

2. Description of Phase 1A (North) RMAs

2.1 Introduction

- 2.1.1 This section presents a description of the various components of Phase 1A (North) that are now the subject of RMAs. This description of the Phase 1A (North) RMAs supplements that of Chapter 2: Vision for the Site presented in the s.73 ES which described the ‘EIA development’ and forms the basis of this Report.
- 2.1.2 An overview of the consented Scheme, as defined by the 2014 Permission is also provided. A detailed description of the Scheme, as defined by the 2014 Permission, is not provided as this remains consistent with that of the s.73 ES unless otherwise stated.
- 2.1.3 The Phase 1A (North) RMAs are accompanied by a series of Design Development Reports (DDRs) which have been referred to in the preparation of this Chapter together with relevant planning application drawings, a selection of which accompany this Chapter as detailed in **Table 2.1**. The selection of Figures is provided in **Volume 2** of this Report.

Table 2.1: Planning Drawings applicable to Phase 1A (North) RMAs

Figure Reference	Title
2.1	Phase 1A (North) Development
2.2	Development Zones
2.3	Proposed Highway Infrastructure for Phase 1A (North)
2.4	Phase 1A (North) Bridges
2.5	Living Bridge Overview
2.6	Living Bridge Access and Cross Section
2.7	Living Bridge Landscaping Plans
2.8	River Brent Realignment Location
2.9	Reach 1 of the River Brent Realignment
2.10	Reach 2 of the River Brent Realignment
2.11	Reach 3 of the River Brent Realignment
2.12	Temporary Bus Station and Bus Stops General Layout
2.13	Temporary Bus Station Plot 114 Plan
2.14	Temporary Bus Stops Plot 113 Plan
2.15	Claremont Park Proposal and Planting Strategy
2.16	Claremont Park Access and Circulation
2.17	Clitterhouse Playing Fields Proposal
2.18	Clitterhouse Playing Fields Sports and Play Provision
2.19	Clitterhouse Playing Fields Planting Strategy
2.20	Clitterhouse Playing Fields Access and Circulation
2.21	Central Brent Riverside Park Proposal

Figure Reference	Title
2.22	Central Brent Riverside Park Planting Strategy
2.23	Central Brent Riverside Park Access Strategy
2.24	Plots 53 and 54 Planting Strategy
2.25	Plot 53 Layout
2.26	Plot 54 Layout
2.27	Plots 53 and 54 Typical Block Section

2.2 The 2014 Permission

- 2.2.1 The Applicant is seeking reserved matters approval for elements of Phase 1A (North) in line with the 2014 Permission. The Phase 1A (North) proposals within this RMA are in line with the parameters and principles of the 2014 Permission except where approval has already been sought under Planning Conditions 2.4 and 2.5 for minor deviations to the Scheme (refer to **Section 4.5** for further details).
- 2.2.2 The overall vision of the area as outlined in the Revised Development Specification & Framework (RDSF) which accompanied the 2014 Application is centred on the Scheme creating a new gateway for London and a vibrant urban area for Barnet. The Scheme would be at the centre of a new mixed-use town centre developed on both sides of the A406 North Circular Road, along a new high street. The existing Brent Cross Shopping Centre would be integrated with new uses such as business, hotel and residential linked to a network of new streets and squares, with the intention for the Site to attract people day and night to create a vibrant new destination.
- 2.2.3 The overall floorspace and land use mix for the Development as defined by the 2014 Permission remains valid and is presented in **Table 2.2** for reference.

Table 2.2: 2014 Permission Consented Floorspace

Floorspace Class	Total m ²
Residential (Class C3) (approx. 7,550 units) of which a maximum of 750 units can be special needs (Class C2), student housing (<i>Sui Generis</i>) or sheltered accommodation (Class C3)	712,053
Retail and Related Uses North of A406 (Classes A1, A2, A3, A4 and A5)	78,133
Of which the net addition of Comparison Retail (Class A1)	55,000
Retail and Related Uses South of A406 (Classes A1, A2, A3, A4 and A5)	32,794
Business (Class B1)	395,297
General Industrial/Storage & Distribution inc. Waste Handling Facility and Rail Freight (Classes B2, B8 and <i>Sui Generis</i>) (of which 6,500sq.m may be used within Use Classes B1, B2 and B8 as small units)	61,314
Hotel (Class C1)	61,264
Leisure (Class D2)	26,078
Private Hospital (Class C2)	18,580
Community Facilities (Class D1)	34,615
Rail & Bus Stations (<i>Sui Generis</i>)	2,533

- 2.2.4 The Illustrative Masterplan included within the RDSF of the 2014 Permission presented one way in which the Scheme could be delivered within the controls and constraints of the 2014 Permission. This Masterplan has been updated with the details of the Phase 1A (North) RMAs to provide a Revised Illustrative Masterplan as shown in **Figure 2.1**.
- 2.2.5 The Site is divided into Development Zones which relate to the character of each area (as shown on **Figure 2.2**). The Development Zones are unaffected by the Phase 1A North RMAs but are set out below as they are referred to in the document:
- **Brent Cross East** - Mixed use development including retail, residential, business, leisure in addition to community facilities and enhanced public transport facilities.
 - **Brent Cross West** - A mainly residential development configured around a realigned River Brent.
 - **Market Square** – Mixed use development, principal land uses include retail with residential uses. The Zone also includes hotel accommodation and community facilities, including leisure floor space.
 - **Eastern Lands** - Mixed use development comprising an education campus, private health care facilities, in addition to business and retail use and residential units.
 - **Station Quarter** – A new mainline railway station and business floorspace. The Zone also includes residential, retail and leisure uses.
 - **Brent Terrace** – New residential development with retail and education facilities.
 - **Railway Lands** – Primarily industrial development including the Rail Freight and Waste Handling Facility and some business use.
 - **Cricklewood Lane** – Mixed use development including residential, retail and healthcare facilities, in addition to improvements to Cricklewood Railway Station.
 - **Clitterhouse Playing Fields** – Improved and enhanced existing open space, including dual use education and community facilities.
- 2.2.6 The 2014 permission was largely granted in outline, although included nine road junctions referred to collectively as the 'Gateway Junctions', which were submitted and approved in *detail*. Five of these junctions (as listed below) lie within the Phase 1A (North) development phase and therefore are included within the highway network plans for these RMAs, although as details have already been approved, further planning approval is not required for these elements of the Scheme. The junctions in Phase 1A (North) which already have detailed planning approval are as follows:
- A406 Brent Cross Ingress/Egress Junction Improvements;
 - A41/A406 Junction Improvements;
 - M1/A406 and A5/A406 Junction Improvements;
 - A407 Cricklewood Lane/Claremont Road Junction Improvements; and
 - A5/A407 Cricklewood Lane Junction Improvements.
- 2.2.7 In addition to the s.73 ES, key planning documents of the 2014 Permission which have been referred to in the preparation of this Report include:
- RDSF (**BXC01**);
 - Revised Design and Access Statement (RDAS) and Revised Design Guidelines (**BXC03**);
 - Consolidated Transport Assessment (**BXC05**);

- Revised Public Realm and Open Space Strategy (**BXC07**);
- Revised Environmental Sustainability Statement (**BXC08**);
- Addendum to the Construction Impact Assessment (**BXC21**);
- Planning Conditions of the 2014 Permission; and
- Section 106 Agreement related to the 2014 Permission.

2.2.8 The above documents with BXC references are available for download at <http://brentcrosscricklewood.com/planningapps/2013/planningapp.php>

2.3 Overview of Phase 1A (North) RMAs

2.3.1 The Scheme as per the 2014 Permission is divided into Development Phases which relate to the sequencing of demolition and construction work across the Scheme. Features of the Scheme have been assigned to an appropriate Development Phase which considers the timing of demolition and construction of each feature to ensure infrastructure is in place prior to new residents or users occupying the Site and to ensure compliance with the planning conditions of the 2014 Permission. Phase 1A (North) is the first development phase to be brought forward in line with the 2014 Permission and the extent of this Development Phase and its features are shown on **Figure 2.1**.

2.3.2 Phase 1A (North) is defined by three main RMAs, which are described in further detail in the sections below:

- **Phase 1A (North) (Infrastructure):** roads and bridges including the replacement Templehof and Living Bridges, the River Brent realignment and associated bridges, and the Temporary Bus Station and Bus Stops;
- **Phase 1A (North) (Open Spaces):** includes the Clitterhouse Playing Fields Improvements (Part 1), Claremont Park Improvements, the Central Brent Riverside Park and Nature Park NP5; and
- **Phase 1A (North) (Development Plots) - Brent Terrace Plots 53 and 54:** 47 replacement residential units for those lost at the exiting Whitefield housing estate within the Site which will be demolished in order to deliver the Living Bridge.

2.3.3 Whilst the above elements are the subject of three separate RMAs, they are considered as a whole for the purposes of this Report. Each of the RMAs is subject to an **Explanatory Report** produced by the planning consultants Quod, which sets out the content and detail of the RMA. The Explanatory Reports also demonstrate conformity of the detailed design with the parameters and principles described in the RDSF, including Parameter Plans (as amended).

Further Relevant Details to be Submitted

2.3.4 In addition to the elements of Phase 1A (North) listed above, temporary works will be required during the construction phase to facilitate construction of elements of the Phase 1A (North) RMAs. The temporary works will include features such as a temporary bus station (due to the River Brent and Prince Charles Drive realignment), a temporary pedestrian bridge, temporary car parks surrounding the Shopping Centre and construction compounds. The detailed design of these features is dependent on further options analysis which has only been possible to refine following the final detailed design plans of the permanent Phase 1A (North) elements of the Development.

2.3.5 Details of the Temporary Bus Station and Bus Stops are included within the Infrastructure RMA and as such have been assessed within this ES Further Information Report. Commentary is provided on the relevant baseline conditions, impacts and mitigation in each technical chapter. A summary of the key

findings is also reported in the Intermediate Years Assessment in Chapter 20. The Temporary Bus Station and Bus Stops are proposed to be operational for a four year period during construction works.

- 2.3.6 Details of other temporary works including roads, bridges, car parks and compounds will be provided for approval pre-commencement of works in line with construction-related conditions including the construction management plan. At this point any necessary environmental assessments will be carried out and the results reported to the local authority accordingly.
- 2.3.7 The detailed design for each element of the RMAs has been the subject of ongoing consultation with LBB, Transport for London (TfL), Highways Agency, Environment Agency, other statutory bodies and interested groups. A series of public exhibition events for the Phase 1A (North) RMAs including Plots 53 and 54 buildings and the open spaces were also undertaken in October 2014.

2.4 Infrastructure

- 2.4.1 The infrastructure included in the Phase 1A (North) RMAs contains the following elements:
 - **Primary and secondary routes:** new roads, junctions and routes to link the future Scheme to the existing infrastructure;
 - **Engineering works:** alteration and diversion of the River Brent to allow for future development plots and relocation of the Brent Cross Bus Station works north of the A406;
 - **Bridge structures:** upgrade of the existing Templehof Bridge over the A406 (B1), River Brent bridges, the Living Bridge (B7) and a new pedestrian and cycle bridge at the M1 junction (B6); and
 - **Temporary Bus Station and Bus Stops:** provision of a temporary facility to operate for a period of approximately four years while the new permanent bus station is under construction.
- 2.4.2 The location of the infrastructure components being submitted as part of the RMA are identified on **Figure 2.3** and are summarised in **Table 2.3**. The location of Development Zones referred to are shown on **Figure 2.2**.

Table 2.3: Phase 1A (North) Infrastructure RMA Content

Type of infrastructure	Infrastructure item	Description	Relevant Approved plan
Primary and Secondary Routes	Claremont Avenue	<p>The route in the Market Quarter Zone which links the new Claremont Road North Junction with Tilling Road.</p> <p>The new Claremont Avenue will run between Claremont Road to the south and Tilling Road to the north forming junctions with Claremont Road / Claremont Park Road Orchard Lane / Templehof Link Road and Tilling Road.</p> <p>The road is partially located on land currently occupied by the Whitefield Residential Estate. The road will predominantly act as the main route for local traffic travelling north on Claremont Road, wishing to join Tilling Road. The road will effectively replace an existing section of Claremont Road, which runs between Whitefield and Mapledown Schools, and the Whitefield Residential Estate.</p>	Parameter Plan 002
	Templehof Avenue and Link Road	The route connecting Claremont Avenue and Templehof Avenue within the Market Quarter Zone.	Parameter Plan 002

Type of infrastructure	Infrastructure item	Description	Relevant Approved plan
		<p>The new Templehof Avenue will provide a link with the southern end of the replacement A406 Templehof Bridge. Northbound vehicles will be able to access the bridge via High Street South and Templehof Avenue. Southbound vehicles will exit the bridge onto Templehof Avenue and then either turn onto Templehof Link Road to access Tilling Road or continue southwards towards Claremont Avenue.</p> <p>A segregated cycle/footway will run along the western side of Templehof Avenue extending along Claremont Avenue and Templehof Bridge. A bus lane will also be provided on the northbound carriageway extending over Templehof Bridge. The bus lane on the southbound carriageway from Templehof Bridge will not extend to Templehof Avenue, however a bus stop will be provided to the south of Templehof Link Road.</p> <p>Templehof Link Road will form a signalised junction with both Claremont Avenue and Tilling Road. Claremont Avenue will be entry only at the junction and vehicles will then continue to a signalised junction with Tilling Road. Claremont Avenue will not be accessible for vehicles using the Link Road.</p>	
	Tilling Road West Re-alignment and Diversion (Part 1)	<p>The west section of Tilling Road will be realigned as part of the proposals to link to the newly configured Staples Corner and to provide a revised point of access to Brent Terrace North. A footway will be provided on the southern side to cater for pedestrians and the two bus stops on the eastern end in the vicinity of the roundabout will be re-provided.</p> <p>Tilling Road west extends from around the new Claremont Avenue to the M1/A406 roundabout.</p>	Parameter Plan 002
	Prince Charles Drive Diversion	<p>The diversion of Prince Charles Drive will run between the western and eastern roundabouts for the shopping centre and will run between the A406 to the south and the River Brent to the north.</p> <p>Prince Charles Drive will also provide access to the basement service areas as well as the new bus station and future plots which will come forward as part of sub-phase 1B (North).</p> <p>The western roundabout design will include signalised traffic junctions and now includes a central through-road which additionally controls the traffic flows in this area.</p>	Parameter Plan 002
	Claremont Road Junction North	<p>The Claremont Avenue / Orchard Lane / Claremont Park Road junction will be provided in the form of a new signalised junction. Pedestrian crossings and advanced stop line markings will be provided on each arm to allow pedestrians and cyclists to pass through the junction safely. A right turn lane will be provided for vehicles travelling southbound along Claremont Avenue to turn into Claremont Park. A left turn will also be provided for vehicles travelling northbound along</p>	Parameter Plan 002

Type of infrastructure	Infrastructure item	Description	Relevant Approved plan
		<p>Claremont Road to turn into Claremont Park Road without waiting at signals.</p> <p>It should also be noted that Clitterhouse Road will form the minor arm of a new priority junction with Claremont Road to the south of Claremont Road north junction. Vehicles travelling along Clitterhouse Road will therefore need to give-way at the junction before turning onto Claremont Avenue to the north or Claremont Road to the south.</p>	
	Claremont Avenue Junction with Tilling Road	<p>The creation of a new junction between the existing Tilling Road and new Claremont Avenue and including realignment of Tilling Road as may be necessary in order to accommodate Bridge Structure B7 (Living Bridge).</p> <p>The Tilling Road / Tempelhof Link Road / Claremont Avenue junction will be provided in the form of a signalised junction. Vehicles will turn directly onto Claremont Road from Tilling Road to travel southbound towards Claremont Road. Vehicles travelling northbound to access Tilling Road will firstly need to turn right onto the Tempelhof Link Road before reaching the signalised junction.</p>	Parameter Plan 002
	High Street South (East Works)	<p>Part of High Street South within Market Quarter zone.</p> <p>High Street South runs west from Market Square toward the new railway station. The route will act as a multi modal corridor and will be bounded by mixed use development.</p> <p>High Street South (East Works) will provide a link between Claremont Avenue and Tempelhof Avenue forming a junction with Claremont Avenue at its eastern extent. Two new bus stops will be accommodated along the link (one on each side) and a segregated cycle / footway will be provided on the southern side. High Street South will provide access to Market Square when this comes forwards (currently proposed to form part of sub-phase 1B (South)).</p>	Parameter Plan 002
	Orchard Lane	<p>Orchard Lane will be a new road linking with the new Claremont Avenue / Claremont Park Road / Claremont Road signal junction. Orchard Lane will form the eastern arm of this junction enabling a link with Prayle Grove and the associated residential areas served from Prayle Grove.</p>	Parameter Plan 002
	Brent Cross Pedestrian Underpass Works	<p>Such works to the existing pedestrian underpass beneath the A41 adjacent to the Brent Cross East Zone to include improvements to pedestrian links between the underpass and Brent Cross Shopping Centre, marked "U3" on Parameter Plan 002.</p>	Parameter Plan 002

Type of infrastructure	Infrastructure item	Description	Relevant Approved plan
Engineering Works	Eastern, Central and Western River Brent Alteration & Diversion Works	<p>The alteration and diversion works to the River Brent. This encompasses the stretch of the river between the M1 slip road onto the A406 North Circular in the West and the A41 Brent Cross flyover in the east.</p> <p>Reconfiguration of the channel, south of the Shopping Centre, is designed to allow creation of the pedestrianised High Street North but also an attractive resource for the new and existing community, address current flooding problems and enhance biodiversity.</p> <p>The works will be delivered in stages. The first will involve alterations to the eastern section around the new internal roundabout, created as a result of the A406/A41 modifications and particularly the new slip road off the A406, as well as around the western internal roundabout and River Brent Nature Park. The eastern section will be completed in line with the A41/A406 junction works.</p>	Parameter Plan 011
Bridge Structures	Bridge Structure B1 (Replacement A406 Templehof Bridge)	<p>The creation of a replacement road bridge to provide a link over the A406 to link Market Quarter and Brent Cross East and West Zones to include provision for bus lanes, step free access, pedestrian access and cycle access (without dismounting).</p> <p>The bridge will be a replacement for the existing Templehof Bridge, which needs improvement both in terms of capacity and visual appearance.</p> <p>The bridge will provide 4 traffic lanes (two of which will have a public transport priority) as well as pedestrian and cyclist facilities.</p> <p>The replacement bridge will be located immediately to the east of the existing Templehof Bridge.</p>	Parameter Plan 002
	River Brent Bridges (as relevant to the Eastern, Western and Central River Brent Alteration and Diversion Works)	<p>The bridges across the Eastern and Central sections of the river will be used for a combination of vehicular, pedestrian and cycle access to improve the accessibility of circulation within the Site. The bridges across the Western sections of the river will be for pedestrian and cyclists only.</p> <p>Ten new bridges (see Figure 2.4) in total will span the River Brent within the Brent Cross East and West zones. The bridges consist of two pedestrian and cyclist only bridges and eight vehicular bridges.</p> <p>Across the Central sections of the River Brent up to four vehicular bridges will be provided.</p> <p>The vehicular bridges which form part of the eastern and western internal roundabouts form part of the overall road infrastructure proposals for these RMAs.</p>	Parameter Plan 003 Parameter Plan 011
	Bridge Structure B6 (M1 Junction)	<p>The creation of a new pedestrian and cycle bridge to provide a link between the Site at the Station Quarter Zone to the</p>	Parameter Plan 002

Type of infrastructure	Infrastructure item	Description	Relevant Approved plan
	Pedestrian and Cycle Bridge)	<p>existing communities north of the Site to include practicable provision for step free access and cycle access (without dismounting).</p> <p>The new bridge will connect the BXC development with the existing pedestrian and cycle facilities at the Staples Corner junction (see Figure 2.4, bridge number 11), as an existing railway arch will be used to provide pedestrian access under the railway to the north of the new carriageway. The bridge will connect to a combined footpath and cycle path at a high level that will link to the new BXC Transport Interchange to the south.</p> <p>The existing footbridges within the M1/A406 junction will be removed as the new footbridges will address the new pedestrian desire lines that will result from the Development.</p>	D112186-361 Rev C (as per parameters in DSF)
	Bridge Structure B7 (Living Bridge)	<p>Bridge Structure B7, the 'Living Bridge', is a new pedestrian and cycle bridge within Brent Cross East to provide a link over the A406 between the Market Quarter Zone/Eastern Lands Zone and the Brent Cross East Zone (see Figure 2.5). Its construction will necessitate the realignment of Tilling Road (as part of the Claremont Avenue Junction with Tilling Road Junction Works) in order to accommodate the piers and other parts of the bridge. The bridge is to include provision for step free access between Market Square and the redeveloped Brent Cross Shopping Centre.</p> <p>The bridge will provide connectivity between the northern and southern components of the town centre. The bridge will integrate with the development in the Brent Cross East Zone and will link to a route to/from the bus station.</p>	Parameter Plan 002

- 2.4.3 The s.73 ES was based on the assumption that primary routes (main roads) “will have a maximum building line to building line width of 28m and a minimum of 13m, of which pedestrian footways will be a minimum of 3m. The location of these routes are subject to a limit of deviation of +/- 35m.” Secondary routes (streets) “will have a maximum building line to building line width of 21m and minimum of 11m, of which pedestrian footways will be a minimum of 2m.” Tertiary routes (minor streets) “will have a maximum building line to building line width of 21m and minimum of 10m and pedestrian footways will be a minimum of 2m.... A number of routes have specified limits of deviation of +/- 40m”.
- 2.4.4 The following Phase 1A (North) features are classed as primary routes for which the +/- 35m deviation of location applies: Claremont Avenue, Templehof Avenue, Templehof Link Road. Secondary and tertiary routes also lie within Phase 1A (North) including: Tilling Road, Prince Charles Drive, Claremont Road, High Street and Orchard Lane. A detailed description of the highway routes and alterations is provided in **Appendix 7.1: Reserved Matters Transport Report**.
- 2.4.5 The detailed design dimensions of the roads and bridges are provided in the planning application drawings for the Infrastructure RMA. These comply with the parameters of the 2014 Permission, except where

deviations have been submitted separately under Planning Condition 2.4 (refer to **Table 4.2** for further details of deviations).

- 2.4.6 New highway drainage is proposed to intercept and attenuate surface water runoff from sections of extended highway, new roads and bridges. Sustainable Drainage Systems are proposed to be provided to ensure; firstly, that peak discharge rates are not increased; and secondly, that contaminants are removed from surface water runoff before it is discharged to the River Brent. The dense urban nature of the development, kerbed nature of proposed roads and impermeable nature of the underlying strata precludes the use of large ponds, filter drains, porous paving and soakaways. However, suitable systems have been identified, which include detention basins and oversized pipes with petrol interceptors.
- 2.4.7 New drainage systems for highways that will be adopted by LBB, are proposed at strategic junctions such as the A5/A406, M1/A406 and the slip roads on the west side and south east side of the A41/A406 to discharge surface water to the River Brent or the Clitterhouse Stream. The new highway drainage systems that will accommodate surface water from the slip roads and LBB roads that are situated on the northeast side of the A41/A406 junction cannot discharge directly to the River Brent. This is due to the presence of existing structures and retaining walls and surface water from the extended highways in this area of the Site will be attenuated to ensure that existing rates are not increased before being discharged to the existing public surface water sewers. This approach complies with the requirements of the s73 ES and the Flood and Water Management Actⁱ.
- 2.4.8 Drainage systems for proposed structures generally discharge surface water to new highway drainage systems to ensure that surface water is attenuated and that contaminants are removed. Approval in Principle documents have been produced for each of the new structures, which are included within the RMA and include details of proposed drainage for each structure.

Bridges

- 2.4.9 Parameters provided in the RDSF for the bridges within Phase 1A (North) which formed the basis of the s.73 ES are identified in **Table 2.3**. The detailed design of these bridges for the RMA submission remain within the parameters provided within the RDSF, except for those shown in italics below where increased parameters have been requested through Planning Condition 2.4. The increased bridge width and height limits have been a result of the altered western roundabout design to accommodate traffic flows in the western area of the Shopping Centre.

Table 2.4: 2014 Permission Bridge Parameters (with amended parameters for the RMA in italics)

Bridge Structure	Number of Lanes	Length	Width	Height	Footway width	Horizontal Deviation
Bridge Structure B1 Replacement	4 lanes,	160	– 18	–	3m	+/- 15m
Templehof Bridge	2 with a public transport priority	200m	34m			
		15 – 30m	4 – 8m	600	–	–
River Brent Bridges	Pedestrian and cycle only bridges			<i>2,600mm</i> above the 1 in 100 year plus climate change flood level		

Bridge Structure	Number of Lanes	Length	Width	Height	Footway width	Horizontal Deviation
	Vehicular bridges	20 – 48m	8 – 37m	600 3,600mm above the 1 in 100 year plus climate change flood level	–	–
Bridge Structure B6 (M1 junction pedestrian and cycle bridge)	Combined footpath and cycle path No motor vehicle access	50 – 70m	4 – 8m		–	+/- 10m
Bridge Structure B7 (Living Bridge)	Combined pedestrian and cycle access No motor vehicle access	80 – 120m	12 – 25m		–	+/- 20m

2.4.10 As stated under Section 2.2, five highway junctions (known as the ‘Gateway Junctions’) which lie within the Phase 1A (North) development phase have already been submitted and approved in detail through the 2014 Permission. Further planning approval is therefore not sought for these junctions and as such they have they have not been the subject of further assessment within this Report.

2.4.11 Further description of the bridge structures which form part of Phase 1A (North) is provided below and is accompanied by **Figures 2.4 to 2.7** which show the Living Bridge details (B7).

A406 Templehof Bridge (B1)

2.4.12 The existing Templehof Bridge carries vehicles from Templehof Avenue from the west side of the Brent Cross Shopping Centre across the A406 to the south side of the Holiday Inn joining the Tilling Road at a roundabout to the south. The bridge currently carries two lanes for bidirectional traffic and a narrow footway on either side for pedestrians and cyclists. Replacement of the Templehof Bridge was included in the s.73 Application and the parameters assessed for their likely significant environmental effects.

2.4.13 The new replacement Templehof Bridge (B1) over the A406 will consist of three main parts: the main bridge structure, a southern approach and a northern approach linking to a new western roundabout immediately southwest of the Shopping Centre. The bridge will consist of a wide, long span bridge of concrete deck and standard aluminium vehicle resistant railings. The bridge will be supported on large curved beams made of ‘Corten’ weathering steel, which links with the materials to be used on the Living Bridge. The replacement bridge will be located immediately to the east of the existing bridge.

2.4.14 In order to limit the impact on traffic flows across the existing Templehof Bridge, the detailed design considered the option of constructing a temporary road bridge over the A406 whilst the replacement bridge was constructed for Phase 1A (North). Following further design it has been agreed that with the movement of the pedestrian subway access to Plots 101 and 102, it is now possible to construct the new bridge in two halves on Site and to provide a steel and concrete ‘multi-girder’ deck which will allow the existing bridge to continue to operate until the new one is in place, therefore negating the requirement for a temporary bridge.

2.4.15 The RDSF stated that the bridge will provide four traffic lanes (two of which have a public transport priority) as well as pedestrian and cyclist facilities. The detailed design proposal is consistent with this providing a traffic lane in both directions, a bus lane in each direction, a footway on the eastern side and a footway / cycleway on the western side of the bridge in accordance with the traffic modelling outputs of the Brent Cross Cricklewood (BXC) Detailed Design Model (DDM) and the Area Wide Pedestrian and Cycle Study prepared by URS as a Pre-RMA Condition Report (Planning Condition 1.20).

M1 Junction Pedestrian and Cycle Bridge (B6)

2.4.16 As part of the Development, major highway works are proposed at the M1 / A406 / A5 junction which result in the requirement to reconfigure the pedestrian and cycle facilities at the junction. The Area Wide Pedestrian and Cycle Study has determined the required desired lines for access and circulation within the Site and has led to the proposed removal of the existing pedestrian bridges at the junction and replacement with B6.

2.4.17 A shared pedestrian /cycle bridge will be provided to form a key north / south link across the A406 at Staples Corner with step free access provided via a circular ramp below the maximum 1 in 20 gradient. As per the RDSF, the bridge parameters include an overall length from the stair core to opposite abutment is 50-70m, and width is 4-8m, minimum headroom clearance is 5.7m. One intermediate pier is permitted within the new configuration of roads in the modified M1/A406 junction. An access ramp rather than a lift proved to be the preferred option at detailed design.

River Brent Bridges (as relevant to the Eastern, Western and Central River Brent Alteration and Diversion Works)

2.4.18 The realignment of the River Brent and Prince Charles Drive has resulted in the requirement for a number of highway bridges and pedestrian / cycle bridges to be provided over the River Brent in this sub-phase. The bridges allow the river corridor to become an integral part of the Development and to enable good north / south links throughout the Development.

2.4.19 There are roundabouts (eastern and western) at each end of Prince Charles Drive resulting in four highway bridges over the river (Bridge 1 and 2 at western roundabout and Bridge 7 and 8 at the eastern roundabout). The illustrative design of the western roundabout has been changed since the s.73 Application due to the requirements of the detailed design traffic modelling using the BXC DDM. The alterations to the layout of the western roundabout has resulted in minor amendments to the width and height parameters for bridges 1 and 2, as indicated in **Table 2.4** and submitted under Planning Condition 2.4 of the 2014 Permission (and included in **Table 4.2** deviations).. The upper freeboard limit is exceeded on all four bridges (1,2,7 and 8) as a result of the detailed design of the eastern and western roundabouts. The Environment Agency (EA) only specifies a minimum freeboard limit, whilst surface levels of the bridges are currently within level parameters and cannot be reduced as this would alter gradients from Templehof Bridge. As such, an increase of the maximum freeboard parameters from the river bridges forms part of the deviations discussed in **Section 4.5** of this Report.

2.4.20 Additionally, there are four access roads to plots along Prince Charles Drive (Bridges 3,4, 5 and 6) which lead to Plot 101, 102 and the new Bus Station. All of these river bridges are vehicle access only. The maximum freeboard is exceeded for these bridges as per bridge 1 and 2. As such, the explanation as provided above applies to these bridges also.

2.4.21 Two pedestrian and cycle bridges are provided (Bridges 9 and 10) within reach 3 of the River Brent to serve the Riverside Park and future development of Plot 114. The footbridges also meet the width and length

parameters but exceed the upper freeboard limits to work with the river corridor, nature park and adjacent plot access. However, as indicated for the road bridges above, the EA only specifies a minimum freeboard limit so this is not considered necessary to be assessed as a significant deviation.

Living Bridge (B6)

- 2.4.22 The aim of the Living Bridge is to provide a multifunctional public space, linking the North and South development zones whilst also providing a place to linger, and to host minor events such as markets. Images of the detailed design of the Living Bridge are provided in **Figures 2.5 to 2.7**.
- 2.4.23 The Living Bridge is approximately 100m long and 17-25m external wide (including the parapet), to accommodate both a generous pedestrian route and landscaped gardens. The Bridge forms a multi-use space for '*relaxing, events, activities and occasional markets*'. The Bridge has been designed to enable a 'contained' central section over the A406 North Circular with high solid parapets made of 'Corten' to shield pedestrians and cyclists from noise and wind. The northern and southern sections of the bridge parapet provide openings with metal fretwork to enable views of the River Brent corridor to the north and the surrounding Development to the north and south (see **Figure 2.6**).
- 2.4.24 Access to the Living Bridge from Claremont Avenue will be via a wide approach (the 'southern approach') which will connect with the segregated footway / cycleway provided alongside Claremont Avenue. Access to the Living Bridge from the north (shopping centre / bus station) will be via steps / lifts / travelators. The sloping southern approach to the Living Bridge will provide access for pedestrians and cyclists. There will also be controlled access for maintenance vehicles and potentially off-road access for emergency vehicles if necessary. The bridge will be wide enough to accommodate landscaping forming a sequence of public gardens, as well as providing appropriate effective width for the flow of pedestrians and cyclists. Cycle parking and benches will also be provided along the bridge including 20 double sided cycle stands (40 spaces) within the north section of the bridge, four double sided cycle stands (8 spaces) within the southern part of the bridge and eight double sided cycle stands (16 spaces) within the southern approach.
- 2.4.25 Landscaping on the Living Bridge consists of large angular planters in the central section (over the A406) which run along either side of the bridge comprising ornamental planting and interspersed evergreen and deciduous trees. Natural stone paving will be proposed throughout the bridge other than landscaped areas. A living wall system will be located on the internal walls of the parapet in the central section of the Bridge where the parapets are solid to 'green' the walls of the bridge. Benches are provided throughout all sections of the Living Bridge with a particular focus in the central section amongst the planting areas and trees (see **Figure 2.6 and 2.7**).
- 2.4.26 Towards the southern approach of the Living Bridge (leading into Market square) the planting opens out to provide a much wider pedestrian/cycle space with individual islands of ornamental planting with a higher density of evergreen and deciduous tree planting set at a distance from the parapet walls. Trees in this area aim to define the route and soften the future buildings either side of the Southern Approach, providing some screening for wind and visual aesthetics. Occasional market stall locations and a potential kiosk location lie at the top of the southern approach, whilst step access on the western side of the Southern Approach will link to the future Plot 93. As illustrated on **Figure 2.6**, the southern area will be planted with rows of deciduous trees (*Quercus palustris*) and intermittent hedgerow. Scattered seating will be provided beneath the trees. The landscaping of the Living Bridge has been designed to allow for tree tops to be visible from the road and river corridor.

- 2.4.27 Gradients of the Living Bridge have been kept to a minimum to ease of pedestrian and cycle access with an approximate 1:30 slope to the southern approach. The Living Bridge and southern approach have been designed as a shared surface.
- 2.4.28 The indicative Lighting Strategy includes sculptural tall lighting columns along the southern approach as part of Market Square, leading to a more detailed lighting strategy along the Living Bridge with up-lighting of viewing panels and green walls, lighting of raised planter edges and low lighting columns in planters along the central section.
- 2.4.29 Approximately 60 of the Whitefield Estate residential units will be demolished in order to make space for the Living Bridge and road works in Phase 1A (North).

River Brent Realignment

- 2.4.30 The s.73 Scheme included remediation and modification works to a section of the River Brent to create a naturalised channel and improve the ecology and amenity of the existing river. The design parameters for the river re-alignment were defined by Parameter Plan 011 of the 2014 Permission and paragraphs 3.24 – 3.36 of the RDSF (See **Figure 2.8** illustrating the design for RMA approval and associated landscaping plans). The works as consented under the 2014 Permission are described below:
- Removal of the existing channel structures and creating a new channel for the length of the river passing through the Site;
 - Widening of the eastern and western sections of the river channel to 8.5m and 11m respectively;
 - Diversion and realignment of the central section to the south of the existing channel, which will lie adjacent to the proposed new bus station. In the town centre area, the channel will be sized and profiled to accommodate average summer flows;
 - The realigned channel will be constructed with a natural bed type and semi-natural bed form to provide for riparian habitat creation; and
 - Backwaters and wetland areas will be encouraged where appropriate.
- 2.4.31 These works also release additional land to create the High Street and the development in Brent Cross East Zone. The parameters indicated on Parameter Plan 011 are summarised below:
- River width from east to west will be a maximum of 24m in the eastern zone and central zones, and approximately 37m in the western zone;
 - A pedestrian and cycle path will run the length of the northern side of the river and will be a minimum of 6m wide to provide the EA maintenance access route; and
 - In the western zone there will be a southern pedestrian path as well as a northern path, which will be a minimum of 3m wide.
- 2.4.32 The detailed design of the River Brent realignment has been developed in consultation with the Environment Agency. Additional information on the works to be undertaken on each of the three river sections as identified in **Figures 2.9-2.11** is provided below based on the design details now available:

Reach 1 – River Brent East Zone (Eastern River Brent Alteration and Diversion Works)

- 2.4.33 Reach 1 is the first length of the restored and realigned river which marks the start of the Brent Riverside Park and stretches from the downstream edge of the A41 Brent Cross Flyover to the proposed eastern roundabout (see **Figure 2.9** for location). The modelled channel width is generally 8.5m within the lower

stage, designed to take the 1 in 5 year return period flows. Reach 1 will contain a backwater / wetland scrape designed to provide ecological improvements and flood attenuation.

- 2.4.34 Reach 1 will be characterised by a steeper channel gradient, following the wetland scrape, in order to connect with the Clitterhouse Stream at the head of Reach 2. An EA access ramp will be provided on the north bank, together with the required 'buffer zone' for maintenance and pedestrian / bicycle access. A relatively steep river bank is provided on the south side. A low flow channel, included within the main channel, passes through each of the three reaches.

Reach 2 – River Brent Central Zone (Central River Brent Alteration and Diversion Works)

- 2.4.35 This section of the river stretches from the eastern roundabout to the western roundabout (see **Figure 2.10** for location). The section of channel within the western roundabout is included in this reach. The river character changes to reflect the new river course (diverting south-west) and the commercial nature of the adjacent town centre, whilst demonstrating improvements to existing environmental conditions and providing a flowing alignment, which enables a hydraulically efficient channel. The reach will be characterised by a shallower channel gradient (relative to Reach 1).
- 2.4.36 The EA 'buffer zone' is in some locations (generally adjacent to bridges) below the 1 in 5 year return period level for the River Brent in order to maintain head room underneath bridges and to allow greater flow conveyance for higher return period flows. In order to keep the 1 in 5 year return period flows within the lower channel section, a flood wall is proposed at the boundary between the lower channel and the upper channel containing the EA 'buffer zone'.
- 2.4.37 A small wetland / backwater area within the centre of the roundabout as in Reach 1 would be provided to offer ecological improvements.
- 2.4.38 A relatively steep river bank is provided on the both the north and south sides, with the EA 'buffer zone' continuing on the north bank.

Reach 3 - River Brent West Zone (Western River Brent Alteration and Diversion Works)

- 2.4.39 This section of the river stretches from the western roundabout to the M1 slip road (see **Figure 2.11** for location). The Brent Riverside Park surrounds the river channel. Residential development is proposed as part of the 2014 Permission adjacent to the southern bank along this reach. Within this reach the channel is to follow the previously consented section design under the 2014 Permission with an even gradient. The reach will be characterised by a shallower channel gradient (relative to Reach 1). The design mitigates against backflow effects from the downstream Welsh Harp (the Brent Reservoir, a SSSI).
- 2.4.40 Project specific criteria and constraints for the River Brent detailed design as a whole include the following:
- The minimum clear distance between the 100 year return period flood level including climate change, and the soffit of all bridges is to be 600mm above top of bank level;
 - A minimum clearance as indicated in **Table 2.4** is required at each bridge from the river bed to the soffit to allow machinery to progress through the channel. This does not include the 'low flow' section of the river channel;
 - A buffer zone with a minimum width of 6m to allow access for maintenance is required adjacent to the river channel. Bridge piers and other structures including trees will be kept clear of the buffer zone. An 8m buffer zone from the top of the river bank is to be provided as 'green infrastructure and to promote biodiversity gains';
 - Access ramps are to be provided between the buffer zones and the river channel base;

- The river is to consist of a three stage channel: a low flow channel; a second stage channel with design flows up to and including 5 year return period flood; and a third stage incorporating the EA buffer zone for design flows up to and including the 100 year return period flood plus climate change;
- Due to the potential for contaminated groundwater to enter the River Brent channel within the Site, it is proposed that the entire length of the channel is lined in order to protect the water quality and aquatic ecology;
- Substrate is to be introduced to the channel bed to encourage a semi-natural channel. The different channel zones will have a variety of native vegetation species to encourage colonisation of the riparian zone and transition from aquatic to terrestrial areas of the river banks;
- The rate runoff from the new development is to be reduced by a minimum of 25% of the current rate. The current site design runoff rate is 7700 litres/second. This is a 1 in 100 year return period rainfall event including 20% for climate change;
- Enhancement measures for the River Brent include: removal of hard bank reinforcement/revetment or replacement with soft engineering solution; preserve and restore historic aquatic habitats; increase in-channel morphological diversity; retain margin aquatic and riparian habitats; and preserve and enhance ecological value of marginal aquatic habitat, banks and riparian zone;
- The low flow channel is designed to take a design flow of 0.071m/s. This is the Q95 flow, flow rate with a probability of being exceeded 95% of the time;
- The main channel is designed to accommodate a number of incoming flows from varying sources including those listed below. The total River Brent inflow for a 1 in 100 year return period storm is 55.98m³/s.
 - The 1 in 100 year return period design storm event including a 20% allowance for climate change from the upstream River Brent (40.88m³/s)
 - The 1 in 100 year return period design storm event including a 20% allowance for climate change from the Clitterhouse Stream (6.1m³/s)
 - Overland inflows for a 1 in 100 year return storm event (9m³/s)

- 2.4.41 The detailed design for the River Brent diversion works have been developed in consultation with the EA.
- 2.4.42 As described within the Addendum to the Construction Impact Assessment (BXC21) (**Appendix 2.2**) the construction of the River Brent realignment is proposed to commence at the new eastern and western roundabouts when the new support structures for the roundabouts are fitted. In both locations the new channel alignment differs from the existing channel within the roundabout and to one direction, whilst one side of the roundabout ties in with the existing channel enabling the diversion works to commence here. The construction of the roundabouts and the river diversion will be dealt with separately.
- 2.4.43 Along the watercourse between the two roundabouts there are four bridges in addition to the Living and Templehof Bridges to be constructed over the watercourse. The new Prince Charles Drive will be constructed in parallel with the new water course alignment and will be tied in with the construction works for the eastern and western roundabouts.
- 2.4.44 The newly created river channel and its banks will be planted where appropriate to create a naturalised riparian water habitat along the river and an additional amenity space for local residents and visitors to the Site. Landscape plans for the Central Brent Riverside Park are provided in detail for Reach 2 only within the Phase 1A (North) RMAs. The landscape plans are described in more detail in the Open Spaces section below.

- 2.4.45 To note, the lighting strategy is to be agreed pre-commencement and submitted under planning conditions, therefore details described within this Report should only be considered to be indicative and not final.

Temporary Bus Station and Bus Stops

- 2.4.46 During the start of the construction period for the Northern Development (north of the A406) access to the existing bus station on Prince Charles Drive will not be available to enable works on the realignment of the River Brent and Prince Charles Drive. It has been agreed that a temporary bus station and bus stops (**Figure 2.12**) will be required for a period of approximately four years, to accommodate the existing bus services at the Shopping Centre (see **Appendix 2.3: Temporary Bus Station Strategy**). It is anticipated that the temporary bus station and bus stops will be operational from the end of 2016 / early 2017 to the end of 2021.
- 2.4.47 The temporary bus station will be located within the south west car park (Plot 114) of the Shopping Centre adjacent to the Western Roundabout (**Figure 2.13**). It is proposed that the temporary bus station comprises 18 layover stands, four drop-off spaces and four pick-up spaces (total of 26 spaces); reflecting the requirements set out by TfL. The existing bus station provides space for 21 buses comprising 16 layover, 1 drop-off and 4 pick-up spaces. The temporary bus station therefore provides additional space relative to the existing bus station.
- 2.4.48 Access to the temporary bus facilities will change somewhat throughout the construction programme, however the access route assessed within this Report and to be submitted with the infrastructure RMA includes the end-state permanent infrastructure of Phase 1A (North) which relates to access provided off the newly modified western roundabout (see road layout on **Figure 2.12**). Detailed design of the Western Roundabout is included within the description and planning drawings for the Phase 1A (North) infrastructure RMA.
- 2.4.49 Additional bus stops will be provided at Plot 113 (**Figure 2.14**) which lies to the west of the Shopping Centre, in order to maintain good accessibility and service for their customers. Discussions with TfL have confirmed that all bus services would be required to stop at the Shopping Centre bus stops at Plot 113 in order to pick-up and drop-off passengers. This bus stop facility would provide for three spaces for buses dropping off, and four spaces for buses picking up. The bus stops provided will form the last stop for terminating services, the first stop for services commencing at the bus station, and an intermediary stop for through services.
- 2.4.50 The operational hours of the bus station are still to be agreed by LBB and TfL. For the purpose of this assessment and Report we have modelled and assessed the operational hours of 07:00 to 23:00 (7am to 11pm) for Plot 113 bus stops and 24 hour operation to service night buses at the temporary bus station at Plot 114.
- 2.4.51 Bus shelters would be provided at bus stops in the temporary bus station (Plot 114) and stops (Plot 113) and these will be orientated to shelter bus passengers from the predominant south-westerly winds at this location. Facilities for bus passengers and bus drivers will be provided both at Plot 113 and 114 (see **Figures 2.13-14**).

2.5 Open Spaces

- 2.5.1 The parameters and principles of public realm and open spaces within the Scheme were defined by the RDSF and by Parameter Plan 003. A Revised Public Realm and Open Space Strategy (BXC07) also accompanied the s.73 Application. Phase 1A (North) contains the major areas of open spaces within the

Development and description of the detailed proposals for each area is provided below. This description has been prepared with reference to the Design Development Reports for each area and landscape drawings as defined below.

Claremont Park Improvements

- 2.5.2 Claremont Park lies within the Market Quarter Zone (total area 1.95ha) and will be upgraded through new landscaping and play space provision. The park runs east to west from Claremont Road to Brent Terrace and is currently an informal open area part of Claremont Way Open Space, predominantly with grassland and a number of mature trees. The area is used informally by local children for football but otherwise has no formal play space.
- 2.5.3 In the short term the proposal will provide replacement facilities for Clarefield Park which will be lost to development in the first phase, and will continue to be a neighbourhood park in the long term as part of the wider provision of recreation facilities. The park is to be redeveloped to provide a greater range of activities than are currently present, with a hierarchy of routes and gateways, activity and play areas (see **Figure 2.15**). The aim is to retain its existing woodland character and introduce new native trees and understorey planting, with ornamental planting used to emphasise primary gateways into the Site and at the entrances east and west. Areas will also be levelled to provide play and activity space with seating and terracing.
- 2.5.4 The detailed landscape proposals for Claremont Park are shown on **Figures 2.15 and 2.16** and comprise:
- A primary pedestrian and access route through the park from Brent Terrace in the west to Claremont Road in the east, and a secondary pedestrian route from north to south adjacent to the Brent Terrace entrance for access from Brent Terrace and Clitterhouse Crescent (south) to the future Claremont Park Road (north);
 - Cycle parking provision is provided throughout the park concentrated at the east and west park entrances and along the primary pedestrian and cycle routes;
 - Minor park ground level changes are proposed to enable inclusive access arrangements with gradients ranging from 1 in 21 ramps up to 1 in 60 gradient or shallower, which is predominant throughout the park. Areas of ramps and lower gradients (1 in 20 and 1 in 30) are provided around the western entrances, the play space and parts of the primary route where existing ground levels necessitate;
 - Tree retention and removal within Claremont Park can be found in **Appendix 2.4**. Some of the existing trees and vegetation within the central area of the park will be removed due to existing poor condition, and to enable necessary ground preparation works, the construction of paths and the planting of new landscaping proposals. However those existing trees in good condition and worthy of retention on Site (including oak, willow and ash) will be retained and the necessary root protection zone respected during construction.
 - Buffer planting of native woodland trees and hedgerow along the southern boundary to screen existing residents of Clitterhouse Crescent (minimum 5m width planting of hedge and woodland edge). Planting of ornamental woodland trees along the northern boundary with Claremont Industrial Park and along the main pathways. Wildflower areas to the south under the native trees and mixed with ornamental woodland understorey throughout the park with amenity grassland to the northeast and around the play areas (see **Figure 2.15**);
 - Network of pathways through the park to link entrances and facilities predominantly northeast to southwest directional (minimum 3m wide) (see **Figure 2.16**);

- Play provision for a neighbourhood play area for mixed age groups (0-5 years and 5-11 years) (minimum of 2,000m²) and a picnic area at the southwest end of the park (minimum of 200m²);
- Informal recreation facilities in open grass and wildflower areas with ornamental woodland understorey planting and new trees (minimum 1,000m²) and seating; and
- Cycle banks will be provided near the park entrances.

Clitterhouse Playing Fields Improvements Part 1

- 2.5.5 Clitterhouse Playing Fields lie centrally within the Development providing open space and leisure area for the existing residents. The Development will improve the existing playing fields (total area 18.2ha) and provide play facilities for the existing and future residents. The Clitterhouse Playing Fields Improvements were split into two parts in accordance with the Section 106 Agreement of the 2014 Permission. Part 1 comprises the majority of the Playing Fields as they currently exist which is the subject of the Phase 1A (North) RMAs, whilst Part 2 which is out-with this application comprises the creation of astroturf pitches and the Clitterhouse Stream. The Part 1 improvements will provide short term replacement facilities for Clarefield Park and a longer term recreation facility.
- 2.5.6 A number of specific recreation facilities are to be provided at Clitterhouse Playing Fields in accordance with the Section 106 Agreement, these comprise community play areas, youth provision, LBB maintenance store and office, changing rooms, parking, café and sports changing rooms.
- 2.5.7 Several layout options have been explored for Clitterhouse Playing Fields (Part 1) and a pitch layout has been selected for the detailed design which requires a 'medium change to existing contours' with regard to ground level changes. The fields currently have a ground level difference from the east side to the west of approximately 10 metres AOD.
- 2.5.8 Following several meetings with LBB, the detailed proposals for the Clitterhouse Playing Fields as illustrated in **Figure 2.17** are as follows:
- Level changes to the Playing Fields from an existing range of 58.1m AOD in the west by the Clitterhouse Farm Buildings to 46.3m AOD in the east by Clitterhouse Stream. The proposed levels include 55.0m AOD in the west and 46 m AOD in the east of the Playing Fields indicating a slight re-levelling to enhance the pitch playing experience (see Design Development Report for Clitterhouse Playing Fields).
 - Details of the trees to be retained and removed from the Playing Fields can be found in **Appendix 2.3** and are also indicated on **Figure 2.19**. The majority of trees along the boundaries of the existing Playing Fields will be retained, whilst some have been identified for removal either for tree health and safety reasons.
 - Natural turf sports pitches including 3 senior pitches, 2 junior pitches (9 aside) and 2 mini soccer pitches (7 aside) in the southeast of the Playing Fields. The area will be left open with no specific lighting or full perimeter fences;
 - 6 tennis courts / MUGA in the southwest of the Fields near the Clitterhouse Farm Buildings (see **Figure 2.18**);
 - One outdoor gym near the proposed Pavilion;
 - 1-5 years play space, 5 years play space and 5-12 years play space in the western area of the Fields with Youth Provision (minimum of 5,000m²);
 - Park pavilion building located centrally within the Playing Fields, up to 251m² as per the RDSF and will include changing facilities, store, café kiosk and public toilets;

- Refurbishment of part of the Clitterhouse Farm Buildings to accommodate storage facilities, with other potential uses considered in Part 2 Improvement works;
 - Car park for park users (21 parking spaces including provision for blue badge holders (accessed via Claremont Road));
 - 55 cycle parking stands (five southeast, ten east, 20 southwest and 20 west);
 - Green corridors providing a minimum width of 5m of native woodland and wildflower meadow along the boundaries and bordering amenity grassland (see **Figure 2.19**);
 - Network of pathways across the park to link entrances and facilities (minimum of 5m wide) (see **Figure 2.20**);
 - Public gardens provision for quiet recreation away from the sports provision. To include seasonal planting and pathways; and
 - Informal recreation facilities provided including tables and benches throughout the park.
- 2.5.9 Access and circulation within the Playing Fields will be improved by the provision of a central north to south path alongside the play provision and sports pitches linking to the central pavilion. Cycle routes will also be provided along this path and linking to the Clitterhouse Farm Buildings, with cycle parking provided throughout. Other pedestrian routes will be provided around the perimeter of the Playing Fields. Lighting will be provided only for the primary cycle routes and paths.
- 2.5.10 The planting strategy within Clitterhouse Playing Fields has been developed to provide diversity of habitats to support wildlife and provide distinctive backdrops to the range of facilities provided. Woodland edge planting with appropriate understorey such as wildflower meadow is proposed to the eastern and southern boundaries to complement the existing boundary planting and enhance the biodiversity of the park. Larger native tree species will be planted to create a strong frame to the park, with native shrub beneath and shade tolerant wildflower edges along boundaries especially the western boundary. Larger feature trees will be used at focal points such as the park pavilion and the northern entrance, whilst smaller trees will be used around the play and activity areas. Ornamental planting will seek to reflect the previous use of the farm through grasses and meadow herbaceous perennials. Additionally, large areas of the park will be allocated as wildflower meadows.
- 2.5.11 Further information on the biodiversity strategy for Clitterhouse Playing Fields can be found in **Chapter 11: Ecology and Nature Conservation**.
- 2.5.12 The Clitterhouse Farm Buildings are situated within the southwestern corner of the existing Clitterhouse Playing Fields and as such fall within the Site boundary. The farm buildings were previously identified for demolition to accommodate the Development as per the 2014 Permission and shown on Parameter Plans 012 and 016, in order to make way for a Maintenance Store & Office and Car Parking Zone. Through further consultation with LBB and local community groups and further design iterations to the park facilities, it is now proposed that the farm buildings will be retained as part of the Development.
- 2.5.13 The use of the retained farm buildings is to be confirmed at the reserved matter stage for Part 1 and Part 2 but potentially it may accommodate park related storage, community uses and a café. The Maintenance Store & Office (previously illustrated within the south west of Clitterhouse Playing Fields) will be accommodated within the Park Facilities and/or elements of the retained Clitterhouse Farm buildings identified on revised Parameter Plan 012 and 016. A report was submitted to LBB under Planning Condition 2.4 to approve the retention and reuse of the farm buildings in relation to Part 1 and Part 2 Improvements of the Clitterhouse Playing Fields.

Central Brent Riverside Park

- 2.5.14 Associated with the realignment of the River Brent, a new riverside park will be provided comprising an Eastern, Central and Western Brent Riverside Park. Phase 1A (North) RMA seeks planning approval for the landscape details for the Central Brent Riverside Park, whilst the Eastern and Western parks remain in outline as per the 2014 Permission. The riverside parks consist of a linear park along the length of the river (within the 2014 Permission application boundary) including river bridges connecting features, footpaths and cycleways, whilst providing informal recreation and landscaping (see **Figure 2.21**).
- 2.5.15 The overall restoration objectives of the Riverside Park include:
- Improving the water quality of the River Brent;
 - Reducing flood risk; and
 - Improving the biodiversity and amenity space.
- 2.5.16 Central Brent Riverside Park lies within Reach 2 of the river realignment proposals (see **Figure 2.21**) and is adjacent to Nature Park 5 which is within the Western Roundabout and several access points to the Development and to the Living Bridge and Templehof Bridge, both of which cross the river in this area.
- 2.5.17 Details of the Central Brent Riverside Park for this RMA comprise the following:
- Marginal planting (aquatic and semi-aquatic species) adjacent to the river channel followed by live willow revetments (1m high) and shrubs planted in the 1 in 100 year flood level (see **Figure 2.22**);
 - Above the 1 in 100 year flood level tree planting will be provided amongst meadow mix and areas of amenity grassland;
 - A river path providing continuous access for pedestrian and cycle use along the northern side of the river, a minimum of 6 metres wide to provide Environment Agency (EA) access. Stepped access with bicycle ramps are provided at regular intervals along the river corridor (see **Figure 2.23**);
 - Gabions will be located on the northern and southern bank of the river to provide river scouring protection in high flow, bank stabilisation, potential habitat and opportunities for bug hotels;
 - Coir rolls will be located on the edge of the low flow channel as a natural edging material;
 - Where river bridges are located, river gravel and rock mattresses will be provided under the bridges rather than planting.
- 2.5.18 As described in the River Brent Realignment section above, the river will be provided in three flow channels (see **Figure 2.23**). The first and second channel levels will contain a low flow 1 in 5 year flood event plus climate change, leaving the pedestrian and cycle route un-flooded and usable. The third channel level has the capacity to contain a 1 in 100 year flood event plus climate change, in which instance the riverside park would be inaccessible to the public. The drainage is designed to carry the water off the path to ensure the park can reopen soon after a flood event.
- 2.5.19 Ecological enhancement measures which have been incorporated into the detailed design of the Central Brent Riverside Park include:
- Bat boxes positioned under River Bridges 3 and 6;
 - Bird boxes positioned on River Bridges 2, 3, 4, 5 and 6;
 - Log piles for invertebrates will be provided along the river bank within Nature Park 5 and along the southern bank at internals.

2.5.20 Indicative lighting proposals indicate column lighting will be located along the principal route of the river, all of which will lie above the 1 in 100 year flood level. Down lights will be provided under the bridges for safety. Lighting plans will be confirmed and submitted through Planning Condition following submission of the RMA.

Plots 53 and 54

2.5.21 Landscape plans have been developed for Plots 53 and 54 to ensure that the proposed residential development is sensitively integrated within the existing landscape setting (see **Figure 2.24**). The proposals aim to provide an attractive setting for the buildings and screening to the eastern boundary and western frontage on Brent Terrace. A description of the buildings within Plots 53 and 54 is provided below under ‘Development Plots’.

2.5.22 Private and communal gardens will be provided to the east of the residential accommodation with hedging and trees provided along the eastern boundary with the existing Clitterhouse Crescent housing. Areas of the existing hedgerow along Brent Terrace will be removed for construction purposes and to allow vehicular and pedestrian access to the Site from Brent Terrace during operation. Approximately 50% of the full length of hedgerow (approximately 565m in total along Brent Terrace) will be removed to accommodate plots 53 and 54, i.e. the majority of the hedgerow in front of the plots. New hedgerow species will be planted in its place at the end of construction to strengthen the green corridor which will grow to form a new hedgerow for the future residents of the plots. Planting within the central parking courts will reflect the characteristics of a Victorian cottage garden.

2.5.23 Green roofs will be provided on all buildings within both plots to provide enhanced ecological biodiversity and additional wildlife habitats this would consist of pre-grown sedum turf with additional plug planting to provide additional species diversity.

2.6 Development Plots 53 and 54 (Brent Terrace)

2.6.1 Plots 53 and 54 were identified for new homes in the 2014 Permission and are located along the northern section of the Brent Terrace Development Zone, east of the railway line and Brent Terrace. Brent Terrace is a cul-de-sac running northwest to southeast, north of Cricklewood Station. Claremont Primary School is located to the southeast of the plots and Claremont Park is located to the northwest.

2.6.2 The housing on the western side of Brent Terrace are two storey, brick 19th century railway worker cottages. Housing within the surrounding area, including Clitterhouse Crescent comprise 2-3 storeys and generally 1930s properties.

2.6.3 The buildings at Plots 53 and 54 will provide new permanent homes for displaced residents from Whitefield Estate buildings, which requires demolition to enable construction of the Living Bridge. The floorspace as defined in the RDSF for this part of the Brent Terrace Development Zone (BT1) for residential use is 5,575m² (subject to 15% deviation). The parameters as defined by the 2014 Permission are defined in **Table 2.5**.

Table 2.5 2014 Permission Parameters for Brent Terrace BT1

Parameters	Plots 53 & 54 Brent Terrace
Indicative Range of Building Storeys	4 storeys

Parameters	Plots 53 & 54 Brent Terrace
Indicative Maximum Building Height (m AOD)	3 – 12m
Min. and Max. Length	11 – 61m
Min. and Max. Width	8 - 12m

2.6.4 The proposed final design for Plots 53 and 54 includes the provision of 47 units comprising 2 / 3 bed flats and 3 / 4 bed houses, see **Table 2.6** below for the proposed housing mix and **Figures 2.25** and **2.26**. The buildings will be 3 storey in height (G+2) throughout and will all remain below the 12m height constraint to conform to the surrounding buildings (see **Figure 2.26**). Materials proposed for the buildings include brickwork walls with slate or fiber cement tiles on the sloping roofs alongside the dormer windows, with solid timber access doors.

Table 2.6 Plots 53 and 54 Design Details

	2 bedroom units	3 bedroom units	3 bedroom houses	4 bedroom houses	Total
Plot 53	14	10	3	3	30
Plot 54	7	5	4	1	17

2.6.5 The plots will include car parking provided within the plots at a 1:1 ratio with the units as committed within the RDSF of the 2014 Permission (47 car parking spaces in total including 3 blue badge bays: 30 spaces in Plot 53 and 17 spaces on Plot 54). Cycle storage will be provided in communal stores which will be secure, at the northern and southern ends of Plot 53 (46 spaces) and the northern and southern ends of Plot 54 (27 spaces). Access to the accommodation and car parks will be provided from Brent Terrace to the west.

2.6.6 Refuse/recycling storage facilities will be provided in communal stores near the car parks for the apartments and individual bins for terraced houses (**Figures 2.26** and **2.27**). It is not anticipated that refuse lorries will access the plots, however the stores have been located at a distance where it should be possible for waste collection to take place from roadside whilst the lorry is stopped, as agreed with LBB.

2.6.7 A new turning circle is proposed at the northern end of Brent Terrace to improve the current refuse collection strategy where the collection truck has to reverse the entire length of Brent Terrace. The turning circle will also benefit the construction vehicles accessing the plots and be useful during operation. The new turning circle is incorporated into the design of the entrance area into the new Claremont Park.

Drainage

2.6.8 Following a review of the Thames Water Asset Map it was found that no existing drains serve Plots 53 and 54, however the following local services were identified for useⁱⁱ. An existing 150mm diameter foul water sewer is located on Brent Terrace with two potential manholes which have been identified as the preferred options to connect the foul water drainage from Plot 53 and 54 and both should enable gravitational drainage. A 375mm surface water drain is also located on Brent Terrace and two suitable manholes have again been identified to drain plots 53 and 54. New connections will be provided to the Thames Water drains from all four manholes (foul and surface water drainage) to service Plots 53 and 54. Water resource studies have deemed that the net increase in foul water flows from approximately 47 residential units will

be minimal and surface water run-off will be limited to green-field run-off rates (based on a maximum of 5 litres per second per hectare l/s/ha). However, in consideration that both plots are less than one hectare in area, the maximum permissible discharge from each site will be 5 l/s as the EA recognise that any schemes with flow control less than this figure are very susceptible to blockage and maintenance issues.

- 2.6.9 On-site attenuation will be provided and designed to a 1:100 year return period plus 30% for a climate change event. The volume of attention is based on the Mayor of London's preferred Standard within the London Plan of 100% attenuation for greenfield sites (which includes plots 53 and 54). As such the proposed attenuation system will include membrane wrapped shallow storage cells under Porous Pavements in the car parking areas that can discharge under gravity conditions. As such the attenuation volumes are 195.8m³ for Plot 53 and 130m³ for Plot 54. Due to the level of constraints on Plot 53, footpaths will contain cellular storage beneath as well as permeable paving to the main car park.
- 2.6.10 A combined heat and power (CHP) plant is proposed within the southern area of Plot 53 which would service both residential plots (53 and 54) during their early operation and potentially as a long term energy and heat solution if not connected to the future district heating network. The CHP would be a natural gas-fired boiler housed within a standalone building one storey in height, located within the car park of Plot 53. The CHP has been considered further within **Chapter 9: Noise and Vibration** and **Chapter 14: Air Quality and Dust** of this Report.

2.7 Construction

Demolition

- 2.7.1 Demolition works will be undertaken in Phase 1A (North) as included within the s.73 Application and assessed within the s.73 ES. The areas identified for demolition within this first sub-phase are listed below for ease of reference and are illustrated in **Figure 2.1**:
- Whitefield Estate social housing along Whitefield Avenue (53 units) to allow for the construction of southern roads;
 - Rosa Freedman Centre (25 units) to allow for the construction of southern roads;
 - Maisonettes over shops facing Claremont Way (8 units) to allow for the construction of southern roads;
 - Units within Claremont Industrial Estate along Claremont Way;
 - Cardiff House at the northern end of Brent Terrace; and
 - Buildings at the corner of A5/A407 to allow for junction improvements ahead of the occupation of Whitefield Estate Replacement Units.

Construction

- 2.7.2 The following sub-headings are taken from the Addendum to the Construction Impact Assessment (BXC21) of the s.73 Application. It is indicated below where construction information remains valid as per the 2014 Permission and where further information is to be provided to discharge pre-commencement planning conditions.
- Land Take – this all remains the same as per the s.73 Application apart from some additional land take for the Development at the western roundabout due to the alteration in its design as an outcome of the transport predictions from the DDM. This land remains within the ownership of the Development Partners. This is assessed in further detail within **Chapter 11: Ecology and Nature Conservation**.

- Stages of Construction – this remains as per the s.73 Application with no significant changes to the proposed stages of construction for the key elements of the Development.
- Transportation Requirements – access and transportation requirements remain as per the s.73 Application for the construction period.
- Indicative Construction Programme and Phasing – the construction programme and phasing remains as per the s.73 Application with no significant changes with the exception of the sub-phase change for Plots 53 and 54 which have moved forward into sub-phase 1A (North) from 1C. This has been assessed as per **Appendix 2.2**.
- Infrastructure ‘Triggers’- these remain as per the s.73 Application.
- Global Remediation Strategy – remains as per Appendix 13 of the RDSF for the s.73 Application with the addition of the remediation zoning submitted under Planning Condition 31.1. This will be supplemented by the sub-phase specific remediation strategies undertaken by URS to discharge Pre-Commencement Planning Condition 31.2 of the 2014 Permission. The remediation strategy reports are provided in **Appendix 15.2**.
- Code of Construction Practice – remains as per the draft in Appendix 12 of the RDSF for the s.73 Application. An updated Code of Construction Practice is a Pre-Commencement Planning Condition 8.1 of the 2014 Permission.
- Construction Traffic Management Plan – is a requirement under Planning Condition 12.1 of the 2014 Permission.
- Construction Environmental Management Plan (CEMP) – is a requirement under Planning Conditions 8.3 and 28.1 of the 2014 Permission.
- Demolition and Site Waste Management Plan – is a requirement under Planning Condition 28.2 of the 2014 Permission.

2.7.3 Temporary works including temporary roads and bridges during construction will be designed and submitted under a separate reserved matters application following the submission of Phase 1A (North) RMAs.

2.8 Intermediate Years Description

- 2.8.1 The description of intermediate years (i.e. three snapshot years between the commencement and completion of the Development) as defined by the s.73 ES is unaffected by the Phase 1A (North) RMAs. Amendments to sub-phasing including the plots 53 and 54, will not alter the impacts assessed within the first snapshot year which captures the majority of Phase 1 works. An assessment of the temporary bus station is included within the intermediate years assessment for 2021 at completion of the Primary Delivery Package (PDP).
- 2.8.2 As previously mentioned, an assessment of the temporary bus station, which will be operational for approximately four years during construction works for Phase 1, will be included within the first intermediate year assessed in **Chapter 20**.

2.9 Deviations from the 2014 Permission

- 2.9.1 As the detailed design has been developed and finalised for Phase 1A (North) elements, areas of minor deviation from the parameters of the 2014 Permission (as per the RDSF) have been identified and noted and addressed through submission under Conditions 2.4 and 2.5. Further commentary on deviations from

the 2014 Permission is provided in **Section 4.5**. Consideration of the deviations (in EIA terms) has been accounted for within the updated impact assessment based on the detailed design of Phase 1A (North) provided within this ES Further Information Report.

References

- i DEFRA (2010), The Flood and Water Management Act
- ii Clarke, Nicolls and Marcell (May 2014), Brent Terrace Residential Replacement: Structural Engineering Stage C Report.