3 Development of the Scheme and Alternatives

3.1 Introduction

3.1.1. This Chapter, prepared by Waterman in conjunction with the Applicant and Project Team (Allies and Morrison, URS, Chapman Taylor, Macgregor Smith and Howarth Tompkins), describes the main alternatives considered by the Applicant during the design development of the Phase 1A (North) RMAs.

3.1.2. Under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011[i] (the 'EIA Regulations'), an ES is required to provide:

"*An outline of the main alternatives studied by the applicant…and an indication of the main reasons for the choice made, taking into account the environmental effects*."

3.1.3. The Scheme already has the benefit of planning permission (as per the 2014 Permission). As such, the main alternatives set out in the s.73 ES are not re-examined or re-presented in this Chapter since they remain valid. Commentary is only provided on significant design alternatives which were considered during design evolution for Phase 1A (North) RMAs.

3.2 Phase 1A (North) RMAs Alternatives

3.1.4. The Phase 1A (North) RMAs are governed by the parameters and principles defined by the 2014 Permission. As such, the nature of alternatives available to the Applicant are limited to within the bounds of the 2014 Permission.

3.1.5. The main design alternatives to the 2014 Permission, as summarised in this section, have been in response not only to considerations identified by the team**,** but also as a result of engagement and consultation with LBB and other statutory authorities and stakeholders.

3.1.6. The minor deviations from the 2014 Permission, as defined in **Section 4.5**, are not considered here further as they are not considered to be 'main alternatives' under the meaning of the EIA Regulations.

Infrastructure

Highway Improvements

3.1.7. The detailed design for planning purposes for the Gateway Junctions was approved by the 2014 Permission. The parameters for the RMA design for other highway works was approved by the 2014 Permission. Although the detailed design for such works has evolved from the indicative design at the outline stage due to the outcomes of detailed traffic modelling undertaken by URS using the traffic model known as the Detailed Design Model (DDM), the detailed design for such works remains within the parameters except for the minor deviations referred to in Planning Condition 2.4 (see **Section 4.5** for further details of deviations). The results of modelling work determined the final road layouts, junctions and traffic management required for the Development; therefore no main alternative highway layouts have been considered by the Applicant.

Bridge Structures

3.1.8. Initial detailed designs for the Living Bridge included enclosed parapets on the bridge. LBB commented that these enclosed parameters did not enable pedestrians to have a sense of their location and did not provide views of the wider Development including the Riverside Park. In response, Chapman Taylor incorporated viewing panels within the northern and southern sections of the bridge with metal fretwork to allow pedestrians to gain views of the surrounding Development and Riverside Park from the bridge and to have a better sense of where they are in location to the wider Development.

3.1.9. Additionally, comments were received from LBB and TfL regarding the space allowed for cycle parking on the Living Bridge being high in the initial design. As such, cycle parking provision has been repositioned at the entrances to the bridge with the majority on the northern end where cyclists will likely arrive at the Development. The landscaping plans for the Living Bridge have been developed in response to the outcome of discussions with LBB on the aesthetics of the bridge particularly with regard to the parapet design and the width of the shared pedestrian and cycle route through the bridge. As such, the location, size and shape of the planting beds have been designed in consideration of the operational requirements of the bridge and green walls have been designed around the final parapet design. No further design alternatives have been considered.

3.1.10. The replacement to the existing Templehof bridge has been designed in response to the outcomes of the traffic model used for design purposes, known as the BXC DDM, to ensure traffic flows within and surrounding the Site are adequate in future years with the addition of future residents and visitors to the existing flows. Previously in the illustrative masterplan supporting the s.73 Application it was assumed that the bridge would need to be designed to provide abnormal load capacity between the northern and southern part of the Scheme. However, through design development alternative routes have been identified from the south end of the M1 into both the northern and southern parts of the Development, therefore negating the need to design the bridge for abnormal loads.

3.1.11. The M1/A406/A5 pedestrian bridge was included in the Scheme for the s.73 Application described as a "*new pedestrian and cycle bridge over the M1/A406 junction which links the Site at Station Quarter to the existing communities north of the Site. This new bridge will incorporate a lift to facilitate step free access*". The RDSF stated that it will be decided at detailed design stage whether a lift or ramp would provide step-free access. Since the s.73 Application, the pedestrian and cycle bridge (B6) proposed for Phase 1A (North) has been designed in response to the outcomes of the DDM and the Area Wide Pedestrian and Cycle Study.

3.1.12. The detailed design includes a shared pedestrian and cycle route with a clear width of at least 4m. Step free access is provided by a circular ramp with a gradient of less than the maximum 1 in 20 gradient recommended by the Sustrans Design Manual Handbook for Cycle-Friendly Design, April 2014[ii].

River Brent Re-alignment

3.1.13. The detailed design of the river alteration and diversion works have been developed in line with the parameters of the 2014 Permission, as such no significant alternatives were considered further by the Applicant.

3.1.14. Following regular consultation with the EA and based on outcomes of further detailed design assessment, mitigation options were proposed and agreed which have since been incorporated into

the detailed design of the river channel which is assessed within this Report. The inherent mitigation is detailed below:

- Source removal – targeted soil removal along the proposed channel route;
- Concrete lined channel – similar to what is currently employed, but disguised with the placement of soils and vegetation within the channel along its banks;
- High density polyethylene (HDPE) membrane – similar in concept to the concrete lined channel;
- Permeable reactive barriers – placed along the flow path of contaminated groundwater, they allow groundwater to flow through whilst treating/trapping contaminants; and
- Reed beds – by using microbes associated with woodland and wetland habitats to metabolise polluting chemicals.

Temporary Bus Station and Bus Stops (Plots 53 and 54)

3.1.15. A number of options were explored in 2014 to accommodate the existing bus operations at the Brent Cross Shopping Centre Bus Station which will require relocation during the construction works for Phase 1A (North), in particular as access will be lost during the River Brent realignment and Prince Charles Drive relocation.

3.1.16. Options included:

- keeping the bus station in its current location during Phase 1A (North) construction and providing alternative temporary access routes, however a temporary bus station location would still likely be required towards the end of 1A (North) construction prior to works commencing on the existing station;
- Constructing a temporary bus station in the south west Shopping Centre car park, Plot 114, to the South of the River Brent;
- Constructing a temporary bus station in the north west Shopping Centre car park, Plot 113, to the west of the existing John Lewis.

3.1.17. Waterman were commissioned to undertake a preliminary options assessment at Plot 113 and 114 during the early design evolution of the Temporary Bus Station. Several opportunities and constraints were considered for varying sites within the Shopping Centre car parks, some of which included:

- Traffic volumes and access to a temporary bus station site;
- Construction logistics in regard to the proposed use of the car parks for construction compounds and temporary car parks which would also be required during the same period as the temporary bus station operation;
- Brent Cross Shopping Centre operations and how the final location and operational hours would affect staff and customers;
- Operational considerations for TfL regarding the need for additional services, altered routes and/or timetables, level of disruption for passengers, staff and operators;
- Environmental considerations such as proximity to local residents (sensitive receptors) for both noise and air quality purposes and assessment of whether any existing vegetation would require removal.

3.1.18. The environmental assessments included a high level noise and air quality modelling exercise for both Plot 113 and 114. The preferred site for the Temporary Bus Station at Plot 113 due to its proximity to

the Shopping Centre was dismissed in 2014 due to concerns from LBB in relation to the proposed high bus operations and night services in close proximity of local residents. Following this preliminary study, it was agreed to proceed with the Temporary Bus Station at Plot 114 in the south west car park.

3.1.19. Following further consultation between the design team and key consultees it was suggested that bus stops should also be provided at Plot 113 (north west car park) to enable close drop off and pick up points for staff and customers of the Shopping Centre during daytime hours. A further design option was then assessed with the main bus station operations including bus stands for layovers, offices and welfare facilities located at Plot 114, and separately eight bus stops (four drop off and four pick up) located at Plot 113 for daytime operational hours (assessed 7am to 11pm).

3.1.20. The joint operations at Plot 113 and 114 has been taken forward for inclusion within the Infrastructure RMA for Phase 1A (North). Discussions are ongoing regarding operational hours with the environmental health officer (EHO) at LBB, the Applicant and the operator TfL. A full environmental impact assessment of the two locations and the proposed bus operations have been undertaken and are included within the relevant technical Chapters of this Report.

Open Spaces

Clitterhouse Playing Fields Improvements Part 1

3.1.21. A number of alternatives were considered during the course of the detailed design development to establish the most efficient and optimum layouts which take into account updated pitch requirements (as confirmed by LBB), and the aspiration of a local community group to retain the existing Clitterhouse Farm Buildings, which were previously shown as being demolished to make way for the Maintenance Store and Office, and Car Park area. The Design Development Report for Clitterhouse Playing Fields (extract included at **Appendix 3.1**) details these alternatives in full, although the main alternatives are summarised as follows:

- A change of use for Clitterhouse Farm Buildings to enable their retention and re-use rather than demolition as proposed in the s.73 Application. This has been largely due to aspirations of the local community group;
- Varying play space locations considered within the playing fields with final plans choosing to relocate to be closer to the park pavilion, parking area and central to all primary entrances (further options analysis provided in the Design Development Report for Clitterhouse Playing Fields);
- Varying parking and access road locations considered, with final plans choosing to move them further away from existing and proposed buildings;
- Access for maintenance vehicles considered and discrete access incorporated into the final design; and
- Varying locations for maintenance store and offices considered and final plans incorporate the Clitterhouse Farm Buildings whose use has changed through the Phase 1A (North) detailed design.

3.1.22. A series of alternatives were also considered by Macgregor Smith to explore the most efficient way of providing sports pitches, with the minimum impact on existing levels and adjacent paths, while at the same time providing improved gradients to the playing fields. A relevant extract from the Design Development Report is provided in **Appendix 3.1**.

3.1.23. Alternatives to the final play space strategy were also considered during design development, as presented in **Appendix 3.1**.

Claremont Park Improvements

3.1.24. The Claremont Park layout went through a number of design iterations, particularly in regard to providing inclusive access, level areas for playspace and level areas for access to the proposed future Claremont Park Road. There were no significant design alternatives considered for Claremont Park. The final design has been developed in accordance with the parameters of the 2014 Permission. Details of the design options can be found in the Design Development Report for the RMA by MacGregor Smith.

Central Brent Riverside Park

3.1.25. The Central Brent Riverside Park has evolved in parallel with the detailed design of the River Brent realignment works to maximise the amenity and biodiversity value of the final river channel route. The detailed design has evolved within the parameters of the 2014 Permission with no significant design alternatives considered for the Central Brent Riverside Park.

Plots 53 and 54 (Brent Terrace)

3.1.26. Following the production of a detailed design report for the buildings at Plots 53 and 54 (the Stage C Report), a series of workshops and meetings were held with LBB which have influenced the design of the final detailed design plans. The plots are designed to comply with the parameters and floorspace as set out in the RDSF of the s.73 Application. A summary of the pre-application meetings and the associated alternatives considered during the evolution of the design development of these plots is provided in **Table 3.1** below.

Table 3.1: Brent Terrace Design Evolution Consultation Timeline

	Jun-14	Jul-14	Aug-14	Oct-14
Units	60	60	52	478
Typology	Crescent typology with central car parking	Crescent typology with central car parking	Crescent typology with central car parking	Street frontage typology with de-centralised car parking
Distance to Rear Boundary	5m	7.5m	7.5-10.5m	10.5m
Orientation	House roof terraces face towards back gardens	House roof terraces face towards Brent Terrace	House roof terraces face towards Brent Terrace	House roof terraces face towards Brent Terrace

3.1.27. An extract from the Plots 53 and 54 Design Development Report is included at **Appendix 3.1**. Rather than 60 units being implemented as initially proposed, a reduced amount of units is now proposed within Plots 53 and 54 with a reduction in unit density of approximately 20%. The detailed design for this RMA now includes 30 units on Plot 53 (previously 39 units) and 178 units on Plot 54 (previously 21 units). The reduction in unit numbers has been primarily due to restrictions and consideration of the building height, distance to neighbouring buildings, compliance with design standards, daylight / sunlight issues and arrangement of proposed internal layout and tenure mix[iii] .

3.1.28. The reduction in unit numbers has allowed the length of the buildings to be reduced, increasing the distance from adjacent site boundaries, providing larger back gardens, and de-centralised the car parking provision.

References

i HMSO (2011); 'Statutory Instrument No. 1824 - Town and Country Planning (Environmental Impact Assessment) Regulations 2011'.

ii Sustrans (April 2014), Design Manual Handbook for Cycle-Friendly Design.

iii Haworth Tompkins (Oct 2014): 'Brent Cross, Cricklewood- Phase 1a (North) Design Development Report- Volume