

21. Cumulative Impacts

21.1 Introduction

21.1.1 This Chapter, which has been prepared by Waterman, provides further information with regard to the potential cumulative impacts identified in Chapter 21: Cumulative Impacts and the various technical chapters of the s.73 ES. Since preparation of the s.73 ES a further ten cumulative schemes have been identified in consultation with LBB which have the potential to give rise to cumulative impacts in combination with the construction and operation of the Development. In addition, the detailed design of the Phase 1A (North) RMA components are now available which were previously assessed in outline. The further cumulative schemes together with the detailed design of the Phase 1A (North) RMAs are therefore considered in this Chapter to identify whether additional cumulative impacts not identified in the s.73 ES could arise.

21.2 Scope of the Assessment

21.2.1 Cumulative impacts may be broadly defined as impacts that may result from the accumulation of a number of individual impacts.

21.2.2 The cumulative schemes considered in the s.73 ES have been reviewed to identify changes in their status (for example those which have now been built out) and those schemes which have received planning permission since the cumulative impact assessment was undertaken and presented in the 2009 RES (and reviewed in the s.73 ES). The list of cumulative schemes considered in this ES Further Information Report was set out in the EIA Scoping Report and agreed with LBB. A formal Scoping Opinion was received from LBB on 16th December 2014 which included additional schemes which have been considered in this Chapter Further details of the cumulative schemes considered are provided in **Table 21.1** and their locations are provided in **Figure 4.1**.

21.2.3 Since preparation of the s.73 ES, further details are also now available as part of the Phase 1A (North) RMAs on components of the Scheme which were previously submitted in outline. Details of the A review has therefore been undertaken of the detailed design, as defined in **Chapter 2**, to identify elements of the Phase 1A (North) RMAs which could influence the outcome of the s.73 ES cumulative impact assessment.

21.2.4 The 'cumulative schemes' and further details as defined by Phase 1A (North) RMAs were considered by each technical specialist to identify whether there were likely to be any significant cumulative impacts not identified in the s.73 ES. This assessment takes account of the outcome of revised modelling and updated assessment work where presented in this Report and seeks to identify:

- Likely significant cumulative impacts of the Development (with Phase 1A (North) in place) in combination with those cumulative schemes which were not identified in the s.73 ES; and
- Likely significant cumulative impacts which were not identified in the s.73 ES as a result of the detailed design of Phase 1A (North) RMAs.

Interaction between Impacts

21.2.5 The potential for interaction between impacts have been considered throughout the s.73 ES and ES Further Information Report, where appropriate.

Interactions between Projects

21.2.6 The cumulative schemes considered in the s.73 ES (and 2009 RES) have been reviewed to identify their current status. Additional cumulative schemes which have received planning permission since

the cumulative assessment was prepared have also been identified through a review of local authority planning portals and through consultation with LBB.

21.2.7 The list of cumulative schemes presented in **Table 21.1** has been agreed with LBB as part of the EIA Scoping Opinion (December 2014) and other correspondence. To note some of those schemes identified in the Scoping Opinion were later deemed to be built out and therefore have been excluded from this assessment as agreed with LBB. A plan showing their location is presented as **Figure 4.1**. Those schemes considered in the s.73 ES are presented in bold italics in **Table 21.1**.

Table 21.1: Cumulative Schemes

Scheme	Description	Application Ref	Status	Distance from Site
West Hendon Regeneration	Hybrid planning for the demolition and redevelopment of the West Hendon Estate to provide up to 2,000 residential units, a new 2 form entry primary school, community building and commercial uses, associated open space and infrastructure. Building heights ranging from 2 to 29 storeys.	Ref: H/01054/13	Under construction	0.75 km North West
Plot 61, Edgware Road, Former Parcel Force Depot	Redevelopment of the site to provide 230 residential units (use class C3) and 888 sqm of commercial accommodation (use classes B1, D1 and D2 in buildings up to 7 storeys in height.	Ref: F/01932/11	Under construction	0.25 km South West
Beaufort Park, Former RAF East Camp, Aerodrome Road	Redevelopment of the former Hendon Aerodrome which includes 2,800 residential units; 4,645 m2 of shopping (to include a food store of not more than 1,393 m2); 470 m2 food & drink; 465 m2 of business; 2462 m2 of community and leisure spaces; a 279 m2 driving test centre (sui generis), landscaped open space, car parking and vehicular and pedestrian access. Outline Planning Permission together with various reserved matters approvals).	Ref: W00198AA/04	Under construction	1.9 km North
Grahame Park Estate Regeneration, Grahame Park Way	Outline planning permission for residential scheme comprising (3,400 residential units (1,700 net increase) and 10,000 m2 of commercial/community uses).	Ref: W01731JS/04 Ref: H/0448/10	Under construction	2.5 km North
Former Colindale Hospital in Colindale	Full planning permission for the erection of two buildings ranging from five to nine storeys in height comprising 242sqm of commercial floorspace (Classes A1, A2, A3, B1 and/or D1) on part ground floor and 157 residential flats (Class C3) on part ground and upper floors, together with associated access, car parking and landscaping, approved 4th December, 2014.	Ref: H/00093/13	Planning permission granted	2.6 km North

<p>British Library Newspapers, 130 Colindale Avenue</p>	<p>Demolition of all existing buildings and redevelopment to provide 395 flats, 772sqm of floorspace for retail/financial/professional/restaurant/café uses (Use Classes A1/A2/A3) or community use (Use Class D1) in six blocks ranging from 4 to 11 storeys; associated highways and public realm works including formation of piazza adjacent to Colindale Avenue and Colindale Park and ancillary works, decision pending.</p>	<p>Ref: H/05856/13</p>	<p>Planning permission granted</p>	<p>1.5 km North</p>
<p>Former Wickes, Mercedes Benz site, Colindale, Brent</p>	<p>Demolition of existing units and erection of replacement 4-storey and 6-storey blocks above two-storey podium decks and a frontage block of 17 storeys above the podium, comprising 460 self-contained flats, 5,360m² of retail (Use Class A1 bulky goods), a 734m² garden centre, 1922m² of floorspace for alternative uses falling within Use Classes A uses (A1, A3) or B1 (a-c), and 649m² for alternative uses falling within Use Classes A uses (A1, A3) Class B1 or Class D1 (community/ health centre), 97m² of crèche facilities (Use Class D1), 281 residential car-parking spaces, 500 residential cycle-parking spaces, 172 commercial car-parking and 80 commercial cycle-parking spaces, 527m² energy centre, etc, Brent Council.</p>	<p>Ref: 08/2823</p>	<p>Under Construction</p>	<p>2.9 km North West</p>
<p>Homebase / Hydro House</p>	<p>Homebase / Hydro House: Demolition of the existing buildings, and the erection of eight blocks of apartments of 6-8 storeys with a building of 14 storeys adjacent to The Hyde (the A5, Edgware Road) and three terraced blocks comprising housing and duplex apartments, providing 386 residential units (Class C3), 936sqm of Class B1 (Business Hub), 97sqm of Class A3 use (Cafe), 295sqm of Class D1 use and 96sqm of Class D2 use. Associated car and cycle parking, storage and plant space located at basement level with private and shared residential external amenity space and landscaping</p>	<p>Ref: H/05828/14</p>	<p>Pending Consideration</p>	<p>1.6 km North West</p>
<p>Granville Road Estate</p>	<p>Demolition of Beech Court, garages and ancillary buildings and the erection of new buildings (including an extension to Nant Court) between two and six storeys in height with additional basement levels to provide 132 new dwellings (use class C3)</p>	<p>Ref: F/04474/14</p>	<p>Planning permission granted</p>	<p>0.9 km South East</p>

Peel Centre	Hybrid planning application for the phased comprehensive redevelopment of part of the existing Peel Centre site including demolition of existing buildings and the provision of a residential-led mixed use development comprising up to 2,900 new residential units; up to 10,000 sqm of non-residential floorspace (Use Classes A1-A4, D1, D2), the provision of a 3 form entry primary school and a minimum of 4ha of public open space	Ref: H/04753/14	Planning permission granted	1.8 km North
Hendon Road Football Club	Redevelopment to provide 135 residential units, associated highways works including new access from Claremont Road and removal of existing accesses; internal street network, car and cycle parking, refuse storage, landscaping and amenity space provision	Ref: H/02747/14	Planning permission granted (Site preparation underway)	0 km (adjacent to Site)
Finchley Road/Platt's Lane/Kiddepore Avenue regeneration	Redevelopment of the Site to create 128 residential units (class C3) including affordable housing and a community use facility (class D1), following demolition and conversion/refurbishment of existing buildings used for student accommodation and ancillary offices (sui generis) and construction of new buildings ranging between 3-5 storeys in height, together with associated works to create basements, car parking, landscaping and public realm improvements	Refs: 2013/0685/P and 2014/5416/P	Planning permission granted	1.1 km South East
The Crest Boy's Academy, Crest Road	Phased development comprising enabling works including demolition of existing temporary structures, formation of new access road from Dollis Hill Lane and Car park (44 Spaces), erection of temporary school accommodation (2.5 year permission): Phase 1: erection of new school buildings, comprising four no. four to six storey blocks with four storey linking structures, associated hard and soft landscaping works and car parking to provide 61 spaces, 238 no. cycle spaces. Phase 2: demolition of permanent school buildings, associated hard and soft landscaping works including one no. Multi Use Games Areas and no. all weather pitch with floodlighting.	Ref: 14/0326	Under construction	1.1 km West

Sarena House and Allied Manufacture, Grove Park.	Demolition of existing buildings and the erection of 2 to 6-storey buildings providing 227 residential units (10 x 4 bed houses, 58 x 1 bed, 101 x 2 bed, 31 x 3 bed and 27 x studio flats), 256 sqm of affordable workspace for research and development (use class B1(B), proposed vehicular access from grove Park, provision for car/bike parking on the basement and ground level and associated landscaping and amenity space.	Ref: 14/2930	Granted Consent Subject to Legal Agreement- Pending Decision	2.5 km North West
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21.3 Traffic and Transport

- 21.3.1 The BXC - DDM has been developed in collaboration with Transport for London (TfL) and LBB for the purposes of detailed design and the Technical Approvals process under the s.278 process.
- 21.3.2 The BXC - DDM consists of:
 - TfL’s strategic North London highway assignment model (NoLHAM); and
 - TfL’s public transport model (Railplan v6).
- 21.3.3 The model has been calibrated and validated in line with TfL - Group Planning’s highway assignment model guidelines.
- 21.3.4 As part of the BXC - DDM the base year traffic model incorporated committed schemes expected to be operational by the forecast years in question. These committed schemes were obtained directly from TfL. The result is that the ‘Do Minimum’ networks then had the BXC Scheme (including inherent mitigation measures) added to create the corresponding ‘Do Something’ networks. The Do Minimum matrices excluded the BXC development, while the Do Something matrices included it. Further details of the model are provided in **Chapter 7: Traffic and Transport**.
- 21.3.5 For demand changes in the future, TfL’s guidance specifies the use of their LTS (London Transport Studies) model to produce matrices of highway trips and public transport trips (bus, rail and underground) separately, using scheme-specific inputs to modify LTS’s GLA-based ‘Reference Case’¹ assumptions about future land use and demographic projections.
- 21.3.6 The transport consultants, URS has therefore confirmed that the transport modelling undertaken for detailed design (BXC-DDM) therefore accounts for the cumulative schemes identified in **Table 21.1** within the future baseline conditions. It does not include specific adjustments in relation to the individual site details however it does take them into account implicitly as the modelling includes general background traffic growth.

Construction

- 21.3.7 There is a potential that the construction of the Development will interact with works to construct the nearby West Hendon Regeneration scheme, owing to the close proximity and large scale of this cumulative scheme. The proposed start date for construction at the Brent Cross Cricklewood Development is 2016. Phases 1 and 2 of the West Hendon Regeneration scheme are understood to be complete already. Later phases of West Hendon Regeneration construction could however overlap with Brent Cross Cricklewood construction. Furthermore, given the proximity of the Plot 61 and Hendon Road Football Club sites to the Site, if construction were to occur at the same time, this too has potential for cumulative impacts.

- 21.3.8 If construction works were to overlap, there would be potential for impacts on road users as a result of additional construction related traffic and / or road closures in the area of each scheme. The construction of West Hendon Regeneration and Brent Cross Cricklewood schemes will be controlled through CoCPs and associated controls which will all need to be agreed with LBB. The CoCP for the Development requires the production of Construction Traffic Management Plans (CTMPs). These controls will make it incumbent on the Applicants' of these two schemes to provide measures (which are likely to include access routes) to minimise the impacts of construction as a result of both schemes to the satisfaction of LBB. These two schemes are by far the two largest and consequently will have the potential for the greatest impacts. The remaining schemes, Plot 61 (Edgware Road) and Hendon Road Football Club are far smaller. As a result, the construction traffic generated is anticipated to be limited from these schemes. However, the Brent Cross Cricklewood CoCP and CTMP will take into account the likely traffic generated and access routes for these two schemes.
- 21.3.9 It is anticipated that this control mechanism will be sufficient to ameliorate any exacerbation of impacts arising as a result of the schemes being constructed in tandem. In addition, operation of a Construction Consolidation Centre (CCC) as proposed by the Applicant would further reduce any cumulative impacts.
- 21.3.10 It is also concluded that short term adverse impacts arising from construction traffic generated by each scheme in the vicinity will be controlled through the implementation of the CoCP and CTMP which will have regard to any notable construction traffic from surrounding construction sites.

Operation

- 21.3.11 The BXC - DDM includes the overall growth scenario for London based on London-wide Greater London Authority (GLA) assumptions as agreed with TfL. Future growth in trips has been added to base year trips, based on the trips from nearby developments that are expected to be completed during the assessment period and trips arising from general increases in the background level of trip making (using standard growth forecasts) at the end of the assessment period. The existing traffic on the road network is combined with the traffic anticipated to be generated from the future traffic growth. This leads to a future baseline against which the traffic generated from the Scheme can be compared. This provides a basis for prediction of impacts on road users and is also used as a basis for environmental impacts arising from increased traffic (i.e. air quality and noise). Therefore, the cumulative traffic impact of these cumulative schemes is already integrated into the assessments contained within the individual chapters.
- 21.3.12 The planning determination of the surrounding sites would have been considered by the relevant planning authorities in the context of the Brent Cross Regeneration Area as a strategic policy and existing planning permissions. In the case of the Hendon Road Football Club for example, baseline traffic flows from the BXC – Consolidated Transport Assessment were utilised in the Transport Assessment for this site and then the junction capacity was analysed. LBB officers were satisfied that the development at this location would not have a significant detrimental impact on the highway network. The Planning Committee report stated *“This conclusion is also reached when the traffic impacts of relevant committed developments in the surrounding area are taken into consideration.”*

21.4 Socio-Economic

Construction

- 21.4.1 The demolition and construction phases of the Development and the cumulative schemes are expected to generate employment. In the absence of commercially sensitive information relating to the construction costs of each cumulative scheme, it is only possible to make a qualitative

assessment of the levels of employment likely to be generated. Due to the location of the schemes, nature of the construction industry, and construction employment which is relatively mobile, it is not considered appropriate to assess the potential impact of construction employment at the local level. However, it is expected that the additional cumulative schemes would generate a **beneficial** effect at the borough level.

Operation

21.4.2 The cumulative assessment presented in the s.73 ES identified that the cumulative schemes considered at that time would deliver residential units as well as commercial and community space.

21.4.3 Together, the cumulative schemes would deliver approximately 12,300 net additional homes as well as new commercial and community floorspace. An assessment of effects has been undertaken as far as possible in the absence of detailed scheme information. In the main, effects are assessed at a Borough-wide level as a standard local area cannot be defined.

Employment Generation

21.4.4 The majority of the cumulative schemes are residential-led with commercial uses forming an ancillary and place-making role. The jobs expected to be created by the cumulative schemes (approximately 1,400 net additional full time equivalent jobs) are assessed to be a **minor to moderate beneficial** impact at the borough level.

Retail Impacts

21.4.5 Collectively, the cumulative schemes are expected to deliver in the region of 23,600sqm of new retail floorspace. The additional cumulative schemes considered as part of this assessment alone are expected to bring forward c.18,100sqm of flexible town centre uses e.g. Use Classes A1, A2, A3, A4, D1, D2. The majority of this floorspace is expected to be delivered as part of the proposals for the redevelopment of the Peel Centre which is also proposing to bring forward over 2,500 new homes and the redevelopment of the Former Wickes, Mercedes Benz Site in Brent. The retail proposals for the Peel Centre envisage the creation of a food-store anchored neighbourhood centre to meet the needs of the growing localised catchment. The Retail Impact Assessment carried out as part of the planning application for the Peel Centre concluded there would be no unacceptable impacts on existing town centres but would serve to meet the needs of the growing local population. The majority of the retail expected to be delivered as part of the Former Wickes, Mercedes Benz site is restricted by condition to the sale of bulky comparison goods which was considered to conform to local policy requirements for retail warehouses.

21.4.6 Overall, the retail impact of the additional retail floorspace is assessed to be **negligible** in terms of impact on existing centres.

Wider Economic Impacts

21.4.7 By generating new jobs (including retail-related employment which tend to be taken by a more local labour force) and by bringing net additional resident populations to their respective sites, the cumulative schemes are expected to increase the level of household and worker spending some of which would be captured locally – and in turn generating further employment opportunities. This is assessed to be a **major beneficial** effect at the borough level.

Demographic and Housing Impacts

21.4.8 In total, the cumulative schemes considered as part of this assessment could deliver approximately 12,300 homes. The contribution towards housing targets of the new homes brought forward by the cumulative schemes is assessed to be a **major beneficial** impact at the borough level.

Health, Educational and Other Facilities Impacts

- 21.4.9 The residents of the new homes delivered by the cumulative schemes can be expected to generate additional demand on social infrastructure such as schools and healthcare facilities. Without mitigation, this additional demand could have a major adverse impact on the capacity of facilities in the surrounding area. However, this effect should be considered in the context that a number of the cumulative schemes are expected to bring forward community facilities as part of their proposals. For example, West Hendon and the Peel Centre both include floorspace for the provision of a new primary school. Other schemes including Plot 61 and Grahame Park Estate Regeneration also include flexible community floorspace. The Crest Boys Academy scheme will see the re-provision and expansion (by one form of entry) of an existing secondary school. The Former Wickes, Mercedes Benz site makes provision for a crèche and has flexibility for community/health centre floorspace to be delivered if required. The Homebase/Hydro House scheme also includes 295sqm for community uses. These facilities will help to meet additional demand for local social infrastructure.
- 21.4.10 Where schemes do not make physical on-site provision for community facilities, it has been assumed that any mitigation required to meet the additional demand for facilities would have been negotiated by the relevant planning authority with the applicants if and to the extent considered necessary by the authority to mitigate any significant effects, prior to planning permission being granted. Mitigation, where required, would then be expected to be provided either through off-site provision or financial contributions secured via Section 106 agreement or Community Infrastructure Levy (CIL) (where a charging schedule is in place).
- 21.4.11 The s.73 ES concluded that the most significant impacts of the cumulative schemes would be through demand for community facilities generated by an increase in the local population. Based on the reasonable assumption that Applicants for each cumulative scheme have worked through a programme of consultation and mitigation with the local authority, local community and service providers the residual cumulative impact can be considered **negligible to beneficial**.

Social Impacts

- 21.4.12 The cumulative schemes, in addition to the housing, employment generating and community floorspace they will deliver, are also expected to provide new areas of open space and play space which will enhance the attractiveness of the developments and provide opportunities for healthy behaviour. Overall, the cumulative schemes will be seeking to create an attractive and sustainable urban environment which minimises opportunities for crime through careful design. Collectively, these aspects are assessed to be a **major beneficial** effect.
- 21.4.13 The above assessment provides slightly greater detail to the assessment presented in the s.73 ES. In approving details of each planning application in the surrounding area, the local planning authority would have been required to have regard to the BXC Scheme (2010 consent and subsequently the 2014 Permission) if it was considered to be a cumulative scheme and respective application in the surrounding area was granted after the BXC Scheme 2010 consent and therefore it is reasonable to assume the authority would have secured specified mitigation measures where necessary and appropriate.

21.5 Noise and Vibration

- 21.5.1 Cumulative noise and vibration impacts can theoretically arise when adjacent parts of the Scheme produce noise and vibration that combines cumulatively at a given sensitive receptor. This could theoretically arise during construction or operation or, because of the long development timescale, through the overlapping effect of construction and operation of different elements of the Scheme.

These are discussed below in the context of the additional cumulative schemes and the details of the Phase 1A (North) RMAs.

Construction

- 21.5.2 It is theoretically possible for noise and vibration emissions from two construction projects to combine to create a greater impact than they would individually. In practice, this rarely occurs, except that the duration of exposure can be increased. There are a number of reasons why noise and vibration from separate large scale construction works tend not to combine cumulatively including; such works are rarely both sufficiently close to a given receptor; noise will tend to arrive from different directions and so be incident of different facades; the noisiest activities on the two sites are unlikely to coincide. Hence, the noise or vibration level from one or the other site usually dominates, and in practice cumulative construction impacts usually arise in terms of extending the duration of impact rather than the magnitude at a given time. The duration of noise and vibration impacts are discussed in this assessment.
- 21.5.3 The cumulative schemes identified in **Table 21.1** are unlikely to give rise to significant cumulative construction noise in combination with the Development (including Phase 1A (North) RMA components) due to their distance from the Site, with the exception of Hendon Road Football Club and Plot 61 Edgware Road.
- 21.5.4 It is understood that the residential development on the former Hendon Road Football Club site, which is directly adjacent to Clitterhouse Playing Fields, has already undergone some site preparation work. As a worst-case, if construction work at the Hendon Road Football Club site overlaps with works associated with the Clitterhouse Playing Fields Improvements Part 1 and potentially works at Plots 53/54, cumulative noise impacts may arise which could adversely affect the surrounding residential properties.
- 21.5.5 With regard to the mixed-use residential development on Plot 61, Edgware Road, again should construction work overlap with the adjacent approved phases of the Development cumulative noise impacts may arise. There would however, be no interaction with the construction works associated with the Phase 1A (North) RMAs due to the distance of this cumulative scheme to the works area.
- 21.5.6 If the aforementioned projects were to overlap with the Development, it is unlikely that construction would be undertaken at the same time adjacent to the same Sensitive Receptors, rather works at cumulative schemes will likely occur at varying times throughout the Development's delivery programme. The significance of the predicted construction noise impacts presented in the s.73 ES are therefore unlikely to change but rather there would be an increase in the duration of the impact.
- 21.5.7 In theory noise from operation of one part of the Scheme could add cumulatively to noise impacts from construction of another part nearby. In practice, because significant construction site noise impacts only arise above $L_{Aeq, period} 75dB$ and noise levels during operation will be substantially lower, such additive effects do not arise. One possible exception is the combined effect of additional road traffic arising from construction and operation on a given road. Construction traffic noise impacts assessed within the s.73 ES however remain unchanged and are therefore still valid. In conclusion, the s.73 ES stated that *'construction traffic is not expected to significantly raise traffic noise levels on the majority of the access routes to the Site because those routes are already heavily trafficked. For example, an analysis of the cumulative effect of the development and construction traffic on three major junctions (M1/A406, A5/A406, A41/A406) has shown that construction traffic expected at the end of the Phase 2 would increase peak hour noise levels by less than 0.1dB. On Brent Terrace noise levels may be significantly elevated over a period of approximately 14 months during*

construction of Phase 1, but after this it will be closed to through traffic, avoiding cumulative impacts here’.

- 21.5.8 Construction traffic on highways serving adjacent cumulative sites can theoretically combine to increase the overall impact. Provided the CEMP and CTMP for the various phases of the Development take account of the identified cumulative projects as illustrated in **Figure 4.1** (as deemed appropriate), this should mitigate potential cumulative impacts as far as practicable. For major roads with current high flow volumes it is considered the effect of combined construction vehicle flows from the various cumulative schemes is unlikely to have a significant cumulative impact. On the smaller roads used to gain access to the various development sites, cumulative impacts could be minimised through implementation of the CTMP and additionally through future use of the CCC.

Operation

- 21.5.9 The additional road traffic generated by the other known committed developments in the area has been included in the ‘Do-minimum’ traffic noise modelling (future baseline), as defined above under ‘Traffic and Transport’. The data for cumulative schemes was agreed with TfL in discussions regarding the BXC – DDM. By assessing the additive effect of the Development on top of this Do-minimum scenario, the effect of the Development has been isolated, and the total traffic noise levels (with likely future developments identified by TfL) has been considered in the noise assessment presented in **Chapter 9: Noise and Vibration**.
- 21.5.10 Similarly, the assessment of railway noise and vibration in the s.73 ES has been based on an understanding of future cumulative schemes and in particular intensification of rail services, so that the total railway noise and vibration levels with likely developments have been considered when identifying the necessary mitigation measures. These assumptions have not been revisited as part of this Report since the Phase 1A (North) RMAs do not include uses which would significantly affect the railway. These assumptions would be updated (as necessary) at the Phase 1B (RMA) stage. .
- 21.5.11 In approving details of each planning application in the surrounding area, the local planning authority would have been required to have regard to the BXC Scheme (2010 consent and subsequently the 2014 Permission) if it was considered to be a cumulative scheme and the respective application in the surrounding area was granted after the BXC Scheme 2010 consent and therefore it is reasonable to assume the authority would have secured specified mitigation measures where necessary and appropriate, in the form of building design, glazing and ventilation in order to comply with relevant standards and planning policy. The impact of the cumulative schemes on future uses is therefore considered to be negligible.
- 21.5.12 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

21.6 Townscape and Visual Impact Assessment

Construction

- 21.6.1 Of the cumulative schemes considered in the s.73 ES, potential townscape and visual cumulative impacts were identified in relation to Plot 61, Edgware Road due to its proximity to the Site.
- 21.6.2 Additionally, cumulative townscape and visual effects could arise during redevelopment of Hendon Road Football Club and Clitterhouse Playing Fields Improvements (Part 1), should works be undertaken concurrently. The Hendon Road Football Club scheme comprises 135 residential units and associated infrastructure including access roads and hard and soft landscape. This cumulative scheme directly adjoins the south western boundary of Clitterhouse Playing Fields. Site preparation

work had already been completed at the Hendon Road Football Club. Considering the extent of the groundworks on Clitterhouse Playing Fields it is considered that construction of the Hendon Road Football Club scheme would not give rise to significant cumulative impacts in combination with the construction of Phase 1A (North). Construction works associated with Clitterhouse Playing Fields Improvements Works Part 1 may have a minor adverse impact on the future residents of the Hendon Road Football Club redevelopment, although these would be temporary (i.e. the period of construction works).

Operation

- 21.6.3 Of the cumulative schemes considered in the s.73 ES, it was considered the cumulative schemes numbered 1 to 4 would not give rise to significant cumulative townscape or visual impacts in combination with the Development.
- 21.6.4 The redevelopment of Hendon Road Football Club is the only cumulative scheme identified that has the potential to give rise to cumulative townscape or visual impacts in combination with the Development due to its location within the middle of the Site adjacent to Clitterhouse Playing Fields. The other schemes including Plot 61 on Edgware Road are not considered to give rise to any significant cumulative impacts in combination with the Development due to their distance from the Site or screening from existing buildings and infrastructure.
- 21.6.5 The Hendon Road Football Club development will extend residential development eastwards across Claremont Road and create a small rectangular 'enclave'. Three apartment blocks – up to 5 storeys in height will 'front' onto the playing fields and would provide a level of natural surveillance which does not currently exist. A single row of trees between these blocks and the park would create some slight softening and filtering of the development of this site as seen from the Clitterhouse Playing Fields.
- 21.6.6 It is considered that the Hendon Road Football Club scheme would not give rise to significant cumulative impacts in combination with the Development as although this cumulative scheme would be clearly seen from most areas of the Playing Fields the form and type of development (residential) would not be seen in combination with other proposed similar elements/components of the Phase 1A (North) RMAs (such as Plots 53 and 54). These components of the Phase 1A (North) RMAs would be screened from views by existing intervening residential properties to the west of Claremont Road. The Hendon Road Football Club development would be seen 'in combination' with the parkland improvements (Part 1) within Clitterhouse Playing Fields, but these are of a different nature, character and form to that of the Hendon Road Football Club scheme. The only new built development within the Playing Fields would be the pavilion building – this is likely to be a low level small scale building and would not be seen to form an extension of the built form within the Hendon Road Football Club development.
- 21.6.7 The cumulative schemes would therefore not give rise to any significant townscape or visual effects in combination with the Development.
- 21.6.8 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

21.7 Ecology and Nature Conservation

Construction

Designated Sites

- 21.7.1 Of the cumulative schemes, the West Hendon Regeneration is the closest to Brent Reservoir / Welsh Harp Site of Special Scientific Interest (SSSI) and Local Nature Reserve (LNR) with the Homebase / Hydro House scheme next: the increase in residential properties from the BXC Scheme, the West Hendon Regeneration and Homebase / Hydro House may cause an increase in construction pollution risk and recreational pressure in the operational phase. The implementation of a CEMP for the West Hendon Regeneration development should control for an increase in dust and run-off during construction.
- 21.7.2 The former Hendon Road Football Club is surrounded by the Site in the centre by Clitterhouse Playing Fields SLINC and has already been subject to some site preparation work. There may be a short amount of time where the construction of this cumulative scheme and the Development overlap, in which case there may be cumulative impacts from an increase in dust, noise and lighting. However it is generally expected that a CEMP would be produced for surrounding cumulative schemes in order to control these impacts. If a CEMP were in place at Hendon Road Football Club, the cumulative residual impacts on ecological receptors will be considered to be negligible.
- 21.7.3 The other cumulative schemes are not considered to give rise to a significant cumulative impact on the SSSI / LNR. In approving details of each planning application in the surrounding area, the local planning authority (in consultation with Natural England) would have had regard to the Development (2014 Permission) and specified mitigation measures if appropriate for each development.

Direct Mortality and Injury to Protected Species

- 21.7.4 The cumulative schemes all have the potential to give rise to direct mortality and injury to protected species particularly during construction. However, the local planning authority would require protected species surveys and where appropriate, mitigation and monitoring, and /or Natural England licence. It is therefore reasonable to conclude that there are unlikely to be significant cumulative impacts upon protected species from the cumulative schemes.

Disturbance

- 21.7.5 The West Hendon Regeneration is in close proximity to Brent Reservoir / Welsh Harp SSSI and LNR, with Homebase / Hydro House also close by. A CEMP would be expected to have been produced for the West Hendon Regeneration to control risks of pollution incidents including dust during construction however we cannot confirm if this is the case, Homebase / Hydro House is considered to be too faraway for this to be an impact and it is also expected that a CEMP will be provided here.
- 21.7.6 The Hendon Road Football Club is located in the centre of the Site adjacent to Clitterhouse Playing Fields SLINC. Plot 61, Edgware Road is directly adjacent to the Site to the west. There may be a short amount of time where construction of these two developments overlap with the Development, in which case there could potentially be cumulative impacts from an increase in dust, noise and lighting. As per the text for 'designated sites' a CEMP is in place at the cumulative schemes the cumulative residual impacts are considered to be negligible. The Hendon Road Football Club is required to submit a Demolition/ Construction Management Plan (DCMP).

Habitat Damage, Loss and Creation

- 21.7.7 The West Hendon, Plot 61, Edgware Road, Homebase / Hydro House and Granville Road Estate all involve the demolition of buildings, therefore, if present, bat roosting habitat could be lost. However the local planning authority would normally require comprehensive protected species surveys and where appropriate, mitigation and monitoring, under a Natural England licence, if bats were considered to be using these buildings. Based on this assumption, it is reasonable to conclude that

there is unlikely to be significant cumulative impacts upon bats from the cumulative schemes and the Development.

Pollution and Other Indirect Impacts

- 21.7.8 The Hendon Road Football Club is surrounded by the Development Site including Clitterhouse Playing Fields SLINC. Plot 61, Edgware Road is directly adjacent to the Site to the west. Site preparation for construction at Hendon Road Football Club scheme had been undertaken at the time of writing. There may be a short amount of time where construction of the latter cumulative scheme overlap, in which case there may be cumulative impacts from an increase in dust, noise and lighting. As stated above, the Hendon Road Football Club is required to submit a DCMP prior to construction which should, in combination with the CEMP (or other appropriate measures) if considered necessary by the local planning authority for the Development, minimise cumulative impacts as far as practicable.
- 21.7.9 West Hendon Regeneration is in close proximity to Brent Reservoir / Welsh Harp SSSI and LNR, the West Hendon development and the Development together may result in an increased risk in construction pollution impacts. Cumulative pollution risks would be controlled through implementation of respective CEMPs for each cumulative scheme (or other appropriate measures) if considered necessary by the local planning authority and therefore would be minimised as far as practicable.

Operation

Designated Sites

- 21.7.10 The nature of the Brent Reservoir / Welsh Harp SSSI / LNR and its interest (waterbirds) is unlikely to be adversely affected by a small increase in visitor numbers during operation as the main bird interest is in refuge areas screened by trees and with facilities (bird hides) which cope well with land based visitors. In addition, the phasing of the Development to include significant improvements to existing areas of open recreational space (e.g. Clitterhouse Playing Fields Improvements (Part 1)) would ensure that green infrastructure was available on Site to mitigate potential remaining recreational pressure impacts on the SSSI / LNR.
- 21.7.11 The cumulative schemes including Hendon Road Football Club are not considered to give rise to a significant cumulative impact on the SSSI / LNR during operation.

Direct Mortality and Injury to Protected Species

- 21.7.12 In consideration of the proposed operations of the cumulative schemes it is unlikely that they would give rise to direct mortality and injury to project species during operation, therefore it is reasonable to conclude that there are unlikely to be significant cumulative impacts upon protected species from the cumulative schemes.

Disturbance

- 21.7.13 The West Hendon Regeneration is in close proximity to Brent Reservoir / Welsh Harp SSSI and LNR. The increase in residential properties may result in an increased risk of pollution during operation and, in conjunction with the Homebase / Hydro House scheme, recreational pressure. The phasing of the Development to include green infrastructure in each residential area would ensure that suitable green space was available on Site to mitigate additional recreational pressure impacts on the SSSI / LNR as far as practicable. Also, the nature of the Brent Reservoir / Welsh Harp SSSI / LNR and its interest (waterbirds) is unlikely to be adversely affected by a small increase in visitor numbers during operation as the main bird interest is in refuge areas screened by trees and with facilities (bird hides) which cope well with land based visitors

21.7.14 The details of the Phase 1A (North) RMAs in themselves do not generate significant cumulative impacts not previously identified in the s.73 ES.

21.8 Water Resources and Flood Risk

Construction

21.8.1 Cumulative effects to water resources during demolition, construction processes and operation are associated with the generation of sediments, discharge into the sewer drainage network; spillage and leakage of oils and fuels; leakage of wet concrete; cement and disturbance of contaminated land; foul drainage and an increase in water demand.

21.8.2 Measures exist to manage and control these effects and reduce the magnitude and significance of effects to a minimum. These measures should also be adopted at other local construction sites as a matter of standard practice if considered necessary by the local planning authority. Therefore, as a result of these control measures (if necessary), and the fact that not all development sites in the area will discharge into receiving surface waters or groundwater at exactly the same time, the cumulative effect is considered to remain negligible to minor adverse as identified in Table 12.5 of the s.73 ES.

Operation

21.8.3 The effects on environmental quality associated with positive improvements to water quality and encouragement of restoration in other reaches of the River Brent remain minor to major positive as identified in the s.73 ES.

21.8.4 The details of the Phase 1A (North) RMAs in themselves do not generate significant cumulative impacts not previously identified in the s.73 ES.

21.9 Archaeology and Cultural Heritage

21.9.1 A review of the cumulative schemes as presented in **Table 21.1** has determined that three of the ten cumulative schemes could potentially give rise to cumulative impacts, namely:

- West Hendon Regeneration (which has similar potential for prehistoric settlement along the River Brent valley, potential for remains of Watling Road, and potential for Saxon, Medieval and Post-Medieval settlement);
- Plot 61, Edgware Road, Former Parcel Force Depot (where a watching brief was recommended despite low potential and high levels of truncation associated with the creation and operation of the rail line); and
- Hendon Road Football Club, Claremont Road (which also lies within the Child's Hill (3a) ASAS, although with much higher potential for severe truncation to have affected archaeological deposits).

21.9.2 Based on the findings of **Chapter 13: Archaeology and Cultural Heritage** and a review of the cumulative schemes, although some of the cumulative schemes impact on the same archaeological resources (such as the Child's Hill ASAS and Roman Road) the magnitude of these impacts would not be as great as those of the Development. The cumulative impacts are not considered to be significant.

21.9.3 The details of the Phase 1A (North) RMAs in themselves do not generate significant cumulative impacts not previously identified in the s.73 ES on archaeology or cultural heritage.

21.10 Air Quality and Dust

Construction

21.10.1 Air pollutant emissions from construction activities associated to the Development and other cumulative schemes may have a significant cumulative impact if:

- Fugitive dust from on-site demolition or construction activities are likely to impact the same sensitive receptors during the same period of time; and
- Construction vehicles are likely to use the same haulage routes to bring construction materials / remove waste materials from/to the construction sites during the same period of time, therefore increasing air pollutant emissions along these roads.

Construction Dust

21.10.2 As discussed in **Chapter 14: Air Quality**, dust emissions from on-site demolition or construction activities generally do not have any significant impact beyond 200m of the construction site boundary, as a worst-case scenario (without mitigation measures in place). Therefore, nearby developments that could reasonably contribute to cumulative adverse impacts are those within 400m from the Site boundary. Based on the above, the following nearby cumulative schemes have been considered, due to their proximity to the Site:

- West Hendon Regeneration;
- Plot 61, Edgware Road, Former Parcel Force Depot; and
- Hendon Road Football Club.

21.10.3 Some site preparation work has commenced at the Hendon Road Football Club and depending on the timing of construction work, there is the potential for this scheme to overlap with the work at Plots 53 and 54 and Clitterhouse Playing Fields Improvements (Part 1). There is therefore the potential for cumulative impacts should the two schemes be under construction at the same time.

21.10.4 The West Hendon Regeneration development was under construction at the time of writing, but given the size of the development, it is unlikely that it will be completed before the construction starts on the Development, and the potential for cumulative impacts cannot be ruled out. Given the location of this development in relation to the Site, sensitive receptors that could be affected by cumulative impacts include residential properties, both sites of the M1 between the Station Road and Park Road bridges (A5 West Hendon Broadway, Brent View Road, and Mount Road).

21.10.5 The development at Plot 61, Edgware Road has been approved, but construction has not started, so again cumulative impacts are possible during construction of this scheme and the Development. Given the location of this cumulative scheme (directly adjacent to the southwest boundary of the Site along the A5 Edgware Road), and its relative small size, sensitive receptors that could be affected by cumulative impacts should be limited to residential properties across the A5 on Oxgate Gardens, Dollis Hill Lane, Dollis Hill Avenue and Gladstone Park Gardens.

21.10.6 Emissions of dust from construction activities would be minimised following the implementation of best practice mitigation measures detailed in each development's CEMP/CoCP (or other appropriate measures) if considered necessary by the local planning authority. Based on this, the cumulative impact is likely to be, at worst, **slight adverse** for those properties identified above. Any adverse impact would be **temporary** and **short-term**.

Construction Vehicles

- 21.10.7 Heavy Goods Vehicles (HGV) traffic generated by demolition and construction works on nearby development sites may lead to cumulative adverse impacts at sensitive receptors along the main haulage routes identified for the Development, if this traffic is likely to use the same routes.
- 21.10.8 The main potential risk of adverse cumulative impacts is likely to be due to construction traffic generated by the West Hendon Regeneration, due to its size. Construction traffic from the West Hendon development will be controlled by a CTMP, to be approved by LBB, as it would from the Development. It is therefore likely that, provided mitigation measures detailed in the CTMP are implemented effectively, the cumulative impact of construction traffic on air quality in combination with the Development is likely to be **negligible** even if these schemes overlap. Impacts from construction vehicles arising from the Development would be further minimised through implementation of the CCC.

Operation

- 21.10.9 The additional road traffic generated by the other cumulative schemes in the area has been included in the 'Do-minimum' traffic noise modelling (future baseline), as defined above under 'Traffic and Transport'. The data for cumulative schemes was agreed with TfL in discussions regarding the BXC – DDM. By assessing the additive effect of the Development on top of this Do-minimum scenario, the effect of the Development has been isolated, and the predicted air quality (with likely developments in place, as identified by TfL) has been considered in the assessment presented in **Chapter 14: Air Quality and Dust**. The modelling does not include specific adjustments in relation to the new planning permissions that have been identified as part of the s.73 ES (i.e. Former Colindale Hospital). However, it does take them into account implicitly as the modelling includes general background traffic growth. The cumulative air quality impacts on future uses is therefore as reported in **Chapter 14: Air Quality and Dust**.
- 21.10.10 In approving details of each planning application in the surrounding area, the local planning authority would have had regard to the 2014 Permission and specified mitigation measures where appropriate in accordance with policy DM04 of the Adopted Barnet Development Management Policies DPD (2012). As an example, the planning condition attached to the Hendon Road Football Club planning permission states *"Before the development hereby permitted commences, a scheme of proposed air pollution mitigation measures shall be submitted to and approved in writing by the Local Planning Authority. The approved mitigation scheme shall be implemented in its entirety before any of the units are occupied."*
- 21.10.11 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

21.11 Ground Contamination

Construction

- 21.11.1 The enabling / preparation works for the Phase 1A (North) development include remediation of land contamination risks associated with part of the infrastructure works. The standard of remediation will be appropriate to achieve "suitable for use" status, as agreed with the regulatory authorities and as demonstrated through the provision of verification reporting on completion of remediation. Remediation of these contamination sources represents a moderate beneficial reduction in risk for the Development.
- 21.11.2 It is considered that the residual impact of the Phase 1A (North) RMAs on ground conditions will be **negligible** taking into consideration the adoption of the inherent mitigation measures described within **Chapter 15**. Only one of the cumulative schemes is adjacent to the Phase 1A (North) RMAs,

the Hendon Road Football Club. Ground contamination at this area of the Site by Clitterhouse Playing Fields is not considered to be high risk and works proposed at the Hendon Road Football Club is unlikely to require very deep piling, therefore the cumulative impacts reported in the s.73 ES of negligible significance are considered to remain valid.

21.11.3 The details of the remediation and construction of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

Operation

21.11.4 No cumulative impacts are identified for the operation of the Development in conjunction with the cumulative schemes listed in **Table 21.1** in relation to land quality or hydrogeology. All the cumulative schemes however have the potential to give rise to an improvement in land quality through remediation of on-site / near site contamination sources which would be moderate to major beneficial.

21.11.5 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

21.12 Waste

Construction

21.12.1 In consideration of the size and location of the cumulative schemes, it is anticipated that there would be significant construction waste impacts with the surrounding schemes. The proposed use of a CCC and Demolition and Site Waste Management Plan (DSWMP) in relation to the Development would however reduce the pressure on local waste services during the construction period of the Development to reduce the potential for cumulative impacts.

Operation

21.12.2 In consideration of the updated cumulative scheme list, it is not anticipated that there would be significant operational cumulative impacts for waste with the surrounding schemes. Those schemes which lie within LBB's boundary are expected to also plan to use Council's waste collection and disposal systems therefore increasing the existing demand significantly in combination with the Development. It is however noted that the larger scale schemes such as this Development normally have provision for on-Site waste management systems which will support and enhance the existing Council services.

21.12.3 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts in relation to waste.

21.13 Wind Microclimate

Construction

21.13.1 Potential construction cumulative impacts are not considered significant as no significant residual impacts have been identified for wind during the construction phase of the Development.

Operation

21.13.2 The following cumulative schemes are considered to be relevance to the wind microclimate assessment due to their proximity to the Site and have been tested as part of the wind tunnel testing:

- Plot 61, Edgware Road, Former Parcel Force Depot; and
- Hendon Road Football Club.

21.13.3 Other cumulative schemes were not considered to have the potential to give rise to cumulative impacts due to their distance from the Site.

21.13.4 Wind tunnel testing, as reported in **Appendix 17A.1**, confirms that when tested with the maximum height parameters of the 2014 Permission the above cumulative schemes would have a **negligible** cumulative impact.

21.13.5 The details of the Phase 1A (North) RMAs in themselves do not generate any significant cumulative impacts not previously identified in the s.73 ES.

21.14 Daylight, Sunlight and Overshadowing

21.14.1 Based on the outcomes of the assessment and consideration of the updated cumulative schemes it is not considered any of the surrounding cumulative schemes are in close enough proximity to Phase 1A (North) elements to result in significant cumulative impacts on daylight, sunlight or overshadowing.

21.15 TV, Radio and Mobile Reception

21.15.1 It is considered unlikely that any significant impacts would result from the cumulative schemes in combination with the Development due to the lack of tall buildings within these schemes. This is primarily due to the scale of the cumulative schemes and their distance from the Site.

21.16 Carbon Dioxide Emissions

21.16.1 In consideration of the impact assessment for CO₂ emissions and in particular the study area for the assessment in Chapter 19, it is not deemed possible to quantify the cumulative impacts of the surrounding schemes in combination with the Development as the scale of assessment is too large and complex. It is however considered that the CO₂ emission assessment in the s.73 ES provides a conservative estimate of emissions from the Scheme which is of a large magnitude considering the study area covers six boroughs of north London. It is unlikely that the surrounding cumulative schemes would have a significant contribution on top of the Development's estimated emissions, however each scheme should have its own sustainability strategy (or other appropriate measures) if considered necessary by the local planning authority to ensure emissions are controlled and mitigated where possible. It is therefore considered that the impact from the Development in combination with the surrounding schemes would be 'negative' as assessed for the Development in isolation.

Reference

ⁱ TfL's Reference Case growth scenarios comprise two components: general background growth, and development growth that is attributable to specific, usually large scale committed developments such as OAPFs. These components are referred to as 'structural' and 'development' growth respectively.