

Inspectors Second Written Questions

<p><b>4. Environment;</b></p> <p><b>4.2 Landscape and Visual effects</b></p>	
<p>4.2.1                  From our visit to Cranford Park and its listed buildings EV-006 , it was clear that the M4 currently has a significantly harmful effect on the amenities of the Park both in terms of noise and visual amenity. The listed buildings are on the ‘at risk register’ and the local community are working to conserve the buildings and to find new uses for them. The Park provides a valuable open space amenity in an otherwise urban area. The proposal to bring traffic closer to the Park and the listed buildings through all lane running (ALR), together with the positioning of new gantries would be likely to increase visual impact. Furthermore, whether or not ambient noise levels were reduced, the source of the noise would become more evident.                  What provisions can be made for enhancements to the visual and aural environment of the Park in terms of boundary treatment to the M4 such as higher fencing to provide visual and acoustic mitigation, and increased planting?</p>	<p>Heritage comments: the council has submitted comments with regard to the impact on the heritage assets of the site, these are re-provided at Appendix A of this response. The council also await submission of the requested Cranford Park survey which was requested by the ExA and is due for submission in Jan 2016.</p> <p>Landscaping comments: Acoustic fencing should be provided to the north of the east-bound slip road and to the south of the west-bound slip road to enhance the visual and aural environment for those enjoying the amenities of the Park and listed buildings.</p> <p>The overall height of the fence should be determined by the need to both screen the views and to be effective acoustically.</p> <p>A solid acoustic fence, such as timber or coir, could be erected to sufficient height to block out eye-level views (from the Park) to the source of the noise on the motorway, including high-sided vehicles.</p> <p>With regard to blocking the views, the height of the solid fence should take into account local topography and changes of level. For example, if the ground level of the Park is lower than that of the motorway, a lower fence height may be effective visually. Conversely, if the adjacent land level is higher than the motorway, a greater fence height will be required to screen views of vehicles and the source of the noise.</p>

	<p>One downside of installing solid acoustic barriers fencing is that they are visually intrusive in the landscape and may block out desirable longer distance views and the skyline, above the motorway traffic.</p> <p>If the fence height needs to be higher for the purpose of acoustic mitigation than that required to screen the source of the noise, transparent acoustic panels should be used at a higher level - as used extensively in Europe.</p> <p>Where possible, off-site planting (using mixed native woodland species) should be planted on the Park side of the fence so that the impact of the fence itself is 'lost' behind a screen of vegetation. The planting mix is likely to be predominantly deciduous (only in leaf for approximately 6 months of the year) but should include some evergreen species. It should be noted that any new planting will take some years to achieve the desired height and density to form an effective visual screen. (see comments in final box relating to off-site planting).</p>
<p>4.2.2 Having regard to the positioning of new gantries and the emergency refuge areas (ERA) in proximity to Harlington Village Conservation Area and the Church of St Peter and St Paul, what additional shrub and tree planting can be provided to mitigate the introduction of the gantries and the impact of bringing traffic closer to the heritage assets?</p>	<p>The nearest proposed gantries either side of the St Peter's subway include G1-03, G1-07 and G-11 (south side / west-bound) and G1-08 and G1-09 (north side, east-bound). Due to the height and scale of the gantries, they will be impossible to screen from view from all viewpoints outside the motorway corridor. To some extent views may be filtered from some vantage points by existing (retained) vegetation and built structures.</p> <p>Gantry G1-07 lies due north of the church and will be highly visible. There is very limited space behind the gantry, within the motorway corridor, to provide adequate screening. At a lower level fencing along</p>

	<p>the boundary would reduce some of the visual impact. Planting around / behind the gantry would help to filter views over time.</p> <p>The filtering of views of G1-09 viewed from Harlington Village to the south could be enhanced by additional woodland planting on Council-owned land directly opposite, between St Peter's Close and the motorway.</p> <p>In addition to this, the long distance oblique views could be enhanced by providing longer stretches of woodland planting between the carriageway and the motorway boundary, for example between G1-07 and G1-11. - If this is not feasible, off-site planting to the south of the motorway boundary should be considered.</p> <p>Lower level views and the blocking of views of the source of the traffic noise could best be improved by installing acoustic fencing.</p> <p>The closest ERA's include E1-A1 (south side, west-bound) and E1-B1 (north side, east-bound). These features are relatively low-lying and could be fenced close to the edge of the ERA, with mixed woodland planting between the fence and the motorway boundary (for longer term screening).</p> <p>The approach to the pedestrian subway at the north end of St Peters Way provides uninterrupted exposure to the motorway traffic and source of traffic noise. This is a problem shared with St Dunstan's and several other pedestrian underpasses. These gaps in the fencing would benefit from the installation of acoustic barriers. The barriers could be staggered in such a way as to close the gap so that the view is blocked while continuing to provide pedestrian access.</p>
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	<p>It should be borne in mind that planting alone will not provide an acoustic barrier and will take years to provide a filtered visual screen, the effectiveness of which will on the species mix and width of planting.</p>
<p>4.2.3 The potential for off-site planting to replace planting lost as a result of the scheme and to provide enhanced environmental mitigation was discussed at the issue specific hearing dealing with matters relating to the environment, and London Borough of Hillingdon (LBHill) has identified locations with the potential for off-site planting to provide improvements to visual amenities EV-015 &amp; EV-021. Highways England (HE) indicated that this could be dealt with by means of s253 agreements with land owners. However, there is no means by which such agreements could be secured through the draft Development Consent Order (dDCO), and therefore the Secretary of State (SoS) could not be satisfied that any off-site planting would be achieved. Could a requirement be added to the dDCO for a scheme of off-site planting to be agreed with the relevant local planning authorities before the M4 Smart Motorway (M4SM) is brought into operation, with an appropriate implementation clause included, or is this a matter which could be secured through a Development Consent Obligation?</p>	<p><u>Principle of Off-site Planting:</u></p> <p>Where there will be unavoidable adverse visual, or acoustic, impact on residents, every opportunity should be taken to provide mitigation measures. If there is limited space within the motorway corridor and off-site measures cannot be secured, a combination of acoustic barriers and /or green walls should be installed.</p> <p>There are various types of acoustic barriers available including the traditional 'Buffalo' (solid timber) fencing, typically used on British motorways. More recent developments in acoustic barriers include a coir covered fence, by Koko Systems (which can support climbing plants) and Gramm Barrier Systems which incorporates a mix of absorptive concrete and transparent sections.</p> <p>There are also many types of green wall available where space for denser planting is restricted. Some types of green wall (such as Devon banks) can also absorb noise.</p> <p>As described in 4.2.1, acoustic barriers create their own visual impact depending on their height, materials used, local topography and nearby vegetation. The selection of suitable acoustic barriers requires specialist advice in conjunction a landscape consultant regarding planting and the visual impact / landscape contribution of the barrier. These details should be subject to the agreement of the local planning</p>

	<p>authority.</p> <p><u>Securing Off-site planting:</u></p> <p>At a meeting held with the applicants on 21<sup>st</sup> December 2015, the mechanism for securing off-site tree planting through S253 of the Highways Act 'Agreement as to use of land near highways' was briefly discussed.</p> <p>It is understood the provision under the Highways Act that the applicants intend to implement would require a land owner to 'give up' the strip of land which was offered for any off-site planting under the Act, impacting upon the land ownership of the residential property.</p> <p>The provisions under S253 appear to be overly restrictive and onerous and are likely to deter residents from taking up the opportunity to have off-site planting within their site, especially as this will impact upon land ownership rights and the buying and selling of the property in the future. This is likely to be a significant deterrent to securing any off-site planting for residents.</p> <p>The Council wish to go back to the suggestion made at the Hearings held in Nov 2015, whereby a Development Consent Obligation would be a more appropriate mechanism, whereby residents were offered the opportunity to accept planting in their gardens, should they wish to take it, without any implications on the land ownership rights/deeds etc.</p> <p>This is a planning mechanism which is a viable solution, whereas the S253 procedure appears to be a mechanism which would deter rather</p>
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	than encourage take up.
<p>4.2.4                  What mitigation measures can be put in place for properties in Keats Way where vegetation would be lost to rear gardens? Can acoustic barriers be replaced with a type which would support plants, with transparent upper panels?</p>	<p>The provision of acoustic barriers with transparent upper panels is supported.</p>
<p>4.2.6                  Fencing opposite to Savoy and Cleave Avenues and Cranford Drive allows for views directly onto the M4. LBHill request higher fences with off-site planting, or alternatively a type of fence which would support planting, with transparent upper panels REP4-038. Is there any reason why such provision could not be made?</p>	<p>Refer to notes above ( 4.2.3).</p> <p>In these locations there is a narrow public footpath which lies between the motorway boundary and a chain link fence. There will only be adequate space for the replacement of the existing timber fence with a new slim line acoustic barrier - probably without plants growing on it. If a higher barrier is required it could make the footpath space quite oppressive and the use of transparent panels at a higher level would be ideal.</p> <p>To the north of the footpath there is an intermittent line of trees, including evergreen conifers situated along the edge of a wide area of Council-owned land. Off-site planting on the Council land would be feasible and is desirable.</p> <p>Aside from financial reasons, there is no reason why higher fencing with transparent upper panels and off-site planting cannot be provided in order to mitigate against the impacts of this development on local residents.</p>
<b>4.3 Flooding</b>	
4.3.1	The Council are still awaiting an updated FRA and therefore all

<p>Can the applicant confirm that the following documents will be submitted at Deadline V without fail, or sooner if possible? These documents should be discussed and agreed with the relevant statutory authorities.</p> <ul style="list-style-type: none"> <li>i. Updated Flood Risk Assessment</li> <li>ii. Updated Drainage Strategy Report</li> </ul>	<p>comments issued with regard to Flooding by London Borough of Hillingdon (LBH) are still relevant.</p>
<p><b>4.5 Air Quality</b></p>	
<p>4.6.2 Reliability of the HE assessment. Can the applicant explain the relationship between the forecasts of traffic flows on the M4SM and the assessment of air quality impacts? Can the applicant also provide the following information:</p> <ul style="list-style-type: none"> <li>i. Does the air quality assessment use the same base year for traffic data as the traffic forecasts?</li> <li>ii. Is the base year traffic flow in each forecast based on real life surveys? If not, what is it based on?</li> <li>iii. Are the traffic levels from the traffic forecasts for do minimum and do something at the opening year (2022) those used in the air quality assessments?</li> <li>iv. Does the air quality assessment use the same vehicle fleet composition as in the traffic forecasts? What is the vehicle fleet composition for the base year, and the do minimum and do something 2022 scenarios?</li> <li>v. Can the applicant explain any additional or amended assumptions from those used in the traffic forecasting (such as the rate of fuel consumption) which are used for the air quality forecast, or any change in the data sets used in the air quality forecasts such as for the composition of the vehicle fleet?</li> </ul>	<p>LBHill support these requests. Having sufficient information to understand the accuracy of the assumptions used in regard to the traffic data is an important part of reviewing the accuracy of the air quality assessment.</p>

<p>4.6.5                  Implications for future AQMAs. Evidence is submitted by LBHill REP2-060 and Slough BC REP2-047 of receptors which are forecast to experience levels of NO<sub>2</sub> very close to or above the annual mean UK air quality objective (the EU limit of 40µg/m<sup>3</sup>). No forecast can be assumed to be entirely secure, and with the current doubt as to the reliability of Euro 6/VI vehicles, the ExA is concerned that the future pollution climate along the M4, which passes through existing AQMAs, is uncertain. An uncertainty of 10%, as suggested by Ricardo REP4-034, could for example lead to increase of 4 µg/m<sup>3</sup> of NO<sub>2</sub> in locations which are at the EU limit. This increase could result from either an underestimate of traffic levels or the level of emissions, but for those receptors in areas already just below or just above the EU limit, there would be a harmful level of exposure to NO<sub>2</sub>.                  What assurance can HE provide that harmful increases in emission levels will not occur?</p>	<p>As reported in Prof Laxen's Review Air Quality Assessment of M4 Smart Motorway in Hillingdon, para 4.1 page 7, there must be some considerable uncertainty over future concentrations of nitrogen dioxide to which residents living near the M4 motorway in Hillingdon will be exposed. It is of utmost importance to LBHill that appropriate mitigation is properly considered should the predictions the HE are relying upon to improve air quality not occur in reality.</p>
<p>4.6.8                  Future proofing the M4SM. The applicant's position is that there is no need for air quality mitigation measures, and in any event that there is little evidence of effective mitigation measures. However, Ricardo REP4-034 provides evidence of barriers which have been tested and used for air quality mitigation. We note the argument that an increase in the height of barriers would cause visual amenity impacts, but there are examples of transparent barriers and the use of planting which would reduce such impacts. In any event, we consider that local authorities, on behalf of their local communities, should be given the opportunity to choose between air quality or visual impacts.                  HE in its Delivery Plan 2015-2020 REP4-005 commits 'to invest in a range of projects to reduce pollution and ensure the air around the</p>	<p>LBHill fully support the preparation of a detailed mitigation strategy. It looks forward to receiving proposals from HE and entering into discussions</p>



network is clean and healthy for our customers and neighbours.’ This also states that it will ‘develop an air quality action plan setting out our activities for the next five years.’ Furthermore the NN NPS states at paragraph 5.12 that the SoS must give air quality considerations substantial weight where a project would lead to deterioration in air quality in a zone/agglomeration- the NN NPS does not qualify that deterioration. In paragraphs 5.14 and 5.15 it goes on to state that the SoS should consider whether mitigation measures put forward by the applicant are acceptable and gives examples of mitigation measures including ‘physical means including barriers to trap or better disperse emissions and speed control’ Having regard to submissions on behalf of Slough BC and other IPs concerning the uncertainty of the modelled levels of air pollution from the scheme, we consider that provision should be made for the monitoring of air quality by HE along the route of the M4SM during the periods of pre-construction, construction and operation of the scheme. In the event that monitoring data indicates that the scheme is causing increases to levels of NO<sub>2</sub>, then an Air Quality Action Plan should be produced for implementation until such time as air quality levels are improved.

We therefore invite the applicant to prepare, in consultation with the relevant local planning authorities, a requirement to be included within the dDCO which provides for the following:

- i. A monitoring strategy for NO<sub>2</sub> detailing monitoring points, methods of measurement and levels of concentration which would trigger action, to be approved by the SoS and implemented at least 6 months prior to the commencement of development.
- ii. In the event that the trigger levels are exceeded, a scheme for the management of the M4SM which could include restriction of traffic speeds, restricting traffic flow from feeder junctions, restricting access

<p>to the route for specific classes of vehicle, or other measures to be submitted to the SoS for approval and implemented within 3 months of such approval.</p> <p>iii. In the event that the management measures are not sufficient to reduce the air quality levels below the trigger value, a scheme for retrofitting physical measures such as air quality barriers should be submitted to the SoS for approval and implemented within 6 months of approval. The measures to be included in this scheme should be in accordance with Best Practicable Environmental Options (BPEO) to ensure future proofing of the scheme.</p> <p>The requirement should provide for the applicant to prepare each scheme or plan set out above in consultation with the relevant local planning authorities and other appropriate interested parties.</p> <p>(2 Reference is made to the SoS as discharging body. In the event that another discharging body is identified for the dDCO requirements, that body should be identified in the requirement. If the SoS is the discharging body rather than relevant local authorities, full consultation with the local authorities must be provided for. )</p>	
<p><b>4.7 Noise and Vibration</b></p>	
<p>4.7.1 Hours of Working and Construction Activity. Re question 4 in the noise and vibration hearing (EV-008), which asked if the local authorities were satisfied with the mechanism proposed by the applicant to control hours of working and construction activities, LBHillREP4-033/038 raised a number of points, including the mechanism for ensuring adequate consultation with local authorities on the CEMP prior to the applicant's proposed approval by the SoS,</p>	<p>The Council are aware that the applicants are revising their dDCO for submission in Jan 2016. However the current proposed dDCO is not considered sufficient as there is no level of consultation on local matters/impacts, including noise, this objection in principle to the dDCO also relates to other matters which the local authority are not party to (CEMP etc).</p>

<p>the need to ensure that the final CEMP is in place before work commences on site, and the need for clarification on working hours at weekends.</p> <p>With the SoS as the approval authority proposed by the applicant for the dDCO requirement on the CEMP (and other requirements), how will the applicant secure an appropriate level of consultation with the local authorities in the dDCO?</p> <p>To what extent does the applicant accept LBHill's proposals with regard to working hours at weekends, and how will these proposals be secured in the dDCO by means of the CEMP?</p>	
<p><b>4.9 Effects on travellers (including Traffic Forecasting)</b></p>	
<p>4.9.7 Uncertainty in Forecasting. Re question 14 in the traffic forecasting hearing (EV-008), which referenced Section 4.4 of the HE Traffic Forecasting Report concerning the treatment of uncertainty in forecasting, the responses of some affected and interested parties at Deadline IV, notably BCC REP4-027 , LBHill REP4-033/038 have indicated that they were not convinced by the local modelling.</p> <p>What is the current status of dialogue between these parties and the applicant, and what issues remain unresolved?</p>	<p>A meeting was held with the applicants on 21<sup>st</sup> December 2016 and further information was issued to LBH on 24<sup>th</sup> December 2015, however due to annual leave this was not received by Officers until 4<sup>th</sup> January 2016. On the 6<sup>th</sup> January, Officers advised the applicants consultant on 6<sup>th</sup> January that despite numerous attempts, the files were not able to be accessed and had been passed to specialist to download.</p> <p>As such, the council is unable to provide any details/update with regard to the additional information provided to date.</p>
<p>Draft Development consent Order</p>	
<p>First Round Question no. 8.25</p>	<p>The Council are in principle supportive of the proposed change to this requirement, however we await the further dDCO to be able to comment on its appropriateness in full.</p>
<p>First Round Question no. 8.28</p>	<p>The council support the request for clarity on the content of this Requirement, which has a degree of ambiguity in its current drafting.</p>

<p>First round question no. 8.29</p>	<p>The Local Authority have already identified areas of land which could be used to introduce SUDs.</p> <p>Given the limits of the application/Order, it is considered that a Development consent Obligation is the most appropriate mechanism to secure off-site SUDs.</p>
<p>Compulsory acquisition and other land matters</p>	
<p>Question 9.1</p>	<p>The Council support the request for clarification of how the applicant seeks to maintain pedestrian access via Sipson Road subway and the mechanism by which this will be secured.</p>

**Appendix A- Impact on Cranford Park- Comments issued at Deadline IV**

E. VISUAL IMPACT		
<p>1 In the applicant's response to FRQ, information is provided on the location and height of signs and gantries REP2-002, Section 4 Appendix C . Does this information assist IPs in their consideration of potential visual impact from the scheme?</p>		<p>The information does provide some assistance in understanding the visual impacts, however, there remains one area of concern in relation to Cranford Park.</p> <p>Following the Inspector's site visit, the London Borough of Hillingdon has provided additional visual information on the impact of the M4 Motorway on the setting of Cranford Park and its listed buildings. Sheet 1 shows the Cranford Park Conservation Area boundary, the location of the listed buildings and highlights existing view points, from where traffic is already visible and considered detrimental to the setting of the historic assets. From the Cranford underpass west, the use of the hard shoulder will bring traffic closer to the buildings and the walled garden (figs 1.3- 1.6). The London Borough of Hillingdon considers that the additional low level and ineffective timber barrier should be upgraded along the boundary with the park (fig 1.6); this should be raised up to 4m in height together with additional planting. Screens should be attached to the concrete southern face of the underpass to safeguard the setting of the Stables (figs 1.0 and 1.2) and low level planting, or low screening installed along the existing barrier line of the slip road, to obscure views of the traffic currently visible from the footpath to the rear of St Dunstan's Church and the boundary of the park (fig 1.1). These are views that exist below the level of the existing tree canopy and are highly visible during the day and also at night, when the lights of the moving traffic creates an almost continuous line of illumination.</p>

		<p>The Council has provided additional views of the gantry positions (G1-07 and G1-08) in attached Sheet 2. These are views adjacent to the Harlington Village Conservation Area boundary and as noted in the Council's Local Impact Report. Highways England's most recent consideration of the impact of the gantries and refuge E1-A1 on views from within the extended conservation (figs 2.0- 2.3) is not supported by the Council and the view from the rear the Church of St Peter and St Paul (fig 2.4) has not been addressed by them. With regards to these locations, the Council is of the view that the impact of the works is such that it would wish to see additional shrub and tree planting provided, even if this is off site, as the proposed replacement grass seeding would do little to screen views of the new structures and areas of hard surfacing- the latter to be created directly on the boundary of the conservation area.</p> <p>Please see Appendix B for Sheet no.1 and Sheet no.2 referred to in this section.</p>
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**SHEET 1: Cranford Park Conservation Area and M4**  
Date of all pictures: 13/11/2015



Fig 1.5: View from footpath adjacent to north of walled garden



Fig 1.6: View from north of walled garden



Fig 1.0: View from south of St Dunstan's underpass/ rear of stables



Fig 1.4: View from walled garden

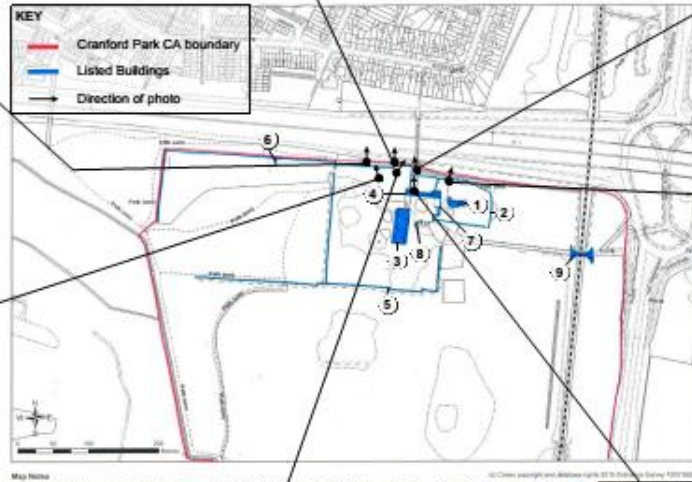


Fig 1.1: Footpath to rear of St Dunstan's Church

- Listed Buildings**
- 1) St Dunstan's Church, Grade II\*
  - 2) Walls to the north of stables, Grade II
  - 3) Cellars of former Cranford House, Grade II
  - 4) Cranford House stables, Grade II
  - 5) Ha-Ha walls to south and south west of Cranford House, Grade II
  - 6) Garden walls to west of Cranford House stables, Grade II
  - 7) Wall to south of east end of stables, Grade II
  - 8) Curved wall to south of west end of stables, Grade II
  - 9) Cranford Park bridge, Grade II



Fig 1.3: View from walled garden



Fig 1.2: View from stables

**SHEET 2: Harlington Conservation Area and M4**  
Date of all pictures: 13/11/2015



Fig 2.3: Wooded boundary adjacent to M4 motorway



Fig 2.0: Position of proposed refuge area (E1-A1) where existing vegetation will be removed

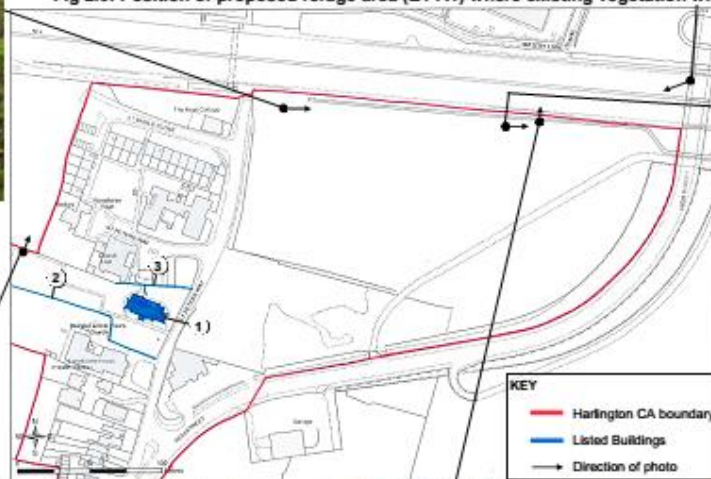


Fig 2.1: Existing trees and low level vegetation



Fig 2.4: Long open view from St Peter & St Paul Churchyard of proposed gantry G1-07



Fig 2.2: Area where vegetation that will be lost and view of proposed gantry G1-08

- Listed Buildings**
- ① Church of St Peter & St Paul, Grade I
  - ② Walls to the south of churchyard, Grade II
  - ③ Walls to the north of Church of St Peter & St Paul, Grade II



