin-Obukhov length (m)	100 (large conurbations >1 million)	29.7
Priestly-Taylor parameter	1	1

Traffic emissions

A2.6 The diurnal variation in traffic flows has been included in the model but it has not been presented in the ES.

A2.7 As well as NOx and PM emissions, other pollutant emissions from vehicle exhausts occur. The assessment states in paragraph 12.15 of ES Chapter 12: *"Road traffic is not a significant source of other pollutants that vegetation may be sensitive to, such as ammonia (NH_3) … and as such an assessment of these pollutants has been scoped out of this assessment"*. There is now sufficient evidence that there are significant NH_3 emission from road vehicles, included from modern diesel vehicles fitted with selective catalytic reduction (which uses ammonia to reduce NOx emissions). The assessment should consider the impacts of NH_3 emissions on the sensitive habitats.

A2.8 The Proposed Development includes the provision of 83 disabled parking spaces and an unquantified number of parking spaces for the industrial use (both HGVs and LGVs). It is not clear if there is any provision for vehicle parking on site. If parking will be provided the impact of the vehicles using it should have been included in the assessment.

Sensitivity Tests

A2.9 No sensitivity tests have been undertaken to take account of the assumptions used in the modelling. Although the assessments says that worst case assumptions for the Proposed Development have been used (paragraph 12.90 of chapter 12).

A2.10 Forecasting into the future is uncertain. This is particularly true due to the impacts of the Covid-19 pandemic on traffic levels and fleet turnover, both of which will have implications for the air quality assessment. For example, future traffic levels may be higher than assumed in the assessment as people turn away from public transport to private car use. New car sales have reduced by one third in 2020 compared to 2019 which will affect the age of the vehicle fleet for several years into the future, with more polluting vehicles continuing to be used. Conversely, electric vehicle sales have increased by around 10%, so of the cars that are being purchased more may have no NOx emissions.

A2.11 ES Chapter 12 includes a section on assumptions and limitations but includes little consideration of the uncertainties in predicting the future. The model uncertainties discussed in paragraph 12.88 relate to the 2019 model verification not the future situation, and the AQC reports referenced in paragraph 12.92 relate to historic data not forecast data. Uncertainty in the future predictions has not be significantly discussed and this means the future predictions may be subject to greater uncertainty.

Baseline Concentrations

A2.12 Paragraph 12.107 of Chapter 12 of the ES states: "*NO_2 concentrations at the site would be expected to be similar to measured concentrations at monitoring sites 86 and 73, and therefore likely to meet the relevant AQOs.*". However, these monitoring sites are located on a minor back road for a residential complex. The nature of the site itself (a wharf with a distribution facility) implies that the local settings are different in nature.

A2.13 Telehouse North Two site is approximately 300-450 m to the northwest of the Proposed Development site. This data centre will include significant backup power plant (combustion plant in the range 50-80 MW_{th}). The emissions from this plant are not in the background concentrations and have not been explicitly modelled. Therefore, their impact has not been included in the EIA, and they are considered a material consideration for cumulative impacts.

Post processing the Model Outputs

A2.14 The model outputs require combination of the background concentrations, road traffic emission contributions and vessel emission contributions (and in theory emissions from other local combustion sources like CHP plant from the adjacent development which was not modelled).

A2.15 The assessment used the Defra mapped background concentrations. As is standard, the applicant has carried out a review of the Defra mapped concentration against the local monitoring at two automatic monitoring sites (NM3 and TM001[1]). The 2019 1km x 1km grid square average concentrations for the local area, along with the location of the modelled roads, modelled receptors and local monitoring are shown in Figure 4.

A2.16 The assessment calculated a NO_2 calibration factor of 0.86, however the factor at the TH001[1] site is 0.95 and at the NM3 site is 0.77 suggesting the maps perform well near the river to the south of the site but poorly in a grid cell which includes a busy road where the concentrations from the road

[1] TH001 is shown in Figure 4 as TH6 and it is the same site.

are averaged over the entire gird cell. The process used is logical although it may have been improved by considering additional sites given the difference between the two monitoring sites.

A2.17 The modelled receptors are split across two background mapped grid cells and in 2025 (used for the 2027 assessment) the western cell predicts a background NO_2 concentration of 30.8 µg/m^3 and the eastern cell 25.0 µg/m^3. Scaled by 0.86 the background concentrations are 26.5 µg/m^3 and 21.5 µg/m^3, respectively. Receptor R1-R3 are located within the western cell and R4-R12 are in the eastern cell. A step change in concentrations from one grid cell to the next is not expected and at a basic level interpolation of the 1km x 1km average concentrations is typical to avoid this step change. This would have the effect of increasing the background concentrations at some of the receptors in the eastern cell and decreasing the background concentrations at the receptors in the western cell. The assessment may therefore have underpredicted concentrations at some locations due to the step change in the background concentration. Alternatively, more complex options which consider the source appointment of the background concentrations can be used to estimate the background concentrations at locations with the grid cell although this is not common.

Figure 4: Background concentrations

Cumulative effects

A2.18 Cumulative effects have been considered in terms of the nominal traffic impacts. However, the operational traffic data itself is brought into question.

A2.19 No combustion plant from other nearby developments have been modelled or even discussed.

Air Quality Neutral and Air Quality Positive

A2.20 Not considered building emissions, the buildings include life-safety generators which produce emissions, the buildings are responsible for emissions due to the Wharf activities (e.g. stationary generators during unloading) which have not been included. Only road traffic emissions have been assessed.

A2.21 Paragraph 12.166 seems to state the impacts of the usages in reverse. It's not clear if this is calculated correctly or if it is a reporting issue.

A2.22 Paragraph 1.4.8 of the Technical Appendices states: *"Given the Intend to Publish London Plan is a material consideration in the determination of planning applications, consideration has been given to this draft Plan, as well as the adopted London Plan, in undertaking the assessment".* The Intend to Publish London Plan required an air quality positive assessment which has not been considered.

Vessel Emissions

A2.23 The ADMS 5 model used to predict the impact of the emissions from the vessels using the Wharf used the same meteorological parameters as in the ADMS-Roads model, and therefore the comments given earlier apply to this model too. It is normal to use at least three years of meteorological data for point sources, as the year to year variation in weather conditions has a greater impact on air quality when the emissions are at height than for ground level emission sources such as road traffic. The Orchard Wharf ADMS 5 model data from 2017 to 2019, however no wind rose was presented, which is normal practice.

A2.24 The generators used on the vessels stationary at the wharf were modelled as point sources; whereas the vessels travelling on the river have been modelled as line sources. The emissions from other vessels using the river were not explicitly modelled, although these may be adequately included in the background concentrations.

A2.25 Paragraph 4.3.5 of ES Technical Appendix 12.1 states option 2 has assessed:

"four 746 kW Cummins KTA38 engines at 1800 rpm compliant with IMO Tier II and two EPA Tier III diesel Cummins QD 50 generators has been used in this assessment. The marine option vessels assessed therefore comply with EU Stage IIIA emissions standards requirements."

A2.26 Stage III A standards introduced emission limits for engines used in inland waterway vessels and set out emissions for non-road mobile machinery (NRMM).

A2.27 For inland waterway vessels the emissions are based on the cylinder displacement and the vessel category. Details are not provided in the assessment regarding the engine parameters. Based on the Cummins website[2] there are a range of engines but the engine displacement is 38 Litres (or 2300 in^3 or 0.038 m^3) and they have 12 cylinders. Therefore, there per cylinder displacement is 0.003 m^3. The EU Stage IIIA emission limit for cylinder displaces of less than 0.9 m^3 and with a power of more than 37 kW is 7.5 g/kWh for Hydrocarbons plus NOx. IMO Tier II NOx emissions are defined by the engine speed, for the four 1800 rpm engines used in the assessment the IMO Tier II NOx

[2] https://www.cummins.com/engines/kta38

emission limit is calculates as 44 x $1800^{-0.23}$ g/kWh which is 7.85 g/kWh. This emission is higher than the EU Stage IIIA emission rate. The assessment down not provide details of the calculated emission limits for the engines so it is not possible to confirm the emission limits used in the assessment.

A2.28 Furthermore, both the inland water vessel emissions and NRMM report emissions as NOx and hydrocarbons. The assessment has not presented how the emissions of NOx have been derived and calculated from these emission limits.

A2.29 NRMM in London in the Opportunity Areas (which include the Isle of Dogs area, which covers the Proposed Development) are required to comply with Stage V NRMM emission limits and not Stage IIIA. Therefore, the assessment has been based on the wrong emissions. To achieve the Stage V emissions, secondary abatement will be requirement (commonly in the form of SCR) and these systems have both a 'cold start-up' period where emissions are very high (prior to the abatement being effective) which could have a significant impact on human receptors and a risk of ammonia slip which could impact the ecological sites. Any modelling of generators or plant using secondary abatement to reduce emissions must account for this cold start-up period or risk missing the greatest impacts.

A2.30 There is not sufficient detail reported on how the emission rates entered into the model have been calculated, therefore it cannot be determined whether they are appropriate or not.

6.2 The Cummins website states the exhaust Temperature for KTA38 engines is ~400-500 °C, however, it was modelled at 600 °C (as stated in Table 4.4 of the Technical Appendix). This is a big difference and could change the dispersion of the pollutants.

A2.31 No explanation of the exhaust volume flux calculations. No explanation of the height of the exhausts for option 2 has been presented.

A2.32 Option 1 and 3 Volume Flux reported as 0.1 m^3/s however it was modelled as 1.7 m^3/s.

A2.33 Stationary Cat (Opt 2) assumed to be calculated as: 4.7 g/kWh x 50 kW / 3600 seconds = 0.13 g/s. However, this assumes only one of the two Cummins QD 50 generators is operationally when stationary. Paragraph 4.3.5 states: "It has been assumed that the catamarans would use diesel engines or generators while stationary." If one of the diesel engines was used while stationary the emissions would be: 7.85 g/kWh x 746 kW / 3600 = 1.63 g/s. These emissions are significantly higher than those modelled. If only a single generator was used, it would need a planning condition to ensure this.